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RICERCA DI SISTEMA ELETTRICO

Life Cycle Assessment di sistemi per le auto elettriche

Maurizio Cellura, Sonia Longo, Aldo Orioli

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LIFE CYCLE ASSESSMENT DI SISTEMI PER LE AUTO ELETTRICHE

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Report Ricerca di Sistema Elettrico
Accordo di Programma Ministero dello Sviluppo Economico – ENEA
Area: Razionalizzazione e risparmio nell'uso dell'energia elettrica
Progetto: Studio per lo sviluppo di materiali innovativi per il risparmio di energia nel settore elettrico con particolare attenzione ai materiali per i mezzi di trasporto collettivi: Nuovi materiali e componenti innovativi per i mezzi di trasporto

Responsabile Progetto: Giovanni Pede, ENEA

Inquadramento programmatico

Il Presente Report si inquadra nella Ricerca di Sistema Elettrico svolta dall'ENEA nell'ambito del relativo Accordo di Programma Ministero dello Sviluppo Economico – ENEA.

La Ricerca di Sistema ha come obiettivo l'innovazione del Sistema Elettrico per migliorarne l'economicità, la sicurezza e la compatibilità ambientale, assicurando al Paese le condizioni per uno sviluppo sostenibile.
Per lo svolgimento delle attività di ricerca e sviluppo previste dal Piano Triennale della Ricerca di Sistema Elettrico il Ministero dello Sviluppo Economico ha stipulato Accordi di Programma con ENEA, CNR ed ERSE.
Le attività sono finanziate attraverso un fondo alimentato dalla componente A5 della tariffa di fornitura dell'energia elettrica, il cui ammontare viene stabilito dall'Autorità per l'Energia Elettrica e il Gas.
Nell'Accordo di Programma sono previsti temi di ricerca fondamentale e studi di carattere sistemico e prenormativo a totale beneficio dell'utente di sistema elettrico nazionale.
Le ricerche sono condotte dall'ENEA in collaborazione con le principali Istituzioni universitarie nazionali (oltre 28 Atenei e 65 diversi Dipartimenti coinvolti) e con le partecipate SOTACARBO e FN Nuove Tecnologie Avanzate. Nell'ambito dell'Accordo di Programma Triennale, l'ENEA ha terminato le attività terzo anno di attività.

L'accordo è meglio definito da un piano annuale di realizzazione, suddiviso in Attività. Ogni attività ha un contesto scientifico-programmatico di riferimento, suddiviso in aree e tematiche di ricerca, in ognuna delle quali sono definiti specifici progetti di ricerca, a loro volta suddivisi in obiettivi da perseguire.

Nel dettaglio, l'inquadramento programmatico completo del presente report è il seguente:

Accordo di Programma MSE-ENEA: Attività di ricerca e sviluppo di interesse generale per il sistema elettrico nazionale
Piano Triennale 2006-2008
Piano annuale di realizzazione Terza annualità (2008-2009): da realizzarsi tra l'ottobre 2010 ed il settembre 2011
Attività: Risparmio di energia elettrica nei mezzi di trasporto: nuovi materiali e componenti innovativi per i mezzi di trasporto

Area di riferimento: razionalizzazione e risparmio nell'uso dell'energia elettrica
Tematica di ricerca: risparmio di energia elettrica nei mezzi di trasporto elettrici
Progetto 3.5: studio per lo sviluppo di materiali innovativi per il risparmio di energia nel settore elettrico con particolare attenzione ai materiali per i mezzi di trasporto collettivi: nuovi materiali e componenti innovativi per i mezzi di trasporto
Obiettivo D: Studio per lo sviluppo di materiali innovativi per il risparmio di energia nel settore elettrico con particolare attenzione ai materiali per i mezzi di trasporto collettivi: Nuovi materiali e componenti innovativi per i mezzi di trasporto.

INDICE

1. Scopo del documento 4
2. Analisi dello stato dell'arte internazionale sulla LCA applicata alle batterie al Li-Ione 5
3. Definizione dell'obiettivo e del campo di applicazione della valutazione LCA 9
3.1 Definizione dell'unità funzionale 9
3.2 Confini del sistema 11
3.3 Requisiti di qualità dei dati ed assunzioni dello studio 12
3.4 Definizione degli indici energetico – ambientali 13
3.5 Definizione del software LCA, dei database ambientali e dei metodi di valutazione degli impatti energetico – ambientali 13
4. Analisi dell'Inventario 13
4.1 Descrizione delle fasi analizzate 14
4.1.1 Fase di produzione della batteria 14
4.1.2 Fase d'uso 16
4.1.3 Fase di manutenzione 17
4.1.4 Fine vita 17
5. Organizzazione dei data sets primari in formato ILCD-compliant 18
6. Valutazione degli impatti 20
7. Interpretazione dei risultati 26
8. Conclusioni 27
9. Bibliografia 28
Allegato 1 30
Allegato 2 59
Allegato 3 76

1. Scopo del documento

Il documento descrive la valutazione delle prestazioni energetico – ambientali di batterie Li-Ione adatte all'alimentazione della propulsione elettrica pura, comprensive del sistema BMS (Battery Management System), realizzata tramite l'applicazione della metodologia dell'Analisi del Ciclo di Vita (Life Cycle Assessment – LCA), in accordo alle norme della serie ISO 14040 ed all'International Reference Life Cycle Data System (ILCD) Handbook.

L'attività è iniziata con un'analisi dettagliata dello stato dell'arte internazionale sulla LCA applicata alle batterie al Li-Ione, che ha definito il contesto scientifico di riferimento della valutazione energetico-ambientale condotta.

E' stata poi sviluppata una valutazione dei sistemi "batterie" tramite l'applicazione della metodologia LCA. Per valutare le prestazioni energetico – ambientali delle batterie è stata condotta una raccolta dati secondo un approccio di ciclo di vita, relativamente alle fasi di produzione, uso, manutenzione e fine vita. Questi dati raccolti (data sets primari) nella fase di Life Cycle Inventory (LCI) sono stati organizzati, per quanto possibile, in formato ILCD-compliant.

I risultati ottenuti sono stati sintetizzati in specifici indici prestazionali relativi ai consumi di risorse ed agli impatti ambientali e hanno permesso di stimare le prestazioni energetico – ambientali dei prodotti in esame e di individuare le fasi del ciclo di vita caratterizzate dai maggiori impatti.

2. Analisi dello stato dell'arte internazionale sulla LCA applicata alle batterie al Li-Ione

L'analisi dello stato dell'arte degli studi di LCA applicata alle batterie Li-Ione è stata condotta prendendo in esame i più recenti studi di letteratura inerenti a questi sistemi.

Dall'analisi dei pochi studi rilevati in letteratura [Boureima et al., 2009; Ishihara et al., 2006; Majeau-Bettez et al., 2011, Matheys et al, 2004, 2006, 2007, 2008, 2010; Notter et al., 2010; Samaras e Kyle, 2008; Schexnayder et al., 2001; Siret et al., 2009; Van den Bossche et al., 2006, Zackrisson et al, 2010], la cui sintesi è riportata nelle schede in Allegato 1, sono emerse delle considerazioni sia di carattere metodologico che applicativo, di seguito riassunte.

Da un punto di vista metodologico, si è rilevato che gli studi esaminati sono caratterizzati da differenti campi di applicazione dello studio e differenti metodi di valutazione degli impatti energetico – ambientali e risultano pertanto difficilmente comparabili.

In dettaglio, sono state individuate le seguenti criticità:

- Informazioni sulle caratteristiche del prodotto: alcuni studi forniscono informazioni dettagliate sulle caratteristiche tecniche, elettrochimiche e prestazionali della batteria mentre altri non riportano alcuna informazione in proposito.
- Selezione dell'unità funzionale: gli studi esaminati riferiscono i risultati a differenti unità funzionali, tra cui: kWh di capacità della batteria, kg di batteria, numero di batterie, distanza percorsa in km dal veicolo alimentato dalla batteria, MJ di energia accumulata nella batteria.

  La mancanza di informazioni dettagliate sulle caratteristiche del prodotto (di cui al punto precedente) spesso non consente di riportare i risultati degli studi ad una stessa unità funzionale e di effettuare una comparazione delle prestazioni energetico – ambientali dei sistemi esaminati.

  Al fine di rendere comparabili gli studi di LCA applicata alle batterie per autotrazione, Matheys et al. [2007] suggeriscono di valutare cinque differenti parametri, tra loro non indipendenti, nella selezione dell'unità funzionale: assumere un valore uguale di "depth of discharge" e di distanza percorsa dal veicolo durante la vita utile della batteria, calcolare il numero di batterie necessarie ad alimentare il veicolo durante la sua vita utile, includere nell'analisi la perdita di efficienza della batteria e il consumo energetico addizionale del veicolo dovuto al peso della batteria.
- Confini del sistema, regole di cut-off e di allocazione: riguardo alla scelta dei confini del sistema alcuni studi analizzano l'intero ciclo di vita della batteria, altri escludono dall'analisi la fase d'uso e/o di fine vita. Inoltre, i risultati dell'analisi spesso riportano gli impatti totali riferiti all'intero ciclo di vita, non è quindi possibile stimare l'incidenza sull'impatto totale di ogni fase del ciclo di vita esaminata.

Per quel che riguarda invece le regole di cut-off e di allocazione, spesso non sono riportate informazioni sulle scelte effettuate oppure le regole applicate risultano differenti da uno studio all'altro.

- Metodi di valutazione degli impatti: gli studi esaminati presentano i risultati in differenti categorie di impatto, stimate utilizzando metodi di valutazione differenti, che variano sia per la scelta delle sostanze climalteranti da includere nella valutazione e dei relativi fattori di caratterizzazione, sia per le unità di misura con cui vengono espressi i risultati finali. I risultati sono quindi funzione dei metodi di impatto selezionati, oltre che delle altre scelte metodologiche.
- Qualità dei dati: in riferimento ai requisiti di qualità dei dati indicati nell'ILCD Handbook [European Commission, 2010], la maggior parte degli studi riporta dei dati caratterizzati da una non completezza, rappresentatività e precisione; i metadati riportati nelle pubblicazioni sovente non consentono di valutare la qualità dello studio e la conformità dei dati ai requisiti di qualità previsti dall'ILCD Handbook.

Una sintesi degli studi di letteratura esaminati è riportata di seguito.

Majeau-Bettez et al. (2011) hanno effettuato uno studio per valutare gli impatti ambientali di una batteria al litio-ferro-fosfato (LFP) e di una batteria al litio-nickel-cobalto-manganese (NCM), selezionando come unità funzionale 50 MJ di energia accumulata dalla batteria e trasferita all'apparato propulsore del veicolo alimentato dalla stessa. I confini del sistema esaminato includono la fase di produzione di tutti i sub-componenti della batteria, l'assemblaggio e l'uso (carica-scarica) della batteria. I risultati ottenuti mostrano che per la batteria al LFP gli indicatori di impatto relativi all'effetto serra potenziale ed all'esaurimento dei combustibili fossili risultano, rispettivamente, 1,4 kg CO_{2eq} e 0,37 kg petrolio$_{eq}$, mentre per la batteria al NCM essi risultano, rispettivamente, 1,9 kg CO_{2eq} e 0,45 kg petrolio$_{eq}$. Altri indicatori di impatto sono riportati nelle Schede N.1 e 2 dell'Allegato 1.

Notter et al. (2010) hanno analizzato gli impatti connessi alle fasi di produzione e fine vita di tutti i sub-componenti di una batteria agli ioni di litio $LiMn_2O_4$, selezionando come unità funzionale 1 kg di batteria. L'analisi ha permesso di stimare un impatto potenziale sull'effetto serra di 6 kg CO_{2eq} ed una domanda di energia primaria non rinnovabile di 104 MJ. Altri indicatori di impatto sono riportati nella Scheda N.3 dell'allegato 1.

Van den Bossche et al. (2006) hanno esaminato una batteria agli ioni di litio (peso 92 kg) che consente al veicolo su cui è installata di percorrere 60 km con un depth-of-dicharge dell'80%. I confini del sistema includono: estrazione delle materie prime, produzione di materiali e componenti, uso della batteria nel veicolo, riciclo delle batterie di scarto, smaltimento finale o incenerimento. Il risultato dell'analisi è espresso in termini di eco-indicatore e risulta pari a 277,6 punti, di cui 361 connessi alla fase di produzione, 88,6 alla fase d'uso della batteria nel veicolo e -172 alla fase di riciclo a fine vita.

Ishihara et al. (2006) hanno valutato gli impatti connessi ad 1 kWh di di capacità energetica di una batteria, esaminando le fasi di produzione, raccolta a fine vita, riciclo delle batterie e smaltimento dei rifiuti. I risultati ottenuti sono riportati di seguito:

- Consumo di energia primaria (batteria per uso stazionario): 410 Mcal;
- Emissioni di CO_2 (batteria per uso stazionario): 90 kg;
- Consumo di energia primaria (batteria per uso in veicoli elettrici): 370 Mcal;
- Emissioni di CO_2 (batteria per uso in veicoli elettrici): 75 kg.

Siret, et al. hanno stimato gli impatti di 1 cella del tipo MP, considerando i seguenti confini del sistema: produzione del $LiCoO_2$, produzione dell'elettrodo positivo, assemblaggio della cella, riciclo della batteria. Il consumo di energia primaria e le emissioni di CO_2 connesse all'unità funzionale risultano pari, rispettivamente a circa 9 kWh e 580 g, e si riducono rispettivamente a circa 2,5 kWh e 150 g nell'ipotesi di riciclo del $LICoO_2$.

Samaras et al. (2008) hanno esaminato il processo di produzione di una batteria agli ioni di litio, selezionando come unità funzionale 1 kWh di capacità della batteria. Gli autori hanno stimato un consumo di energia primaria pari a 1.700 MJ e un effetto serra potenziale pari a 120 kg CO_{2eq}.

Schexnayder et al. (2001) hanno effettuato un'analisi LCA di 1 batteria (peso 40 kg), esaminando le seguenti fasi: estrazione delle materie prime, produzione e assemblaggio dei componenti della batteria, uso. Il consumo di energia connesso all'unità funzionale risulta pari a 21,47 MMBTU, mentre l'effetto serra potenziale è pari a 3.570,21 lbs CO_{2eq}.

Altri indicatori di impatto sono riportati nella Scheda N.8 dell'Allegato 1.

Zackrisson et al. (2010) hanno esaminato due tipologie di batterie che si differenziano sulla base del solvente utilizzato, che può essere acqua o N-methyl-2-pyrrolidone (NMP). L'unità funzionale selezionata è 1 batteria con 10 kWh di energia accumulata, che effettua 3.000 cicli di carica con un depth-of-dicharge dell'80% e che consente ad un veicolo di percorrere almeno 200000 km durante la vita utile del veicolo stesso.

I confini del sistema esaminato sono: estrazione delle materie prime, produzione e assemblaggio dei componenti della batteria, uso nel veicolo, raccolta della batteria a fine vita, processi di riciclo di quei componenti che vengono riutilizzati nella batteria.

I risultati, espressi in termini di effetto serra potenziale, sono pari a 4.400 kg CO_{2eq} e 3.400 kg CO_{2eq} rispettivamente per la batteria con NMP e per la batteria con acqua.

Messagie et al. (2010) hanno esaminato gli impatti connessi ad un veicolo elettrico alimentato con batterie agli ioni di litio, considerando come unità funzionale la distanza percorsa pari a 230.500 km, corrispondente ad una vita utile del veicolo di 13,7 anni. I confini del sistema esaminato includono: fase di estrazione delle materie prime, produzione e assemblaggio dei componenti del veicolo, trasporto del veicolo (con treno e camion) dall'azienda produttrice all'utente finale, uso e fine vita.

I risultati ottenuti, che mostrano l'incidenza della batteria sull'impatto totale del veicolo, sono riportati in dettaglio nella Scheda N.10 dell'Allegato 1.

Gli studi esaminati risultano purtroppo di difficile comparazione a causa di differenti scelte di tipo metodologico.
Nonostante ciò, analizzando i risultati degli studi sopra citati, è possibile trarre delle conclusioni di carattere generale:

- gli impatti ambientali relativi alla fase di produzione della batteria sono in parte annullati dai benefici connessi ai processi di riciclo alla fine della sua vita utile [Boureima et al., 2010; Matheys et al., 2007; Matheys et al., 2008; Siret et al, 2009; Van den Bossche et al., 2006];
- Un significativo impatto sul ciclo di vita della batteria è indotto dal consumo energetico (elettricità e combustibile) addizionale del veicolo per il trasporto della batteria stessa. Hanno altresì un'incidenza rilevante sull'impatto totale di ciclo di vita le perdite di energia durante la fase d'uso della batteria, connesse all'efficienza della stessa [Matheys et al., 2006; Matheys et al., 2008; Majeau-Bettez, 2011; Van den Bossche et al., 2006; Zackrisson et al., 2010];
- le batterie al litio-ferro-fosfato hanno impatti minori di quelle al litio-nickel-cobalto-manganese [Majeau-Bettez et al., 2011];
- la batteria agli ioni di litio ha impatti inferiori rispetto ad altre tipologie di batterie, quali le batterie al Piombo (Pb-Ac), al Nickel-Cadmio (NiCd), al Nickel-metallo idruro (NiMH), mentre ha impatti superiori rispetto alle batterie al sodio- cloruro di nickel (NaNiCl) [Matheys et al., 2006; Matheys et al., 2007; Matheys et al., 2008; Majeau-Bettez et al., 2011; Schexnayder et al., 2001; Van den Bossche et al., 2006].
- la batteria agli ioni di litio ha una bassa incidenza sugli impatti di ciclo di vita del veicolo in cui è installata, grazie anche ai benefici ambientali ottenuti a seguito del suo riciclo a fine vita [Boureima et al., 2009; Boureima et al., 2010; Messagie et al., 2010, Notter et al., 2010; Samaras et al., 2008].

3. Definizione dell'obiettivo e del campo di applicazione della valutazione LCA

La Valutazione del Ciclo di Vita inizia con la definizione dell'obiettivo e del campo di applicazione dello studio, la descrizione delle principali ipotesi ed assunzioni necessarie per eseguire l'analisi e la selezione degli indici energetico - ambientali da calcolare per la sintesi dei risultati.

Lo studio LCA ha l'obiettivo di stimare le prestazioni energetiche ed ambientali e le fasi di ciclo di vita caratterizzate dai maggiori impatti di tre tipologie di batterie di avviamento costituite da tre differenti tipologie di celle basate sulla tecnologia ferro-fosforo:

- Batterie con celle HP-PW-30AH;
- Batterie con celle HP-PW-60AH;
- Batterie con celle HP-PW-100AH.

3.1 Definizione dell'unità funzionale

L'unità funzionale (UF) è definita come l'elemento da utilizzare come unità di riferimento in uno studio di valutazione del ciclo di vita (ISO 14040, 2006). Essa deve essere compatibile con la funzione svolta dal sistema in esame e può essere intesa come l'unità di misura delle prestazioni del sistema stesso.

Considerato che la metodologia LCA è stata applicata a differenti tipologie di batterie di avviamento, sono state selezionate le seguenti UF:

- UF_1: N.1 batteria con celle al $LiFePO_4$ del tipo HP-PW-30AH;
- UF_2: N.1 batteria con celle al $LiFePO_4$ del tipo HP-PW-60AH;
- UF_3: N.1 batteria con celle al $LiFePO_4$ del tipo HP-PW-100AH.

Ogni batteria è costituita dai seguenti componenti principali:

- N.4 celle del tipo HP-PW;
- Box di contenimento della batteria, in acciaio inox;
- Sistema di raffreddamento della batteria, in acciaio inox;
- Battery Management System, costituito da una scheda elettronica, un lettore di corrente e dai cavetti per le connessioni alle singole celle.

Le celle che costituiscono le batterie in esame, prodotte dalla ditta Hipower, sono riportate in Figura 1.

Le caratteristiche tecniche delle celle sono riportate in Tabella 1-2-3.

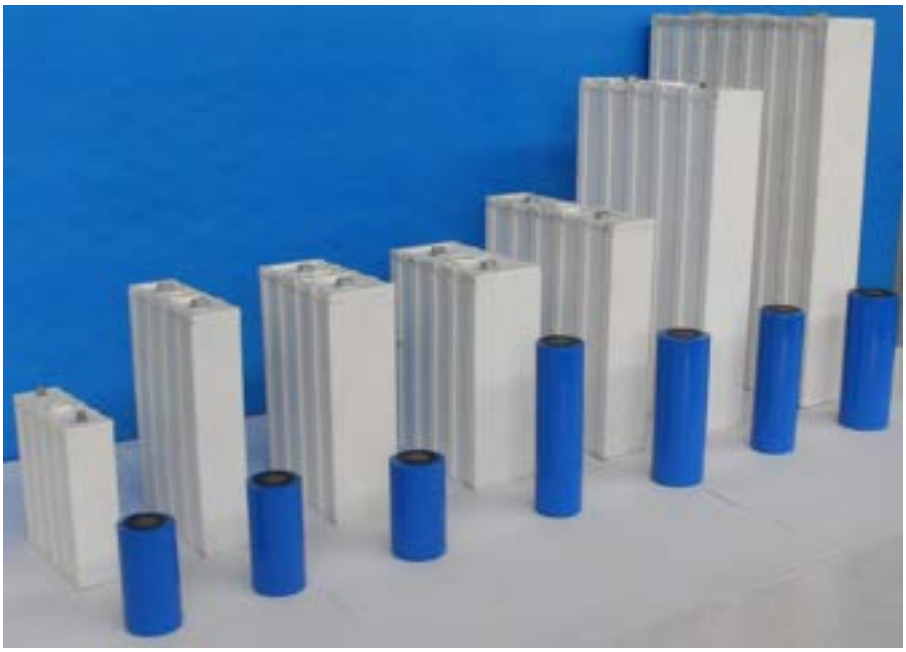

Figura 1: Batterie prodotte da Hipower

Tabella 1: Caratteristiche tecniche della cella del tipo HP-PW-30AH

Caratteristiche	Unità di misura	Valore
Capacità nominale	Ah	30
Voltaggio	V	3,2
Peso	kg	1,15
Dimensioni (incluse le parti terminali)	mm	103*58*168
Scarica (23 °C)		
Massima corrente continua	A	90
Corrente di picco (60 sec.)	A	150
Voltaggio di corto circuito	V	2,5
Carica		
Modalità di carica		CC/CV (3,65 V)
Massima corrente continua	A	30
Voltaggio di corto circuito	V	3,85

Tabella 2: Caratteristiche tecniche della cella del tipo HP-PW-60AH

Caratteristiche	Unità di misura	Valore
Capacità nominale	Ah	60
Voltaggio	V	3,2
Peso	kg	2,04
Dimensioni (incluse le parti terminali)	mm	114*61*203
Scarica (23 °C)		
Massima corrente continua	A	180
Corrente di picco (60 sec.)	A	300
Voltaggio di corto circuito	V	2,5
Carica		
Modalità di carica		CC/CV (3,65 V)
Massima corrente continua	A	60
Voltaggio di corto circuito	V	3,85

Tabella 3: Caratteristiche tecniche della cella del tipo HP-PW-100AH

Caratteristiche	Unità di misura	Valore
Capacità nominale	Ah	100
Voltaggio	V	3,2
Peso	kg	3,4
Dimensioni (incluse le parti terminali)	mm	163*51*278
Scarica (23 °C)		
Massima corrente continua	A	300
Corrente di picco (60 sec.)	A	500
Voltaggio di corto circuito	V	2,5
Carica		
Modalità di carica		CC/CV (3,65 V)
Massima corrente continua	A	100
Voltaggio di corto circuito	V	3,85

3.2 Confini del sistema

I confini del sistema includono (Figura 2):

- Produzione dei principali componenti della batteria;
- Uso della batteria;
- Manutenzione della batteria;
- Fine vita della batteria.

Sono stati escluse dall'analisi le seguenti fasi, per le quali, ad oggi, non è stato possibile reperire dati rappresentativi:

- Assemblaggio della cella;
- Trasporti delle materie prime dal luogo di produzione a quello di utilizzo;
- Trasporto della batteria dal luogo di assemblaggio a quello di utilizzo;
- Trasporto della batteria dal luogo di utilizzo all'impianto di trattamento/smaltimento;
- Consumo degli imballaggi, sia quelli utilizzati per l'approvvigionamento dei componenti necessari a realizzare la batteria, sia quelli impiegati per la batteria stessa.

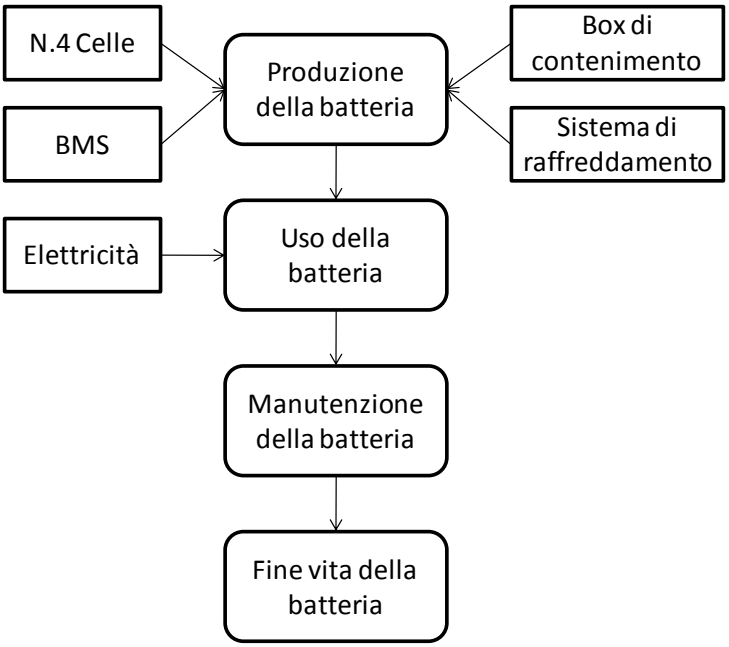

Figura 2: Confini del sistema esaminato

3.3 Requisiti di qualità dei dati ed assunzioni dello studio

La raccolta dei dati primari, relativi alla fase di produzione delle batterie, ha riguardato la preparazione di un questionario (Allegato 2), redatto in duplice lingua, italiana ed inglese, da inviare ad alcune ditte produttrici di batterie al Li-Ione e alla ditta Hipower, presso cui sono state acquistate le celle utilizzate nelle batterie oggetto dello studio.

L'unica risposta alla richiesta di dati è pervenuta dalla ditta Hipower, che ha inviato la scheda di sicurezza della cella di 100 Ah, che contiene informazioni sui materiali che costituiscono la cella e sul loro peso percentuale sul totale.

Sulla base di tali informazioni sono state stimate le masse di ciascun materiale costituente la cella, sia per la cella da 100 Ah che per quelle da 30 Ah e 60 Ah che, secondo le informazioni fornite dal produttore, sono realizzate con gli stessi materiali e con la stessa tecnologia produttiva.

I dati relativi ai materiali ed alle rispettive masse del box di contenimento della batteria sono stati stimati sulla base di informazioni fornite dall'ENEA, mentre i dati relativi agli altri componenti della batteria (BMS e sistema di raffreddamento), così come i consumi energetici in fase d'uso e gli impatti connessi alla fase di manutenzione, sono stati reperiti in letteratura.

Riguardo al fine vita della batteria si è ipotizzato che le celle siano avviate ad un processo di trattamento, mentre gli altri componenti (box di contenimento batteria e sistema di raffreddamento) siano avviati a riciclo, ipotizzando che i benefici e i costi energetico – ambientali connessi ai processi di riciclo siano allocati ai prodotti riciclati ottenuti.

Si è trascurato l'impatto dovuto al fine vita del BMS di cui non si ha alcuna informazione.

Gli eco-profili dei componenti della batteria e della cella sono stati reperiti da indagini di letteratura. Tali eco-profili sono riferiti al contesto europeo, ad eccezione del catodo, del nickel

e degli additivi carboniosi utilizzati nella cella e del circuito del BMS, i cui eco-profili sono riferiti al contesto mondiale.

3.4 Definizione degli indici energetico – ambientali

Gli indici energetico – ambientali selezionati per sintetizzare i dati di inventario e per stimare gli impatti connessi al ciclo di vita delle batterie in esame sono:

- Consumo di energia primaria rinnovabile e non rinnovabile;
- Effetto serra potenziale (Global Warming Potential – GWP);
- Distruzione dello strato di ozono (Ozone Depletion Potential - ODP);
- Formazione di ossidanti fotochimici (Photochemical Ozone Creation Potenzial - POCP);
- Eutrofizzazione potenziale (Eutrophication Potential – EP);
- Acidificazione potenziale (Acidification Potential – AP).

3.5 Definizione del software LCA, dei database ambientali e dei metodi di valutazione degli impatti energetico – ambientali

I dati relativi al ciclo di vita del sistema in esame, una volta raccolti, sono stati implementati nel software LCA SimaPro 7.

L'eco-profilo dei materiali e delle fonti energetiche impiegati nel ciclo di vita dell'unità funzionale sono stati reperiti tramite l'utilizzo dei database ambientali disponibili nel sofware SimaPro 7. In dettaglio, laddove possibile, si è fatto riferimento al database Ecoinvent.

I metodi di valutazione utilizzati per la stima degli impatti energetico –ambientali sono stati i seguenti:

- Cumulative Energy Demand, per la stima del consumo di energia primaria rinnovabile e non rinnovabile;
- EDP 2008, per la stima degli impatti ambientali indicati nel paragrafo 4.5.

4. Analisi dell'Inventario

L'analisi d'inventario (Life Cycle Inventory, LCI) consta nell'identificare e quantificare i dati relativi a flussi di energia, acqua e materiali ed alle emissioni nell'ambiente (es. emissioni in aria, in acqua, al suolo, rifiuti) per l'intero ciclo di vita del sistema analizzato.

I dati primari di inventario sono stati raccolti relativamente alle fasi di produzione, uso, manutenzione e fine vita delle batterie, secondo un approccio di ciclo di vita. L'organizzazione dei dati ottenuti nella fase di Life Cycle Inventory (data sets primari) è stata effettuata, per quanto possibile, nel formato ILCD-compliant.

I data sets primari costituiranno un primo nucleo di elementi per la realizzazione di una banca dati LCI specifica di settore valida in ambito nazionale, conforme alla banca dati dell'European Platform on Life Cycle Assessment.

4.1 Descrizione delle fasi analizzate

4.1.1 Fase di produzione della batteria

L'analisi della fase di produzione delle celle di 30, 60 e 100 Ah ha riguardato l'individuazione dei principali componenti che la costituiscono e dei relativi materiali e masse (Tabella 4).

Tabella 4: Componenti, materiali e masse della cella

Componenti	Composizione %	Cella 30 Ah (kg)	Cella 60 Ah (kg)	Cella 100 Ah (kg)
Foglio di alluminio (Al)	10	1,15E-01	2,04E-01	3,95E-01
Foglio in rame (Cu)	20	2,30E-01	4,08E-01	7,90E-01
Polivinildenfluoruro (PVDF)	3	3,45E-02	6,12E-02	1,19E-01
Grafite (C)	15	1,73E-01	3,06E-01	5,93E-01
Carbonato di etilene	0,5	5,75E-03	1,02E-02	1,98E-02
Acido ascorbico	0,2	2,30E-03	4,08E-03	7,90E-03
Nickel	0,2	2,30E-03	4,08E-03	7,90E-03
Alluminio	0,4	4,60E-03	8,16E-03	1,58E-02
Gomma	0,1	1,15E-03	2,04E-03	3,95E-03
Additivi carboniosi	1,9	2,19E-02	3,88E-02	7,51E-02
Litio-ferro-fosfato	45	5,18E-01	9,18E-01	1,78E+00
Materiale acrilico (grasso)	0,5	5,75E-03	1,02E-02	1,98E-02
Fosfato	0,2	2,30E-03	4,08E-03	7,90E-03
PE film/ PP film	3	3,45E-02	6,12E-02	1,19E-01

Tali dati sono stati stimati sulla base delle informazioni contenute nella scheda di sicurezza della cella di 100 Ah fornita dalla ditta produttrice Hipower.

Gli input necessari alla produzione di 1 kg di litio-ferro-fosfato (Tabella 5) sono stati reperiti in letteratura (Majeau-Bettez et al., 2011).

In Tabella 6 si riportano i materiali e le relative masse del box di contenimento della batteria e del sistema di raffreddamento per le tre UF_s esaminate.

In Tabella 7 si riportano i dati relativi ad 1 kg di Battery Management System, tratti da Majeau-Bettez et al. (2011).

Tabella 5: Input per la produzione di 1 kg di litio-ferro-fosfato

Input ed output	Quantità	U.M.
Lithium hydroxide, at plant	0,46	kg
Phosphoric acid, industrial grade, 85% in H2O, at plant	0,65	kg
Iron sulphate, at plant	1	kg
Water, deionised, at plant	46	kg
Chemical plant, organics	4*E-10	unità
Heat, unspecified, in chemical plant	15	MJ
Emissioni in aria: heat, waste	1,5	MJ
Emissioni in acqua: lithium, ion	0,1	kg
Emissioni in acqua: iron, ion	0,019	kg
Emissioni in acqua: phosphate	0,032	kg

Tabella 6: Input per la produzione del box di contenimento e del sistema di raffreddamento

	Box di contenimento batteria: acciaio inox (kg)	Sistema di raffreddamento: acciaio inox (kg)
Cella 30 Ah (kg)	4,16	2,58
Cella 60 Ah (kg)	4,862	3,02
Cella 100 Ah (kg)	6,384	3,96

Tabella 7: Input per la produzione di 1 kg di Battery Management System

Componenti	Quantità	U.M.
Integrated circuit, IC, logic type, at plant	0,1	kg
Copper, primary, at refinery	0,5	kg
Chromium steel 18/8, at plant	0,4	kg
Wire drawing, copper	0,5	kg
Sheet rolling, steel	0,4	kg

I dati relativi ai consumi energetici per l'assemblaggio della batteria e della cella sono stati trascurati per mancanza di informazioni attendibili.

Gli eco-profili dei materiali sono tratti dal database Ecoinvent. In Tabella 8 si riportano i materiali impiegati e i relativi processi selezionati dal database Ecoinvent.

Tabella 8: Componenti della batteria e relativi processi in Ecoinvent

Componenti della batteria	**Nome processo in Ecoinvent**
Cella	
Foglio di alluminio (Al)	Anode, aluminium electrolysis
Foglio in rame (Cu)	Cathode, copper, primary copper production
Polivinildenfluoruro (PVDF)	Tetrafluoroethylene, at plant
Grafite (C)	Graphite, battery grade, at plant
Carbonato di etilene	Ethylene carbonate
Nickel	Nickel, 99,5%, at plant
Alluminio	Aluminium, productrion mix, at plant
Gomma	Synthetic rubber
Additivi carboniosi	Carbon black, at plant

Litio ferro fosfato	vedi Tabella 6
Materiale acrilico (grasso)	Acrylic binder, 34% in H_2O, at plant
Polietilene	Polyethylene, LDPE, granulate, at plant
Polipropilene	Polypropylene, granulate, at plant
Box di contenimento batteria	Chromium steel 18/8, at plant
Sistema di raffreddamento	Chromium steel 18/8, at plant
Battery Management System	
Circuito	Integrated circuit, IC, logic type, at plant
Rame	Copper, primary, at refinery
Acciaio inox	Chromium steel 18/8, at plant
Processo di trafilatura rame	Wire drawing, copper
Lavorazione lamina di acciaio	Sheet rolling, steel

4.1.2 Fase d'uso

I consumi energetici durante la fase d'uso della batteria sono relativi a:

- Consumo di elettricità da parte del veicolo per il trasporto della batteria;
- Perdita di energia dovuta all'efficienza della batteria.

Al fine di stimare gli impatti energetico – ambientali connessi alla fase d'uso della batteria sono state effettuate le seguenti ipotesi [Zackrisson et al., 2010]:

- il veicolo su cui è installata la batteria ha un peso di 1600 kg e durante la sua vita utile percorre rispettivamente 7.680 km per la UF_1, 15.360 km per la UF_2 e 25.600 km per la UF_3;
- il 30% del consumo elettrico del veicolo è imputabile al peso del veicolo stesso;
- il consumo del veicolo è di 0,15 kWh/km;
- l'efficienza di carica della batteria è del 90%, conseguentemente il consumo "plug-to-wheel" è di 0,167 kWh/km;
- la batteria ha un'efficienza energetica del 90%.

Il consumo di energia necessario al trasporto della batteria da parte del veicolo è stata calcolata nel seguente modo:

(peso della batteria/peso veicolo) * 30%*0,167 kWh/km * km percorsi.

La perdita di energia dovuta all'efficienza della batteria è stata calcolata nel seguente modo:

(km percorsi* 0,15 kWh/km * 10% di perdite).

Considerando le tre differenti tipologie di batterie esaminate sono stati stimati i seguenti consumi di energia:

- UF_1: Batteria con celle da 30 Ah: 3 kWh + 115 kWh = 118 kWh;
- UF_2: Batteria con celle da 60 Ah: 8 kWh + 230,5 kWh = 238,5 kWh;
- UF_3: Batteria con celle da 100 Ah: 19,6 kWh + 384 kWh = 403,6 kWh.

4.1.3 Fase di manutenzione

Gli impatti energetico – ambientali connessi alla fase di manutenzione sono nulli poiché le celle agli ioni di litio non necessitano di alcuna attività di manutenzione durante la vita utile.

4.1.4 Fine vita

Al fine di analizzare la fase di fine vita delle celle sono stati utilizzati i dati relativi al modulo di Ecoinvent "Disposal, Li-ions batteries, mixed technology" che rappresenta il mix di due differenti tecnologie per il trattamento delle batterie agli ioni di litio: pirometallurgico e idrometallurgico. I dati sono riferiti al contesto mondiale.

Riguardo al fine vita del box di contenimento della batteria e del sistema di raffreddamento, si è ipotizzato che essi siano avviati a riciclo e che gli impatti/benefici connessi ai processi di riciclo siano imputati, come indicato precedentemente (par. 4.4) alla produzione di prodotti riciclati, pertanto tali processi non influenzano l'eco-profilo delle batterie in esame.

È stato trascurato il fine vita del BMS per mancanza di dati affidabili.

5. Organizzazione dei data sets primari in formato ILCD-compliant

I data sets primari ottenuti nella fase di Life Cycle Inventory, sono presentati in quattro categorie di impatto:

- consumo materie prime (compartimento prima);
- emissioni in aria (compartimento aria);
- emissioni in acqua (compartimento acqua);
- emissioni al suolo (compartimento terreno).

Per ciascun input o output, sono specificati:

- nome della sostanza;
- compartimento;
- sottocompartimento;
- unità di misura;
- valore.

In Allegato 3 si riportano i dati di inventario relativi alle tre UF_s esaminate con un dettaglio della fase di produzione, uso e fine vita delle stesse. Si riportano inoltre i dati di inventario di ciascuna tipologia di celle al Li-Ione.
In accordo all'ILCD Handbook, i dati di inventario sono stati corredati da metadati atti a garantire la trasparenza dello studio. I metadati, già riportati nei precedenti paragrafi, sono riassunti di seguito.

Tipologia di prodotto: Batteria di avviamento con celle al Li-Ione del tipo HP-PW.
Caratteristiche del prodotto: ciascuna batteria esaminata è costituita da 4 celle, da un box batteria, dal BMS e dal sistema di raffreddamento.
Anno dello studio: 2011.
Unità funzionale: N.1 batteria.
Confini del sistema: fase di produzione, uso, manutenzione e fine vita.
Qualità dei dati primari: i dati relativi ai componenti della singola cella sono stati forniti dall'azienda produttrice, mentre quelli relativi alla batteria sono stati stimati.
Qualità dei dati secondari: i dati sono stati reperiti tramite l'utilizzo del database Ecoinvent.
Rappresentatività temporale: dati primari riferiti al 2011; dati secondari riferiti al periodo precedente al 2011, con dati risalenti anche al 1990.
Rappresentatività geografica: i dati relativi alla cella sono riferiti alla produzione, mentre i dati relativi agli eco-profili dei componenti della batteria e della cella sono sono riferiti al

contesto europeo, ad eccezione del catodo, del nickel e degli additivi carboniosi utilizzati nella cella e del circuito del BMS, i cui eco-profili sono riferiti al contesto mondiale.

Rappresentatività tecnologica: tecnologia produttiva corrente.

6. Valutazione degli impatti

Il processo di stima delle prestazioni energetico – ambientali delle batterie Li-Ione, realizzato tramite l'applicazione della metodologia LCA, è stato effettuato tramite l'utilizzo di software specialistici per LCA e di database ambientali.

Come riportato precedentemente, in questo studio è stato utilizzato il software SimaPro 7 ver. 7.3.0 e i metodi di valutazione degli impatti Cumulative Energy Demand, per la stima del consumo di energia primaria rinnovabile e non rinnovabile, ed EDP 2008, per la stima degli impatti ambientali.

In Tabella 9 e 10 si riportano, rispettivamente, il consumo di energia primaria e gli impatti ambientali relativi alla fase di produzione delle tre UF_s.

In Tabella 11 e 12 si riportano, rispettivamente, il consumo di energia primaria e gli impatti ambientali relativi alla fase di produzione delle tre tipologie di celle, da 30Ah, 60 Ah e 100 Ah.

Il consumo di energia primaria e gli impatti ambientali connessi alle fasi di uso e fine vita sono riportati, rispettivamente, in Tabella 13, 14, 15 e 16.

Non vengono riportati dati sulla fase di manutenzione che non determina alcun impatto energetico – ambientale.

Tabella 9: Consumo di energia primaria fase di produzione UF_s

Batteria con celle da 30 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Celle	283,52	18,36
BMS	236,97	15,10
Box batteria	273,77	44,96
Sistema raffreddamento	169,79	27,88
Totale	964,06	106,30

Batteria con celle da 60 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Celle	502,89	32,58
BMS	473,94	30,19
Box batteria	319,97	52,55
Sistema raffreddamento	198,55	32,61
Totale	1495,35	147,92

Batteria con celle da 100 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Celle	838,09	54,29
BMS	789,89	50,32
Box batteria	420,14	68,99
Sistema raffreddamento	260,61	42,80
Totale	2308,74	216,40

Tabella 10: Impatti ambientali fase di produzione UF_s

Batteria con celle da 30 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Celle	53,70	2,4E-03	4,8E-02	0,53	0,62
BMS	15,61	2,1E-06	1,0E-02	0,07	0,23
Box batteria	18,76	1,2E-06	1,3E-02	0,09	0,04
Sistema raffreddamento	11,64	7,7E-07	8,2E-03	0,05	0,02
Totale	99,71	2,4E-03	8,0E-02	0,74	0,91

Batteria con celle da 60 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Celle	95,26	4,3E-03	8,6E-02	0,94	1,10
BMS	31,22	4,2E-06	2,1E-02	0,14	0,45
Box batteria	21,93	1,4E-06	1,5E-02	0,10	0,04
Sistema raffreddamento	13,61	9,0E-07	9,5E-03	0,06	0,03
Totale	162,01	4,3E-03	1,3E-01	1,25	1,62

Batteria con celle da 100 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Celle	158,76	7,1E-03	1,4E-01	1,57	1,83
BMS	52,04	6,9E-06	3,5E-02	0,24	0,76
Box batteria	28,79	1,9E-06	2,0E-02	0,13	0,06
Sistema raffreddamento	17,86	1,2E-06	1,3E-02	0,08	0,04
Totale	257,44	7,2E-03	2,1E-01	2,02	2,68

Tabella 11: Consumo di energia primaria fase di produzione cella

Cella 30 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Alluminio (collettore di corrente el. +)	6,22	0,03
Rame (collettore di corrente el. -)	11,14	2,74
Tetrafluoroetilene (legante)	7,19	0,30
Grafite (materiale attivo el. -)	11,56	0,20
Carbonato di etilene (Elettrolita)	0,22	0,004
Nichel	0,34	0,09
Alluminio	0,52	0,11
Gomma	0,11	0,002
Addiviti carboniosi	1,95	0,003
Litio ferro fosfato (materiale attivo el. +)	28,78	1,07
Materiale acrilico	0,23	0,004
Polietilene	1,35	0,02
Polipropilene	1,29	0,01
Totale	70,88	4,59

Cella 60 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Alluminio (collettore di corrente el. +)	11,04	0,05
Rame (collettore di corrente el. -)	19,75	4,86
Tetrafluoroetilene (legante)	12,75	0,53
Grafite (materiale attivo el. -)	20,50	0,36
Carbonato di etilene (Elettrolita)	0,40	0,01
Nichel	0,60	0,16
Alluminio	0,92	0,19
Gomma	0,18	0,004
Addiviti carboniosi	3,45	0,01
Litio ferro fosfato (materiale attivo el. +)	51,05	1,91
Materiale acrilico	0,40	0,01
Polietilene	2,39	0,04
Polipropilene	2,28	0,01
Totale	125,72	8,14

Cella 100 Ah	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Alluminio (collettore di corrente el. +)	18,40	0,08
Rame (collettore di corrente el. -)	32,92	8,10
Tetrafluoroetilene (legante)	21,25	0,89
Grafite (materiale attivo el. -)	34,16	0,60
Carbonato di etilene (Elettrolita)	0,66	0,01
Nichel	1,00	0,27
Alluminio	1,53	0,32
Gomma	0,30	0,01
Addiviti carboniosi	5,74	0,01
Litio ferro fosfato (materiale attivo el. +)	85,09	3,18
Materiale acrilico	0,67	0,01
Polietilene	3,99	0,07
Polipropilene	3,81	0,02
Totale	209,52	13,57

Tabella 12: Impatti ambientali fase di produzione cella

Cella 30 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Alluminio (collettore di corrente el. +)	0,11	4,7E-08	1,8E-04	6,9E-04	1,3E-04
Rame (collettore di corrente el. -)	0,72	6,4E-08	6,9E-03	1,1E-01	1,3E-01
Tetrafluoroetilene (legante)	10,17	6,0E-04	3,4E-04	3,7E-03	7,8E-04
Grafite (materiale attivo el. -)	0,26	1,2E-07	2,8E-03	1,4E-03	1,4E-03
Carbonato di etilene (Elettrolita)	0,01	3,4E-10	8,9E-06	2,1E-05	1,0E-05
Nichel	0,02	2,1E-09	1,8E-04	3,3E-03	3,1E-04
Alluminio	0,04	2,4E-09	2,3E-05	1,6E-04	6,6E-05
Gomma	0,00	7,0E-10	5,3E-06	1,1E-05	4,4E-06
Addiviti carboniosi	0,05	2,5E-08	2,9E-05	1,3E-04	1,8E-05
Litio ferro fosfato (materiale attivo el. +)	1,95	2,4E-07	1,4E-03	1,6E-02	2,6E-02
Materiale acrilico	0,01	8,1E-10	9,6E-06	2,7E-05	1,2E-05
Polietilene	0,04	1,1E-11	9,0E-05	1,2E-04	1,1E-05
Polipropilene	0,03	8,6E-12	6,9E-05	9,4E-05	1,2E-05
Totale	13,42	6,0E-04	1,2E-02	1,3E-01	1,5E-01

Cella 60 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Alluminio (collettore di corrente el. +)	0,20	8,4E-08	3,2E-04	1,2E-03	2,3E-04
Rame (collettore di corrente el. -)	1,28	1,1E-07	1,2E-02	1,9E-01	2,2E-01
Tetrafluoroetilene (legante)	18,04	1,1E-03	6,0E-04	6,5E-03	1,4E-03
Grafite (materiale attivo el. -)	0,46	2,1E-07	5,0E-03	2,5E-03	2,5E-03
Carbonato di etilene (Elettrolita)	0,01	5,9E-10	1,6E-05	3,8E-05	1,8E-05
Nichel	0,04	3,7E-09	3,2E-04	5,9E-03	5,5E-04
Alluminio	0,07	4,3E-09	4,2E-05	2,8E-04	1,2E-04
Gomma	0,01	1,2E-09	8,8E-06	1,9E-05	7,4E-06
Addiviti carboniosi	0,09	4,4E-08	5,1E-05	2,2E-04	3,1E-05
Litio ferro fosfato (materiale attivo el. +)	3,46	4,3E-07	2,5E-03	2,9E-02	4,6E-02
Materiale acrilico	0,01	1,4E-09	1,7E-05	4,8E-05	2,2E-05
Polietilene	0,06	2,0E-11	1,6E-04	2,1E-04	2,0E-05
Polipropilene	0,06	1,5E-11	1,2E-04	1,7E-04	2,1E-05
Totale	23,81	1,1E-03	2,1E-02	2,3E-01	2,7E-01

Cella 100 Ah	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_4^{3-}{}_{eq}$)
Alluminio (collettore di corrente el. +)	0,34	1,4E-07	5,3E-04	2,0E-03	3,8E-04
Rame (collettore di corrente el. -)	2,13	1,9E-07	2,0E-02	3,2E-01	3,7E-01
Tetrafluoroetilene (legante)	30,07	1,8E-03	1,0E-03	1,1E-02	2,3E-03
Grafite (materiale attivo el. -)	0,77	3,5E-07	8,3E-03	4,2E-03	4,2E-03
Carbonato di etilene (Elettrolita)	0,02	9,9E-10	2,6E-05	6,3E-05	3,1E-05
Nichel	0,07	6,2E-09	5,3E-04	9,7E-03	9,2E-04
Alluminio	0,11	7,1E-09	6,9E-05	4,6E-04	2,0E-04
Gomma	0,01	2,0E-09	1,5E-05	3,2E-05	1,3E-05
Addiviti carboniosi	0,15	7,4E-08	8,4E-05	3,7E-04	5,2E-05
Litio ferro fosfato (materiale attivo el. +)	5,77	7,2E-07	4,2E-03	4,8E-02	7,7E-02
Materiale acrilico	0,02	2,4E-09	2,8E-05	8,0E-05	3,6E-05
Polietilene	0,11	3,3E-11	2,7E-04	3,5E-04	3,3E-05
Polipropilene	0,10	2,5E-11	2,0E-04	2,8E-04	3,4E-05
Totale	39,69	1,8E-03	3,6E-02	3,9E-01	4,6E-01

Tabella 13: Consumo di energia primaria fase d'uso delle UF_s

	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Batteria con celle da 30 Ah	1328,82	120,75
Batteria con celle da 60 Ah	2683,99	243,90
Batteria con celle da 100 Ah	4546,43	413,15

Tabella 14: Impatti ambientali fase d'uso delle UF_s

	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_43\text{-}_{eq}$)
Batteria con celle da 30 Ah	66,03	3,3E-06	2,0E-02	0,26	0,20
Batteria con celle da 60 Ah	133,36	6,7E-06	4,1E-02	0,52	0,40
Batteria con celle da 100 Ah	225,91	1,1E-05	6,9E-02	0,89	0,68

Tabella 15: Consumo di energia primaria fase di fine vita delle UF_s

	Energia non rinnovabile (MJ)	Energia rinnovabile (MJ)
Batteria con celle da 30 Ah	51,93	3,27
Batteria con celle da 60 Ah	92,12	5,80
Batteria con celle da 100 Ah	153,54	9,66

Tabella 16: Impatti ambientali fase di fine vita delle UF_s

	GWP (kg CO_{2eq})	ODP (kg CFC-11_{eq})	POCP (kg C_2H_{4eq})	AP (kg SO_{2eq})	EP (kg $PO_43\text{-}_{eq}$)
Batteria con celle da 30 Ah	1,07	5,6E-08	6,8E-04	0,01	0,00
Batteria con celle da 60 Ah	1,90	1,0E-07	1,2E-03	0,02	0,00
Batteria con celle da 100 Ah	3,16	1,7E-07	2,0E-03	0,03	0,01

Relativamente al consumo di energia primaria i risultati ottenuti hanno evidenziato che la fase d'uso (Figure 3-4-5) delle batterie è responsabile dei maggiori impatti energetico – ambientali (dal 56 al 63%) durante l'intero ciclo di vita. Trascurabile risulta invece la fase di fine vita, i cui impatti sono pari circa al 2% del totale. La fase di produzione incide sul totale degli impatti energetico-ambientali per una percentuale variabile dal 35 al 42%.

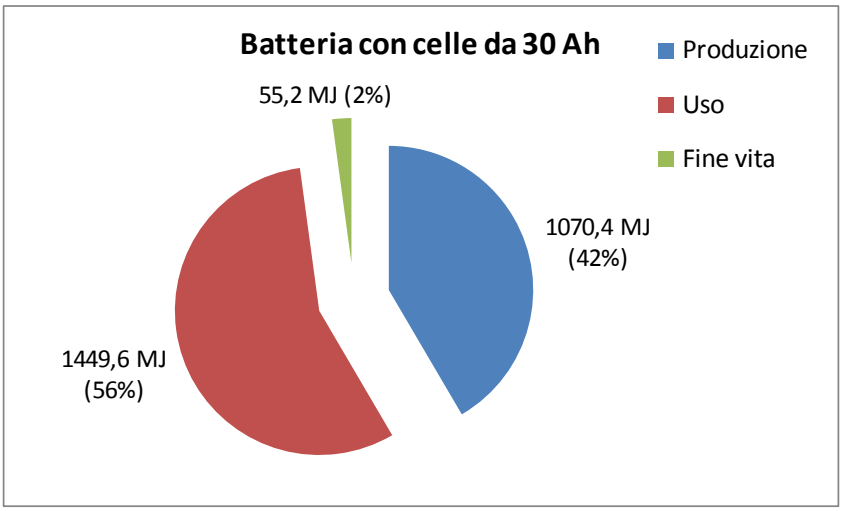

Figura 3: Consumo di energia primaria, incidenza % delle varie fasi del ciclo di vita

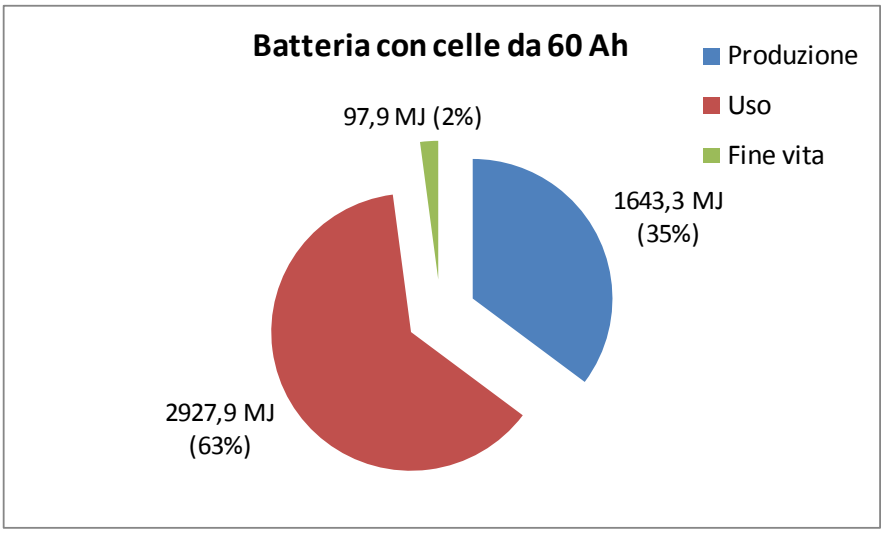

Figura 4: Consumo di energia primaria, incidenza % delle varie fasi del ciclo di vita

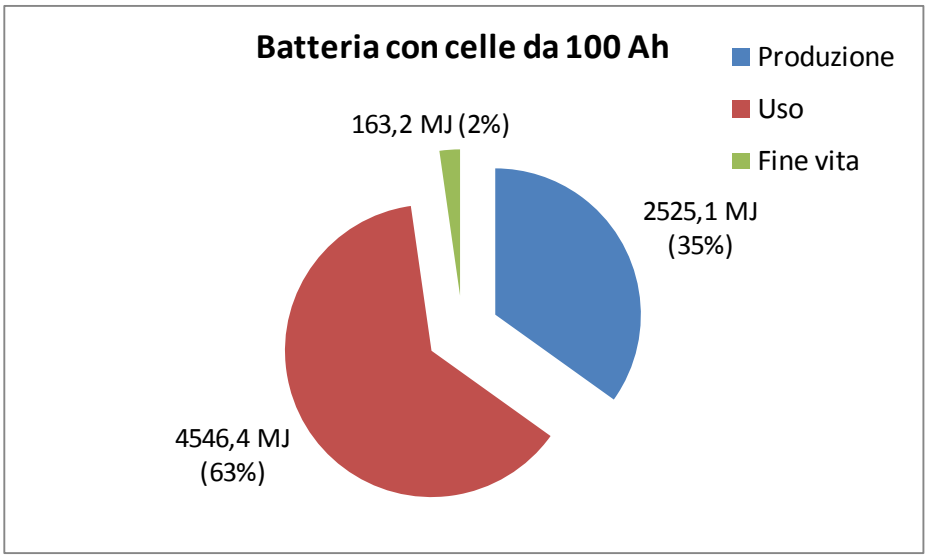

Figura 5: Consumo di energia primaria, incidenza % delle varie fasi del ciclo di vita

7. Interpretazione dei risultati

I risultati dell'analisi di inventario devono essere interpretati in accordo all'obiettivo ed al campo di applicazione dello studio.

Lo studio LCA effettuato ha avuto come obiettivo la stima delle prestazioni energetiche ed ambientali di tre tipologie di batterie di avviamento e l'individuazione delle fasi di ciclo di vita delle batterie caratterizzate dai maggiori impatti.

I risultati ottenuti hanno consentito di raggiungere l'obiettivo prefissato, nel rispetto delle scelte effettuate nella fase di definizione del campo di applicazione dello studio.

La scelta dell'unità funzionale e dei confini del sistema è risultata appropriata in relazione all'obiettivo dello studio.

Sono state tuttavia evidenziate delle limitazioni dello studio legate alla difficoltà di reperire dati primari inerenti il ciclo di vita delle batterie. Si sottolinea comunque che i dati relativi ai materiali e componenti delle celle, che rappresentano l'elemento fondamentale della batteria, sono stati forniti direttamente dall'azienda produttrice.

Si sottolinea infine che i risultati di inventario e gli impatti energetico – ambientali connessi alla fase d'uso riguardano l'uso delle batterie in specifiche condizioni di utilizzo, riportate nel paragrafo 5.1.2.

8. Conclusioni

Lo studio ha avuto come obiettivo la valutazione delle prestazioni energetico – ambientali di batterie Li-Ione adatte all'alimentazione della propulsione elettrica pura, comprensive del sistema BMS (Battery Management System). L'analisi è stata realizzata tramite l'applicazione della metodologia dell'Analisi del Ciclo di Vita (Life Cycle Assessment – LCA), in accordo alle norme della serie ISO 14040. I data sets primari sono stati strutturati in accordo alle indicazioni contenute nell'International Reference Life Cycle Data System (ILCD) Handbook.
L'attività è stata suddivisa in tre sub-attività:

- analisi dettagliata dello stato dell'arte internazionale sulla LCA applicata alle batterie al Li-Ione;
- valutazione delle prestazioni energetico – ambientali di tre differenti tipologie di batterie con celle al Li-Ione tramite l'applicazione della metodologia LCA;
- organizzazione dei datasets primari ottenuti nella fase di analisi di inventario in formato ILCD-compliant.

9. Bibliografia

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Allegato 1
Schede dei dati raccolti nell'analisi dello stato dell'arte.

Autori	Anno di pubblicazione	Unità funzionale	Confini del sistema	Indicatori di impatto
Majeau-Bettez et al.	2011	50 MJ di energia accumulata nella batteria e trasferita all'apparato propulsore del veicolo.	- Produzione dei sub-componenti; - Assemblaggio della batteria; - Uso (carica-scarica della batteria).	- Effetto serra potenziale; - Esaurimento di combustibili fossili; - Ecotossicità ed eutrofizzazione in acqua dolce, marina e terrestre; - Tossicità umana; - Esaurimento di metalli; - Distruzione dello strato di ozono; - Formazione di particolato.
Notter et al.	2010	1 kg di batteria	- Produzione dei sub-componenti; - Fine vita.	- Ecoindicatore (EI 99 H/A); - Domanda di energia primaria non rinnovabile; - Effetto serra potenziale; - Esaurimento delle risorse abiotiche.
Van den Bossche et al. Matheys et al.	2006 2004, 2007, 2008,	Batteria che consente al veicolo di percorre 60 km con un depth-of-disharge dell'80%	- Estrazione delle materie prime; - Produzione di materiali e componenti; - Uso della batteria nel veicolo; - Riciclo delle batterie di scarto; - Smaltimento finale o incenerimento.	- Ecoindicatore (EI 99 H/A)
Ishihara et al.	2006	1 kWh di capacità energetica della batteria	- Produzione; - Raccolta a fine vita; - Riciclo delle batterie e smaltimento dei rifiuti.	- Consumo di energia primaria; - Emissioni di CO_2.
Siret et al.	2009	1 cella MP Saft	- Produzione del $LiCoO_2$; - Produzione dell'elettrodo positivo; - Assemblaggio della cella;	- Consumo di energia primaria; - Emissioni di CO_2.

			- Riciclo della batteria.	
Samaras et al.	2008	1 kWh di capacità della batteria.	- Produzione della batteria.	- Consumo di energia primaria; - Effetto serra potenziale.
Schexnayder et al.	2001	1 batteria	- Estrazione delle materie prime; - Produzione e assemblaggio dei componenti della batteria; - Uso della batteria.	- Uso di risorse non rinnovabili; - Uso di risorse rinnovabili; - Consumo di energia; - Effetto serra potenziale; - Distruzione dell'ozono stratosferico; - Acidificazione; - Formazione di smog; - Particolato; - Eutrofizzazione; - Qualità dell'acqua – BOD; - Qualità dell'acqua – TSS; - Uso del suolo in discarica per rifiuti solidi; - Uso del suolo in discarica per rifiuti pericolosi.
Zackrisson et al.	2010	1 batteria con 10 kWh di energia accumulata, che effettua 3.000 cicli di carica con un depth-of-dicharge dell'80% e che consente ad un veicolo di percorrere almeno 200000 km durante la vita utile del veicolo stesso	- estrazione delle materie prime; - produzione e assemblaggio dei componenti della batteria; - uso nel veicolo; - raccolta della batteria a fine vita; - processi di riciclo di quei componenti che vengono riutilizzati nella batteria stessa.	- Effetto serra potenziale
Messagie et al. Boureima et al.	2010 2009	Distanza percorsa dal veicolo pari a 230.500 km, corrispondente ad una vita utile del veicolo di 13,7 anni.	- Estrazione delle materie prime; - Produzione e assemblaggio dei componenti del veicolo; - Trasporto del veicolo dall'azienda produttrice all'utente finale;	- Acidificazione dell'aria; - Eutrofizzazione; - Salute umana; - Effetto serra potenziale.

			- Uso; - Fine vita.	

Scheda N.1

1. Prodotto: Batteria al litio-ferro-fosfato (LFP)

2. Autori e riferimenti bibliografici:

Guillaume Majeau-Bettez, Troy R. Hawkins, Andres Hammer Strømman, Life Cycle Environmental Assessment of Lithium-Ion and Nickel Metal Hydride Batteries for Plug-In Hybrid and Battery Electric Vehicles, Environmental Science & Technology, Article ASAP, DOI: 10.1021/es103607c, April 20, 2011, available on: http://pubs.acs.org/doi/abs/10.1021/es103607c

3. Caratteristiche del prodotto

Proprietà elettrochimiche
Voltaggio della cella (V): 3,4
Capacità dell'elettrodo positivo ($mAh \cdot g^{-1}$): 120
Capacità dell'elettrodo negativo ($mAh \cdot g^{-1}$): 350
Profondità di scarica – DoD (%): 80
Efficienza energetica in carica e scarica (%): 90
Vita utile (cicli di carica-scarica): 6000.
Composizione in massa (%)
Elettrodo positivo: 24,8
Elettrodo negativo: 8,0
Separatore: 3,3
Substrato elettrodo positivo: 3,6
Substrato elettrodo negativo: 8,3
Elettrolita: 12,0
Contenitore delle celle: 20,0
Involucro modulo e batteria: 17,0
Battery Magnagement System (BMS): 3,0
Prestazioni della batteria
Capacità nominale della cella ($Ah \cdot kg_{cell}^{-1}$): 32,3
Densità energetica nominale della cella ($Wh \cdot kg_{cell}^{-1}$): 110
Densità energetica della batteria ($Wh \cdot kg^{-1}$): 88,0
Densità di potenza della batteria ($W \cdot kg^{-1}$): 400-800.

4. Metadati

Unità funzionale (U.F.): 50 MJ di energia accumulata dalla batteria e trasferita all'apparato propulsore del veicolo alimentato dalla stessa.

Confini del sistema: fase di produzione di tutti i sub-componenti (Figura A) e assemblaggio della batteria; fase d'uso (carica-scarica della batteria).

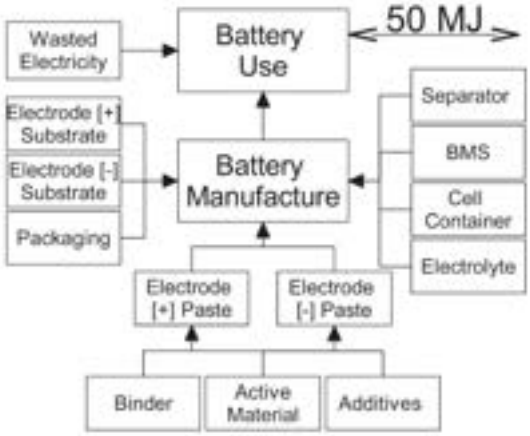


Figura A: Confini del sistema

Regole di cut-off: -

Regole di allocazione: -

Qualità dei dati: I dati dello studio sono stati reperiti prevalentemente in letteratura. Gli ecoprofili di materiali e componenti sono riferiti al database Ecoinvent 2.2 e riguardano il contesto medio europeo.

5. Analisi di Inventario

Informazioni dettagliate sui dati di inventario della batteria e di ciascun sub-componente sono riportati su:
http://pubs.acs.org/doi/suppl/10.1021/es103607c/suppl_file/es103607c_si_001.pdf

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: metodo ReCiPe

Indici di impatto	Totale
Effetto serra potenziale	1,4 [kg CO_{2eq}]
Esaurimento di combustibili fossili	0,37 [kg petrolio$_{eq}$]
Ecotossicità in acqua dolce	3,4E-02 [kg 1,4-DCB_{eq}]
Eutrofizzazione in acqua dolce	2,0E-03 [kg P_{eq}]
Tossicità umana	2,7 [kg 1,4-DCB_{eq}]
Ecotossicità marina	3,7E-02 [kg 1,4-DCB_{eq}]
Eutrofizzazione marina	1,9E-03 [kg P_{eq}]

Esaurimento di metalli	0,30 [kg Fe_{eq}]
Distruzione dello strato di ozono	7,5E-06[kg CFC-11_{eq}]
Formazione di particolato	2,1E-03[kg $PM10_{eq}$]
Acidificazione terrestre	6,5E-03[kg SO_{2eq}]
Ecotossicità terrestre	1,7E-04[kg 1,4-DCB_{eq}]

Informazioni dettagliate sugli impatti di ciascun sub-componente della batteria sono riportati nella tabella seguente.

		Battery Use	Battery & Components Manufacture	Positive Electrode Paste	Negative Electrode Paste	Electrolyte	Separator	Cell Container	Module & Battery Casing	BMS	Substrate of Negative Electrode	Substrate of Positive Electrode	Electricity Consumed by Battery
GWP_{100}	*kg CO2-eq*	7.8E-6	2.0E-1	2.5E-1	4.7E-2	7.8E-3	3.8E-3	6.1E-2	2.3E-2	1.0E-1	9.7E-3	1.1E-2	7.4E-1
FDP	*kg oil-eq*	2.7E-6	6.4E-2	1.7E-2	2.4E-3	5.3E-3	2.4E-3	1.6E-2	1.2E-2	2.7E-2	2.9E-3	2.8E-3	2.1E-1
$FETP_{inf}$	*kg 1,4-DCB-eq*	2.3E-8	1.9E-3	4.8E-4	3.5E-5	4.0E-5	2.1E-5	6.6E-4	1.7E-4	1.0E-2	9.9E-3	1.2E-4	1.0E-2
FEP	*kg P-eq*	1.4E-9	1.3E-4	1.2E-4	2.0E-6	2.0E-6	1.1E-6	2.8E-5	1.0E-5	5.1E-4	4.9E-4	5.0E-6	7.3E-4
HTP_{inf}	*kg 1,4-DCB-eq*	1.1E-6	8.7E-2	3.3E-2	4.7E-3	2.0E-3	9.9E-4	2.7E-2	9.3E-3	8.7E-1	1.1E+0	4.9E-3	4.8E-1
$METP_{inf}$	*kg 1,4-DCB-eq*	4.4E-8	1.9E-3	5.0E-4	3.8E-5	3.9E-5	1.9E-5	6.9E-4	1.8E-4	1.0E-2	1.3E-2	1.2E-4	1.0E-2
MEP	*kg N-eq*	1.5E-8	1.6E-4	3.7E-4	1.0E-4	3.5E-6	1.9E-6	3.6E-5	1.3E-5	2.0E-4	1.3E-4	6.5E-6	8.4E-4
MDP	*kg Fe-eq*	1.1E-7	1.9E-3	3.1E-3	2.5E-4	4.1E-4	1.3E-4	3.0E-3	1.4E-3	1.2E-1	1.6E-1	5.5E-4	8.0E-3
ODP_{inf}	*kg CFC-11-eq*	8.9E-13	1.6E-8	6.1E-6	1.2E-6	6.7E-10	9.4E-10	4.1E-9	5.6E-9	1.1E-8	7.8E-10	7.4E-10	3.6E-8
PMFP	*kg PM10-eq*	4.9E-8	2.0E-4	9.9E-5	7.6E-6	9.3E-6	4.3E-6	1.2E-4	2.7E-5	2.4E-4	4.2E-4	2.1E-5	9.7E-4
POFP	*kg NMVOC*	1.2E-7	3.5E-4	1.4E-4	1.4E-5	2.5E-5	1.3E-5	1.5E-4	6.3E-5	4.4E-4	2.7E-4	2.8E-5	1.5E-3
TAP_{100}	*kg SO2-eq*	1.6E-7	6.2E-4	3.4E-4	2.6E-5	2.8E-5	1.3E-5	2.5E-4	7.8E-5	7.0E-4	1.3E-3	4.5E-5	3.1E-3
$TETP_{inf}$	*kg 1,4-DCB-eq*	7.2E-10	1.4E-5	7.7E-6	6.2E-7	6.6E-7	1.8E-7	5.8E-6	1.9E-6	2.4E-5	6.3E-5	1.1E-6	5.6E-5

Scheda N.2

1. Prodotto: Batteria al litio-nickel-cobalto-manganese (NCM)

2. Autori e riferimenti bibliografici:

Guillaume Majeau-Bettez, Troy R. Hawkins, Andres Hammer Strømman, Life Cycle Environmental Assessment of Lithium-Ion and Nickel Metal Hydride Batteries for Plug-In Hybrid and Battery Electric Vehicles, Environmental Science & Technology, Article ASAP, DOI: 10.1021/es103607c, April 20, 2011, available on http://pubs.acs.org/doi/abs/10.1021/es103607c

3. Caratteristiche del prodotto

Proprietà elettrochimiche
Voltaggio della cella (V): 3,7
Capacità dell'elettrodo positivo ($mAh \cdot g^{-1}$): 150
Capacità dell'elettrodo negativo ($mAh \cdot g^{-1}$): 350
Profondità di scarica – DoD (%): 80
Efficienza energetica in carica e scarica (%): 90
Vita utile (cicli di carica-scarica): 3000.
Composizione in massa (%)
Elettrodo positivo: 23,2
Elettrodo negativo: 9,4
Separatore: 3,3
Substrato elettrodo positivo: 3,6
Substrato elettrodo negativo: 8,3
Elettrolita: 12,0
Contenitore delle celle: 20,1
Involucro modulo e batteria: 17,0
Battery Magnagement System (BMS): 3,0
Prestazioni della batteria
Capacità nominale della cella ($Ah \cdot kg_{cell}^{-1}$): 37,9
Densità energetica nominale della cella ($Wh \cdot kg_{cell}^{-1}$): 140
Densità energetica della batteria ($Wh \cdot kg^{-1}$): 112
Densità di potenza della batteria ($W \cdot kg^{-1}$): 400-800.

4. Metadati

Unità funzionale (U.F.): 50 MJ di energia accumulata dalla batteria e trasferita all'apparato propulsore del veicolo alimentato dalla stessa.

Confini del sistema: fase di produzione di tutti i sub-componenti (Figura B) e assemblaggio della batteria; fase d'uso (carica-scarica della batteria).

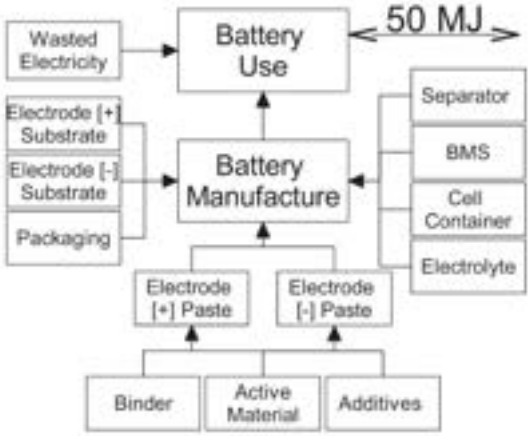


Figura B: Confini del sistema

Regole di cut-off: -

Regole di allocazione: -

Qualità dei dati: I dati dello studio sono stati reperiti prevalentemente in letteratura. Gli ecoprofili di materiali e componenti sono riferiti al database Ecoinvent 2.2 e riguardano il contesto medio europeo.

5. Analisi di Inventario

Informazioni dettagliate sui dati di inventario della batteria e di ciascun sub-componente sono riportati su:
http://pubs.acs.org/doi/suppl/10.1021/es103607c/suppl_file/es103607c_si_001.pdf

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: metodo ReCiPe

Indici di impatto	Totale
Effetto serra potenziale (GWP_{100})	1,9 [kg CO_{2eq}]
Esaurimento di combustibili fossili (FDP)	0,45 [kg petrolio$_{eq}$]
Ecotossicità in acqua dolce (FETP)	5,1E-02 [kg 1,4-DCB_{eq}]
Eutrofizzazione in acqua dolce (FEP)	2,7E-03 [kg P_{eq}]
Tossicità umana (HTP)	4,1 [kg 1,4-DCB_{eq}]
Ecotossicità marina (METP)	5,6E-02 [kg 1,4-DCB_{eq}]
Eutrofizzazione marina (MEP)	2,5E-03 [kg P_{eq}]

Esaurimento di metalli (MDP)	0,85 [kg Fe_{eq}]
Distruzione dello strato di ozono (ODP)	1,1E-05[kg CFC-11_{eq}]
Formazione di particolato (PMFP)	3,6E-03[kg $PM10_{eq}$]
Acidificazione terrestre (TAP)	1,2E-02[kg SO_{2eq}]
Ecotossicità terrestre (ETEP)	3,1E-04[kg 1,4-DCB_{eq}]

Informazioni dettagliate sugli impatti di ciascun sub-componente della batteria sono riportati nella tabella seguente.

		Battery Use	Battery & Components Manufacture	Positive Electrode Paste	Negative Electrode Paste	Electrolyte	Separator	Cell Container	Module & Battery Casing	BMS	Substrate of Negative Electrode	Substrate of Positive Electrode	Electricity Consumed by Battery
GWP_{100}	*kg CO2-eq*	1.2E-5	3.1E-1	3.9E-1	8.7E-2	1.2E-2	6.0E-3	9.6E-2	3.6E-2	1.6E-1	1.5E-2	1.7E-2	7.4E-1
FDP	*kg oil-eq*	4.2E-6	1.0E-1	2.9E-2	4.4E-3	8.4E-3	3.8E-3	2.5E-2	1.9E-2	4.2E-2	4.6E-3	4.4E-3	2.1E-1
$FETP_{inf}$	*kg 1,4-DCB-eq*	3.7E-8	2.9E-3	4.5E-3	6.4E-5	6.3E-5	3.3E-5	1.0E-3	2.7E-4	1.6E-2	1.6E-2	1.9E-4	1.0E-2
FEP	*kg P-eq*	2.1E-9	2.1E-4	1.4E-4	3.8E-6	3.2E-6	1.8E-6	4.4E-5	1.6E-5	8.1E-4	7.7E-4	8.0E-6	7.3E-4
HTP_{inf}	*kg 1,4-DCB-eq*	1.7E-6	1.4E-1	2.4E-1	8.6E-3	3.1E-3	1.6E-3	4.3E-2	1.5E-2	1.4E+0	1.8E+0	7.8E-3	4.8E-1
$METP_{inf}$	*kg 1,4-DCB-eq*	6.9E-8	3.0E-3	4.6E-3	7.0E-5	6.1E-5	2.9E-5	1.1E-3	2.8E-4	1.6E-2	2.0E-2	2.0E-4	1.0E-2
MEP	*kg N-eq*	2.3E-8	2.5E-4	6.2E-4	1.9E-4	5.4E-6	2.9E-6	5.6E-5	2.1E-5	3.2E-4	2.1E-4	1.0E-5	8.4E-4
MDP	*kg Fe-eq*	1.8E-7	3.0E-3	3.8E-1	4.7E-4	6.4E-4	2.1E-4	4.8E-3	2.2E-3	2.0E-1	2.5E-1	8.7E-4	8.0E-3
ODP_{inf}	*kg CFC-11-eq*	1.4E-12	2.4E-8	9.0E-6	2.3E-6	1.1E-9	1.5E-9	6.5E-9	8.7E-9	1.7E-8	1.2E-9	1.2E-9	3.6E-8
PMFP	*kg PM10-eq*	7.8E-8	3.1E-4	1.0E-3	1.4E-5	1.5E-5	6.8E-6	1.9E-4	4.3E-5	3.8E-4	6.6E-4	3.4E-5	9.7E-4
POFP	*kg NMVOC*	1.9E-7	5.5E-4	8.0E-4	2.6E-5	3.9E-5	2.1E-5	2.4E-4	9.9E-5	6.8E-4	4.2E-4	4.4E-5	1.5E-3
TAP_{100}	*kg SO2-eq*	2.5E-7	9.7E-4	4.3E-3	4.9E-5	4.4E-5	2.0E-5	3.9E-4	1.2E-4	1.1E-3	2.1E-3	7.1E-5	3.1E-3
$TETP_{inf}$	*kg 1,4-DCB-eq*	1.1E-9	2.3E-5	7.6E-5	1.1E-6	1.0E-6	2.9E-7	9.2E-6	3.0E-6	3.7E-5	9.9E-5	1.7E-6	5.6E-5

Scheda N.3

1. **Prodotto:** Batteria agli ioni di litio $LiMn_2O_4$

2. **Autori e riferimenti bibliografici:**

   Dominic A. Notter, Marcel Gauch, Rolf Widmer, Patrick Wager, Anna Stamp, Rainer Zah, Hans-Jorg Althaus, Contribution of Li-ion Batteries to the environmental impact of electric vehicles, Environmental Science & Technology Vol.44 No.17, 2010, 6550-6556, available on http://pubs.acs.org/doi/abs/10.1021/es903729a

3. **Caratteristiche del prodotto**

Peso: 300 kg
Capacità della batteria: 0,114 $kWh \cdot kg^{-1}$

4. **Metadati**

Unità funzionale (U.F.): 1 kg di batteria.
Confini del sistema: fase di produzione di tutti i sub-componenti (Figura C) della batteria; fase di fine vita.

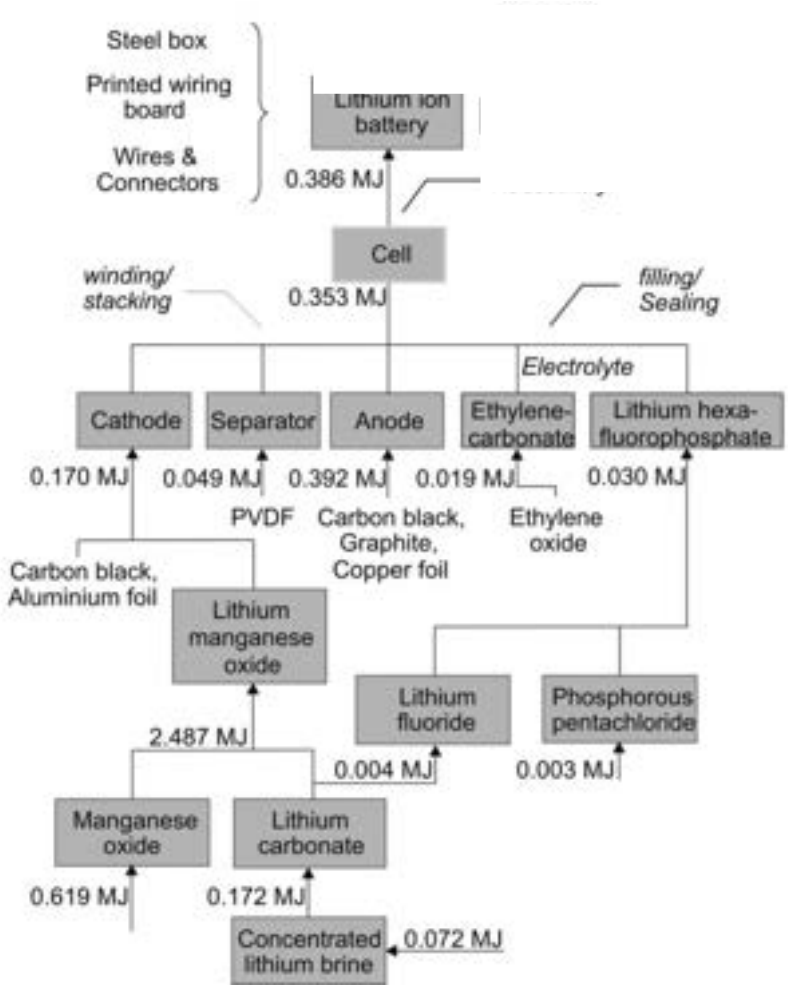


Figura C: Processo di produzione della batteria

Regole di cut-off: sono stati esclusi materiali e processi il cui contributo all'impatto energetico-ambientale totale è considerato trascurabile. È stato applicato un criterio

di cut-off basato su una combinazione di cut-off di massa, domanda di energia e carico ambientale atteso per unità di massa o di energia.
Regole di allocazione: tutti i flussi connessi all'approvvigionamento dei sali di litio è stato allocato agli stessi, anche se dalla salamoia da cui si ottengono tali sali possono essere ottenuti anche altri co-prodotti. Tutti gli impatti connessi ad un prodotto riciclabile sono attribuiti alla sua prima vita, mentre ai prodotti che sono stati riciclati non è attribuito alcun impatto.
Qualità dei dati: I dati riguardanti le masse dei materiali utilizzati per la produzione della batteria sono stati reperiti in letteratura. Gli ecoprofili di materiali e componenti sono riferiti al database Ecoinvent 2.01. I dati sulla produzione di elettricità riguardano il contesto medio europeo.

5. Analisi di Inventario

Informazioni dettagliate sui dati di input relativi al processo di produzione della batteria sono riportati su:
http://pubs.acs.org/doi/suppl/10.1021/es903729a/suppl_file/es903729a_si_001.pdf

Emissioni

SO_2: 0,043 kg

NO_x: 0,017 kg

PM10: 0,008 kg

6. Impatti energetici ed ambientali

Metodi di valutazione dell'impatto utilizzato: Ecoindicator 99, IPCC 2007, Cumulative Energy Demand, CML 2001

Indici di impatto	Totale
Ecoindicatore (EI 99 H/A)	0,801 [punti]
Domanda di energia primaria non rinnovabile (CED)	104 [MJ]
Effetto serra potenziale (GWP)	6 [kg CO_{2eq}]
Esaurimento delle risorse abiotiche (ADP)	0,0485 [kg Sb_{eq}]

Informazioni dettagliate sugli impatti di ciascun sub-componente della batteria sono riportati nella tabella seguente.

Si osserva che i maggiori impatti della fase di produzione sono imputabili all'anodo, al catodo ed all'involucro della batteria. Un'incidenza minore hanno la singola cella, il separatore, i sali di litio e il solvente.

Riguardo all'indicatore EI99 H/A la produzione dell'anodo genera il maggiore impatto, mentre la produzione del catodo determina i maggiori impatti su CED, GWP ed ADP.

	EI 99 H/A		CED		GWP		ADP	
	points	%	MJ eq.	%	kg CO_2 eq.	%	kg Sb eq.	%
Total Li-ion battery	0.801	100	104	100	6.00	100	0.0485	100
Battery pack	0.162	20.3	27.6	26.5	1.61	26.8	0.0126	25.9
Printed wiring board	0.0630	7.86	13.7	13.1	0.853	14.3	0.00617	12.7
Reinforcing steel	0.0150	1.88	3.31	3.18	0.212	3.53	0.00185	3.81
Three conductor cable	0.0312	3.89	2.06	1.97	0.083	1.39	0.000880	1.81
Single cell	0.638	79.7	76.5	73.5	4.39	73.2	0.0359	74.1
Anode	0.403	50.3	19.6	18.8	0.870	14.5	0.0113	23.4
Copper	0.346	43.2	5.24	5.03	0.339	5.65	0.00259	5.33
Graphite	0.0296	3.70	10.6	10.2	0.345	5.75	0.00709	14.6
Rest anode	0.0273	3.41	3.81	3.66	0.187	3.11	0.00165	3.41
Separator	0.0170	2.12	4.69	4.51	0.257	4.29	0.00208	4.28
Cathode	0.131	16.4	31.4	30.1	2.17	36.2	0.0135	27.8
Aluminium	0.082	10.3	16.8	16.1	1.28	21.3	0.00734	15.1
$LiMn_2O_4$	0.0448	5.59	13.0	12.5	0.831	13.8	0.00552	11.4
Rest cathode	0.00425	0.531	1.59	1.52	0.0635	1.06	0.000633	1.31
Ethylene carbonate	0.0176	2.20	5.03	4.83	0.185	3.09	0.00220	4.54
$LiPF_6$	0.0304	3.79	6.05	5.81	0.389	6.47	0.00248	5.11
LiF	0.00203	0.254	0.350	0.336	0.0257	0.428	0.000160	0.329
PCl_5	0.00499	0.624	1.78	1.71	0.0851	1.42	0.000725	1.49
Mn_2O_3	0.0162	2.03	5.41	5.20	0.364	6.06	0.00212	4.37
Li_2CO_3	0.0103	1.29	1.84	1.77	0.135	2.25	0.000904	1.86
Conc. Lithium brine	0.00072	0.0900	0.0987	0.0948	0.0653	0.109	0.0000438	0.0903

Scheda N.4

1. Prodotto: Batteria agli ioni di litio per veicoli a batteria elettrica

2. Autori e riferimenti bibliografici:

Peter Van den Bossche, Frédéric Vergels, Joeri Van Mierlo, Julien Matheys, Wout Van Autenboer, SUBAT: An assessment of sustainable battery technology, Journal of Power Sources 162, 2006, 913-9190.

Julien Matheys, Joeri Van Mierlo, Jean-Marc Timmermans, Life-cycle assessment of batteries in the context of the EU Directive on end-of-life vehicles, International Journal Vehicle Design, Vol.46, No.2, 2008, 189-203.

Julien Matheys, Wout Van Autenboer, Jean-Marc Timmermans, Joeri Van Mierlo, Peter Van den Bossche, Gaston Maggetto, Influence of Functional Unit on the Life Cycle Assessment of Traction Batteries, International Journal of Life Cycle Assessment 12 (3), 2007, 191-196.

Julien Matheys, Wout Van Autenboer, Joeri Van Mierlo,SUBAT: Sustainable Batteries - Work Package 5: Overall Assessment – Final Public Report, Vrije Universiteit Brussel – ETEC.

Julien Matheys, Jean-Marc Timmermans, Wout Van Autenboer, Joeri Van Mierlo, Gaston Maggetto, Sandrine Meyer, Arnaud De Groof, Walter Hecq, Peter Van den Bossche, Comparison of the environmental impacts of 5 electric vehicles battery technologies using LCA, Prooceedings of LCE2006, 13th CIRP International Conference on life cycle engineering.

3. Caratteristiche del prodotto

Peso: 92 kg
Energia specifica della batteria ($Wh \cdot kg^{-1}$): 125
Potenza specifica della batteria ($W \cdot kg^{-1}$): 400
Numero di cicli: 1000
Range ottimale di temperatura operativa (°C): 0-40
Efficienza (Wh): 90%
Manutenzione: nessuna
BMS: necessario.

4. Metadati

Unità funzionale (U.F.): batteria che consente ad un veicolo di percorrere 60 km con un depth-of-dicharge dell'80%.
Confini del sistema: estrazione delle materie prime, produzione di materiali e componenti, uso della batteria nel veicolo, riciclo delle batterie di scarto, smaltimento finale o incenerimento (Figura D).

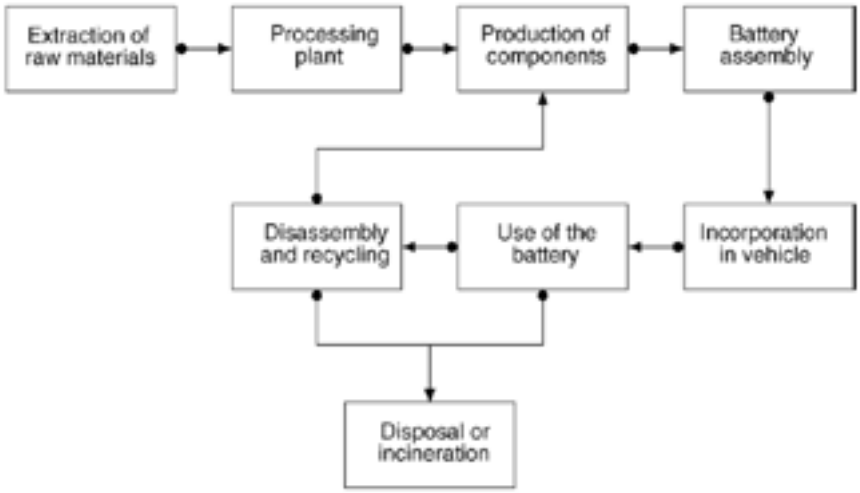


Figura D: Confini del sistema

Regole di cut-off: sono stati esclusi dall'analisi gli eco-profili di camion, capannoni industriali, impianti per la produzione di energia elettrica, strade, ecc.

La scarica della batteria non è stata inclusa poichè essa dipende dalle modalità di utilizzo del veicolo.

La fase di manutenzione è stata esclusa dall'analisi poiché si ipotizza che gli impatti ad essa connessi siano trascurabili.

Gli impatti relativi all'eco-profilo dell'elettrolita sono stati trascurati.

Regole di allocazione: -

Qualità dei dati: L'analisi di inventario è stata effettuata utilizzando informazioni disponibili in letteratura, informazioni ottunute direttamente dalle industrie e informazioni ottenuto dai database disponibili in commercio.

Il mix energetico dell'energia elettrica è riferito alla produzione di elettricità in Europa.

Geografia: mondo occidentale.

Tecnologia: stato attuale della tecnologia.

Si è ipotizzato che i materiali riciclati abbiano la stessa qualità di quelli primari. Si è ipotizzata una percentuale di raccolta pari a 100 e una di riciclo per i materiali recuperati pari a 95.

Si è inoltre ipotizzato che l'elettrolita sia neutralizzato prima dello smaltimento finale.

5. Analisi di Inventario

Informazioni sui dati di inventario sono riportati su:
http://www.battery-electric.com/subatdocs/WP5-006.pdf

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: Ecoindicator-99	
Indici di impatto	Totale
Eco-indicatore Ciclo di vita	277,6 [punti]
Eco-indicatore Produzione	361 [punti]
Eco-indicatore Uso (peso della batteria)	21,7 [punti]
Eco-indicatore Uso (efficienza della batteria)	66,9 [punti]
Eco-indicatore Riciclo	-172 [punti]

I risultati evidenziano che:

- Gli impatti connessi alla fase di produzione della batteria sono in parte compensati dai benefici indotti dai processi di riciclo;
- Un impatto rilevante sull'intero ciclo di vita della batteria è connesso al consumo di energia durante la fase d'uso della stessa, dovuto sia alle perdite legate all'efficienza energetica della batteria, sia al consumo di energia necessario al veicolo per il trasporto della massa addizionale della batteria.

Scheda N.5

1. Prodotto: 1) Batteria agli ioni di litio per veicoli elettrici
2) Batteria agli ioni di litio per applicazioni stazionarie

2. Autori e riferimenti bibliografici:

Kaoru Ishihara, Nobuo Kihira, Nobuyuki Terada, Toru Iwahori, Environmental burdens of large lithium-ion batteries developed in a japanese national project, 2006, available on: http://www.electrochem.org/dl/ma/202/pdfs/0068.PDF

3. Caratteristiche del prodotto

-

4. Metadati

Unità funzionale (U.F.): 1 kWh di capacità energetica della batteria.
Confini del sistema: produzione, raccolta a fine vita, riciclo delle batterie e smaltimento dei rifiuti.
Regole di cut-off: -
Regole di allocazione: -
Qualità dei dati: -

5. Analisi di Inventario

-

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: -	
Indici di impatto	Totale
Consumo di energia primaria (batteria per uso stazionario)	410 [Mcal]
Emissioni di CO_2 (batteria per uso stazionario)	90 [kg]
Consumo di energia primaria (batteria per uso in veicoli elettrici)	370 [Mcal]
Emissioni di CO_2 (batteria per uso in veicoli elettrici)	75 [kg]

Scheda N.6

1. Prodotto: Batteria agli ioni di litio Saft Li-ion MP cell

2. Autori e riferimenti bibliografici:

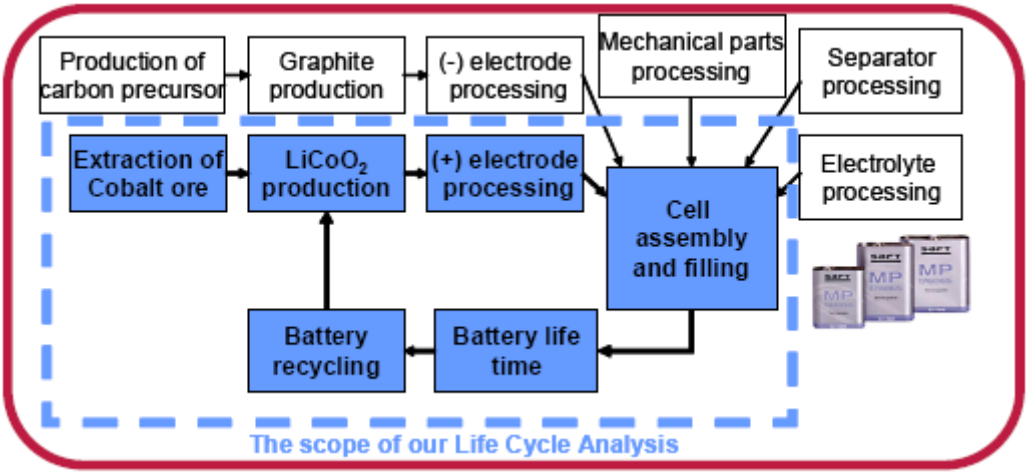
C. Siret, I. Lopez, G. Van Damme, Recycling or direct metal production: a comprehensive Life cycle analysis from metals to batteries, http://www.batteryrecycling.umicore.com/

3. Caratteristiche del prodotto

4. Metadati

Unità funzionale (U.F.): 1 cella MP

Confini del sistema: produzione del $LiCoO_2$, produzione dell'elettrodo positivo, assemblaggio della cella, riciclo della batteria.



Regole di cut-off: -

Regole di allocazione: -

Qualità dei dati: si ipotizza che l'energia elettrica sia prodotta da fonti nucleare ed idroelettrica. Le emissioni di CO_2 stimate nello studio derivano esclusivamente dalle reazioni di combustione.

5. Analisi di Inventario

-

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: -

Indici di impatto	Totale

Consumo di energia primaria (senza riciclo del $LiCoO_2$)	circa 9 [kWh]
Emissioni di CO_2 (senza riciclo del $LiCoO_2$)	circa 580 [g]
Consumo di energia primaria (con riciclo del $LiCoO_2$)	circa 2,5 [kWh]
Emissioni di CO_2 (con riciclo del $LiCoO_2$)	circa 150 [g]

Scheda N.7

1. Prodotto: Batteria agli ioni di litio

2. Autori e riferimenti bibliografici:

Constantine Samaras, Kyle Meisterling, Life cycle assessment of greenhouse gas emissions from plug-in vehicles: implications for policy, Environmental Science Technology, 2008, 42, 3170-3176

3. Caratteristiche del prodotto

Peso: 16 kg
Energia specifica della batteria ($kWh \cdot kg^{-1}$): 0,1

4. Metadati

Unità funzionale (U.F.): 1 kWh di capacità della batteria
Confini del sistema: produzione di una batteria agli ioni di litio.
Regole di cut-off: gli impatti relativi al trasporto della batteria sono omessi dall'analisi.
Regole di allocazione: -
Qualità dei dati: i dati relativi ai consumi energetici per la produzione della batteria sono riferiti a C.J. Rydh, B.A. Sandén, Energy analysis of batteries in photovoltaic systems. Part I: performance and energy requirements, Energy Conversion and Management, 46 (2005), 1957-1979. Si ipotizza che la batteria sia prodotta negli Stati Uniti e che il 75% del consumo energetico sia costituito da combustibile primario per la produzione di energia elettrica (efficienza di conversione 35%), mentre il rimanente 25% sia costituito da diesel per le operazioni di estrazione delle materie prime.

5. Analisi di Inventario

-

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: -	
Indici di impatto	Totale
Consumo di energia primaria	1.700 [MJ]
Effetto serra potenziale	120 [kg CO_{2eq}]

Informazioni dettagliate sullo studio sono riportate su:
http://pubs.acs.org/doi/suppl/10.1021/es702178s/suppl_file/es702178s-file004.pdf

Scheda N.8

1. Prodotto: Batteria agli ioni di litio

2. Autori e riferimenti bibliografici:

Susan M. Schexnayder, Sujit Das, Rajive Dhingra, Jonathan G. Overly, Bruce E. Tonn, Jean H. Peretz, Greg Waidley, Gary A. Davis, Environmental evaluation of new generation vehicles and vehicle components, 2001, ORNL/TM-2001-266, available on: http://www-cta.ornl.gov/cta/Publications/Reports/ORNL_TM_2001_266.pdf

3. Caratteristiche del prodotto

Peso: 40 kg
Vita utile (anni): 3

4. Metadati

Unità funzionale (U.F.): 1 batteria
Confini del sistema: estrazione delle materie prime, produzione e assemblaggio dei componenti della batteria, uso.
Regole di cut-off: il processo di riciclo della batteria a fine vita non è stato incluso nell'analisi.
Regole di allocazione: -
Qualità dei dati: I dati relativi all'intero ciclo di vita esaminato sono stati reperiti in letteratura, ad eccezione dei dati relativi al processo di produzione di alcuni componenti del circuito elettrico.

5. Analisi di Inventario

Emissioni relative alla fase d'uso
CH_4: 0,15 lbs/vita utile
CO: 9,34 lbs/vita utile
CO_2: 1.231,1 lbs/vita utile
NO_x: 0,19 lbs/vita utile
PM: 0,09 lbs/vita utile

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: -	
Indici di impatto	Totale
Uso di risorse non rinnovabili	1.735,48 [lbs]
Uso di risorse rinnovabili	34.657,78 [lbs]
Consumo di energia	21,47 [MMBTUs]
Effetto serra potenziale	3.570,21 [lbs CO_{2eq}]
Distruzione dell'ozono stratosferico	0,00025 [lbs $CFC11_{eq}$]
Acidificazione	19,82 [lbs SO_{2eq}]
Formazione di smog	0,67 [lbs C_2H_{4eq}]

Particolato	6,57 [lbs PM]
Eutrofizzazione	0,08 [lbs $PO_4^{3-}{}_{eq}$]
Qualità dell'acqua – BOD	0,34 [lbs BOD]
Qualità dell'acqua - TSS	1,72 [lbs TSS]
Uso del suolo in discarica per rifiuti solidi	21,68 [ft^3]
Uso del suolo in discarica per rifiuti pericolosi	0,11 [ft^3]

Informazioni dettagliate sullo studio sono riportate su:

http://www-cta.ornl.gov/cta/Publications/Reports/ORNL_TM_2001_266.pdf

Scheda N.9

1. Prodotto: Batteria agli ioni di litio LiFePO4

2. Autori e riferimenti bibliografici:

Mats Zackrisson, Lars Avellàn, Jessica Orlenius, Life cycle assessment of lithium-ion batteries for plug-in hybrid electric vehicles – Critical issues, Journal of Cleaner Production 18 (2010), 1519-1529.

3. Caratteristiche del prodotto

Peso: 107,2 kg
Densità di energia: 93 Wh/kg
Numero di celle: 100
Voltaggio: 370 V
Efficienza energetica interna: 90%

4. Metadati

Unità funzionale (U.F.): 1 batteria con 10 kWh di energia accumulata, che effettua 3.000 cicli di carica con un depth-of-dicharge dell'80% e che consente ad un veicolo di percorrere almeno 200000 km durante la vita utile del veicolo stesso. Sono state comparate due tipologie di batterie, che si differenziano sulla base del solvente utilizzato, che può essere acqua o N-methyl-2-pyrrolidone (NMP).
Confini del sistema: estrazione delle materie prime, produzione e assemblaggio dei componenti della batteria, uso nel veicolo (in questa fase sono considerati: il consumo di elettricità connesso all'efficienza della batteria; il consumo di elettricità da parte del veicolo per trasportare la batteria; il trasporto della batteria dall'azienda produttrice all'utilizzatore), raccolta della batteria a fine vita (distanza percorsa 500 km), processi di riciclo di quei componenti che vengono riutilizzati nella batteria stessa.
Regole di cut-off: è stata applicata una regola di cut-off dello 0%.
Regole di allocazione: -
Qualità dei dati: I dati relativi ai materiali necessari per realizzare la batteria sono stati reperiti tramite un'analisi di dati di letteratura e test di laboratorio. Gli eco-profili dei materiali sono stati stimati tramite l'utilizzo di database ambientali, in particolare del database Ecoinvent 2.0. Gli eco-profili non reperiti nei database ambientali sono stati modellati utilizzando dei calcoli stechiometrici e delle stime sul consumo di energia. Gli eco-profili di alcuni materiali non presenti nei database sono stati sostituiti con gli eco-profili di materiali simili. I dati sono riferiti al contesto europeo o mondiale. L'eco-profilo dell'energia elettrica si riferisce al mix energetico medio a basso

voltaggio dell'Europa occidentale.

5. Analisi di Inventario

Materiali utilizzati per la cella con NMP come solvente (grammi)

Catodo

$LiFePO_4$: 422

Foglio di alluminio: 19

Nero di carbone (nerofumo): 27

Polyvinylidenefluoride: 28

Elettrolita

Ethylene glycol dimethyl ether: 157

Sali di litio (cloruro di litio): 28

Separatore

Polipropilene:9

Polietilene:9

Parti elettroniche

Transistor: 10

Resistore: 10

Anodo

Grafite:169

Nero di carbone (nerofumo): 0

Rame: 46

Polyvinylidenefluoride: 21

Lattice di styrene butadiene: 0

Imballaggio

Polipropilene: 5

Foglio di alluminio: 7

Materiali utilizzati per la cella con acqua come solvente (grammi)

Catodo

$LiFePO_4$: 422

Foglio di alluminio: 19

Nero di carbone (nerofumo): 27

Polyvinylidenefluoride: 0

Elettrolita

Ethylene glycol dimethyl ether: 157

Sali di litio (cloruro di litio): 28

Separatore

Polipropilene:9

Polietilene:9

Parti elettroniche

Transistor: 10

Resistore: 10

Anodo

Grafite:169

Nero di carbone (nerofumo): 5

Rame: 46

Polyvinylidenefluoride: 0

Lattice di styrene butadiene: 6

Imballaggio

Polipropilene: 5

Foglio di alluminio: 7

Consumo di energia

Produzione del $LiFePO_4$

Elettricità: 3 kJ/gr di $LiFePO_4$

Assemblaggio della batteria

Elettricità: 11,7 kWh/kgbatteria

Gas naturale: 8,8 kWh/kgbatteria

Fase d'uso

Elettricità per trasportare la batteria per 200.000 km: 504 kWh

Benzina per trasportare la batteria per 200.000 km: 50 l

Elettricità connessa all'efficienza energetica interna della batteria: 2.250 kWh

6. Impatti energetici ed ambientali

Metodo di valutazione dell'impatto utilizzato: -	
Indici di impatto	Totale
Effetto serra potenziale (batteria con NMP)	4.400 [kg CO_{2eq}]
Effetto serra potenziale (batteria con acqua)	3.400 [kg CO_{2eq}]

La batteria con NMP ha un impatto maggiore sull'effetto serra rispetto alla batteria con acqua. Questa differenza è imputabile all'uso di polyvinylidenefluoride nella fase di produzione del primo tipo di batteria.

Complessivamente, si osserva che la fase di riciclo (trasporto dei rifiuti agli impianti di trattamento) ha un impatto trascurabile rispetto alle fasi di produzione e uso, per tutte le categorie di impatto esaminate (effetto serra potenziale, acidificazione, distruzione dello strato di ozono stratosferico, formazione di smog fotochimico, eutrofizzazione. Le fasi di

produzione ed uso hanno impatti dello stesso ordine di grandezza.

Da un'analisi dettagliata della fase di produzione si osserva che il maggior contributo all'effetto serra (su un totale di 1.660 kg CO_{2eq}) è imputabile al consumo di energia durante la manifattura della batteria (circa il 53%), ai compomenti elettronici (30%) ed al catodo (10%).

I componenti elettronici sono responsabili dei maggiori impatti sulla formazione di smog fotochimico (58%) e sull'acidificazione (48%), mentre il catodo è il principale responsabile (71%) dell'impatto sull'eutrofizzazione.

L'impatto sulla distruzione dello strato di ozono stratosferico risulta trascurabile.

Un'analisi di dettaglio della fase d'uso mostra che i maggiori impatti sono imputabili al consumo di energia connesso alle perdite interne della batteria (dipendenti dall'efficienza energetica della stessa). Un impatto trascurabile ha invece il trasporto della batteria all'utenza finale.

Scheda N.10

1. **Prodotto:** Veicolo elettrico alimentato con batterie agli ioni di litio (BEV – battery electric vehicle).

2. **Autori e riferimenti bibliografici:**

M. Messagie, F. Boureima, J. Matheys, N. Sergeant, L. Turcksin, C. Macharis, J. Van Mierlo, Life cycle assessment of conventional and alternative small passenger vehicles in Belgium, Vehicle Power and Propulsion Conference (VPPC), 2010 IEEE, available on: http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5729233&tag=1

Fayçal-Siddikou Boureima, Maarten Messagie, Julien Matheys, Vincent Wynen, Nele Sergeant, Joeri Van Mierlo, Marc De Vos, Bernard De Caevel, Comparative LCA of electric, hybrid, LPG and gasoline cars in Belgian context, EVS24 International Battery, Hybrid and Fuel Cell Electric Vehicle Symposium, Stavanger, Norway, May 13-16, 2009, available on: http://www.cars21.com/files/papers/Boureima-paper.pdf

3. **Caratteristiche del prodotto**

Classificazione commerciale del veicolo: autovettura elettrica media
Tipologia batteria:
Tecnologia: ioni di litio
Peso: 450 kg
Range: 354 km
Vita utile: 160934 km
Numero di batterie per l'U.F.: 2

4. **Metadati**

Unità funzionale (U.F.): distanza percorsa pari a 230.500 km, corrispondente ad una vita utile del veicolo di 13,7 anni.
Confini del sistema: fase di estrazione delle materie prime, produzione e assemblaggio dei componenti del veicolo, trasporto del veicolo (con treno e camion) dall'azienda produttrice all'utente finale, uso e fine vita.
Regole di cut-off: -
Regole di allocazione: -
Qualità dei dati: I dati dello studio sono stati reperiti prevalentemente in letteratura. Gli ecoprofili di materiali e componenti sono riferiti al database Ecoinvent e riguardano, laddove possibile, il contesto belga. Per gli eco-profili di cui non sono disponibili dati specifici per il Belgio si utilizzano dati relativi al contesto medio europeo. I dati sulla batteria si riferiscono al progetto SUBAT[1], mentre quelli riguardanti il fine vita del veicolo e dei suoi componenti sono riferiti allo studio OVAM[2].

[1] Matheys J., Timmermans J., Van Mierlo J., Meyer S., Van Den Bossche P., Comparison of the environmental impact of 5 electric vehicle battery technologies using LCA, International Journal of sustainable manufacturing, pp 318- 329, ISBN-ISSN: 1742-7223, 2009.

[2] OVAM, IBGE/BIM, OWD & RDC Environment, Validation of the recycling rates of end-of life vehicles, June 2008.

5. Analisi di Inventario

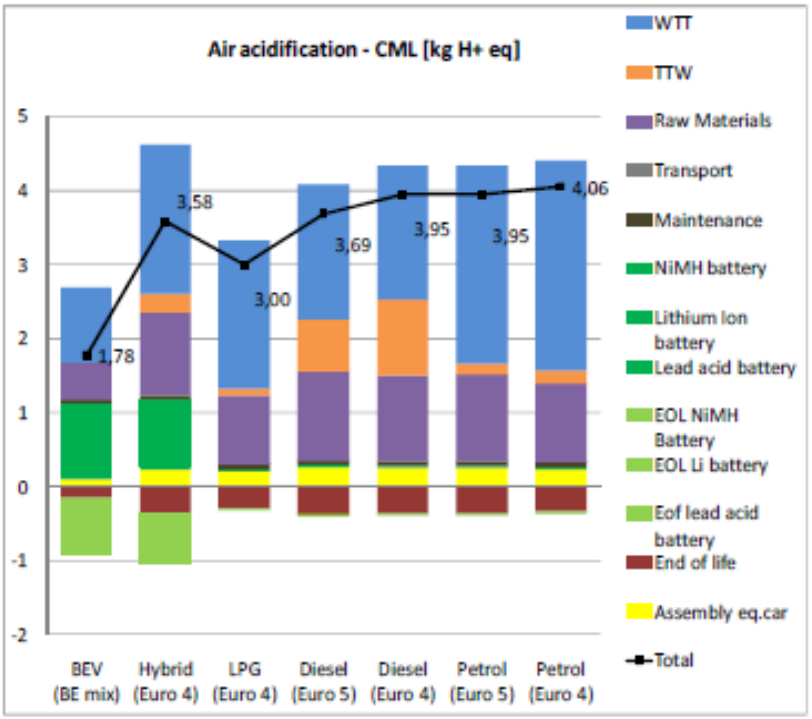
-

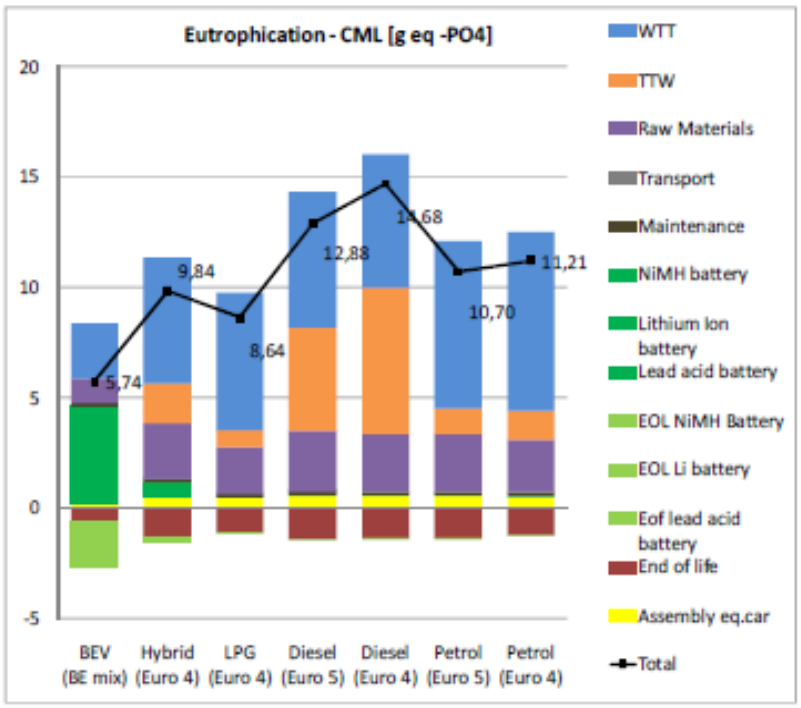
6. Impatti energetici ed ambientali

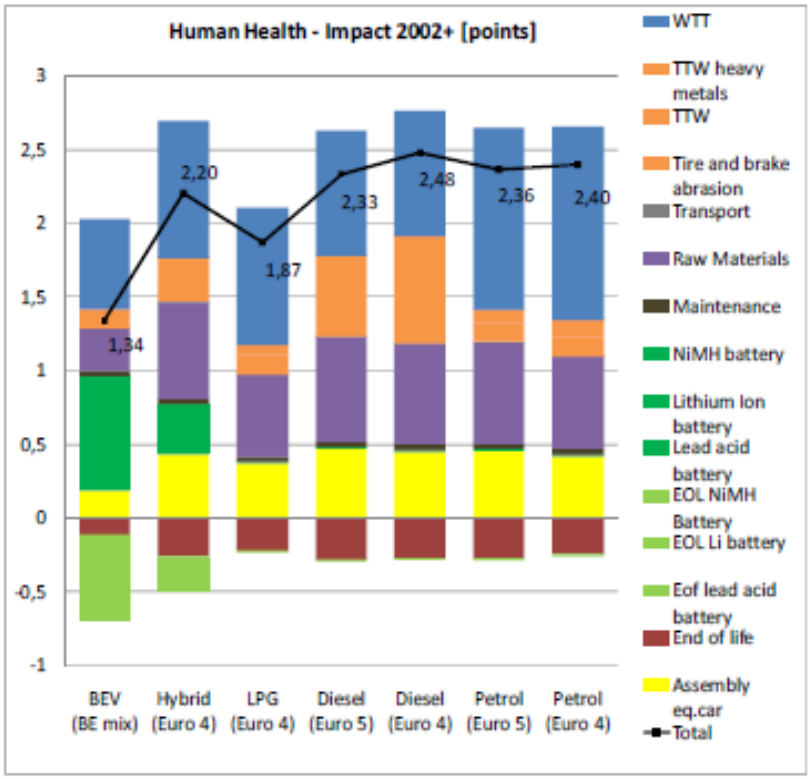
Metodi di valutazione dell'impatto utilizzati:

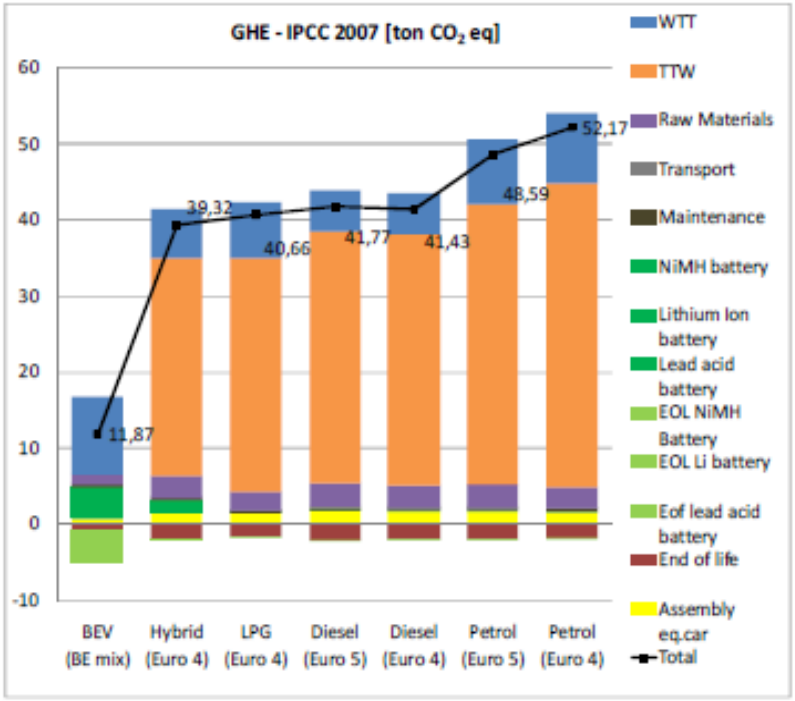
- metodo IPCC 2007 per l'impatto effetto serra;
- metodo IMPACT 2002+ per l'impatto salute dell'uomo;
- metodo CML2 baseline method per gli impatti acidificazione ed eutrofizzazione.

Indici di impatto




Eutrophication - CML [g eq -PO4]
20
15
10
5
0
-5
5,74
9,84
8,64
12,88
14,68
10,70
11,21
BEV (BE mix)
Hybrid (Euro 4)
LPG (Euro 4)
Diesel (Euro 5)
Diesel (Euro 4)
Petrol (Euro 5)
Petrol (Euro 4)
WTT
TTW
Raw Materials
Transport
Maintenance
NiMH battery
Lithium Ion battery
Lead acid battery
EOL NiMH Battery
EOL Li battery
Eof lead acid battery
End of life
Assembly eq.car
Total


Human Health - Impact 2002+ [points]
3
2,5
2
1,5
1
0,5
0
-0,5
-1
1,34
2,20
1,87
2,33
2,48
2,36
2,40
BEV (BE mix)
Hybrid (Euro 4)
LPG (Euro 4)
Diesel (Euro 5)
Diesel (Euro 4)
Petrol (Euro 5)
Petrol (Euro 4)
WTT
TTW heavy metals
TTW
Tire and brake abrasion
Transport
Raw Materials
Maintenance
NiMH battery
Lithium Ion battery
Lead acid battery
EOL NiMH Battery
EOL Li battery
Eof lead acid battery
End of life
Assembly eq.car
Total



- WTT: well-to-tank (impatti dal pozzo al serbatoio);
- TTW: tank-to-wheel (impatti dal serbatoio alla ruota).

I risultati mostrano che la batteria agli ioni di litio ha una bassa incidenza sugli impatti di ciclo di vita del veicolo in cui è installata, grazie anche ai benefici ambientali connessil suo riciclo a fine vita.

Allegato 2
QUESTIONARIO PER LA RACCOLTA DATI RELATIVI AL PROCESSO PRODUTTIVO DELLE BATTERIE

PERIODO DI RIFERIMENTO

_____(indicare l'anno a cui si riferiscono i dati)

RIFERIMENTI DITTA

Nome:

Referente:

Contatti del referente: e-mail: Tel:

RIFERIMENTI PRODOTTO

Nome commerciale:

Caratteristiche tecniche del prodotto (se possibile, allegare la scheda tecnica al presente questionario):

Dimensioni [mm]:

Peso [kg]

Altro:

Caratteristiche tecniche dei componenti che costituiscono il prodotto (se applicabile) (se possibile, allegare le schede tecniche al presente questionario).

QUANTITÀ DI BATTERIE PRODOTTE ANNUALMENTE (Volume annuo)

ALTRI PRODOTTI (se presenti) (Volume annuo)

PRODUZIONE DEL COMPONENTE 1

APPROVVIGIONAMENTO E STOCCAGGIO MATERIE PRIME NECESSARIE PER REALIZZARE IL COMPONENTE 1

Materia prima 1: (indicare il nome della materia prima 1)

1. Quale è il consumo di materia prima 1 per realizzare il componente 1? kg o litri

oppure

Quale è il consumo materia prima 1 per realizzare n. … componenti 1 (indicare il numero di componenti 1)? kg

2. Quale è la provenienza della materia prima 1, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t.

2.1 Quanti chilometri dista la fornitura A di materia prima 1 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 1, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto (se noto)?

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?

2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 1, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 1?

☐ contenitori riciclabili in_____kg imballaggio/kg materia prima 1_____

☐ altro (descrivere), _____kg imballaggio/kg materia prima 1_____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 1 (kWh), oppure

Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 1 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 1 (specificare i kg)?:

Materia prima 2: indicare il nome della materia prima

1. Quale è il consumo della materia prima 2 per realizzare il componente 1? kg o litri

oppure

Quale è il consumo della materia prima 2 per realizzare n. … componenti 1 (indicare il numero di componenti 1)? kg o litri

2. Quale è la provenienza della materia prima 2, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t o litri.

2.1 Quanti chilometri dista la fornitura A della materia prima 2 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 2, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto? (se noto)

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?
2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 2, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 2?
☐ contenitori riciclabili in_____kg imballaggio/kg (o litro) materia prima 2_____
☐ altro (descrivere), _____kg imballaggio/kg (o litro) materia prima 2_____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 2 (kWh), oppure
Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 2 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 2 (specificare i kg o i litri)?:

Ripetere per tutte le materie prime impiegate per realizzare il componente 1

CONSUMI DI ACQUA PER LA PRODUZIONE DEL COMPONENTE 1
Qual è il consumo annuo d'acqua per realizzare il componente 1? kg o litri
Qual è il consumo annuo di energia elettrica per l'approvvigionamento e movimentazione (pompe) dell'acqua in (kWh)? Oppure indicare la potenza delle pompe, la dimensione e le ore di funzionamento.

CONSUMO DI COMBUSTIBILI PER LA PRODUZIONE DEL COMPONENTE 1
Qual è il consumo di combustibili fossili annuo stimato (kg, litri o m^3)? Oppure qual è il consumo di combustibili fossili per realizzare n. componenti 1 (indicare il numero di componenti 1)?
☐ olio combustibile kg/a l/a m^3/a
☐ carbone kg/a l/a m^3/a
☐ metano kg/a l/a m^3/a
☐ altro kg/a l/a m^3/a

PROCESSO PRODUTTIVO DEL COMPONENTE 1
Descrivere brevemente il processo produttivo e le unità impiantistiche impiegati nelle diverse fasi di produzione del componente 1.

Elenco dei macchinari utilizzati, delle relative potenze di targa (kW) e delle ore di funzionamento per realizzare n. componenti 1 (indicare il numero di componenti 1).

PRODUZIONE DI RIFIUTI

Qual è la produzione di rifiuti derivata dal processo produttivo del componente 1, in tonnellate (t) o metri cubi (m^3)? (I rifiuti vanno riferiti alla produzione annua oppure ad n. componenti 1). Descrizione del tipo di rifiuto

☐ rifiuti urbani domestici ☐ kg/ a ☐m^3/a
☐ rifiuti urbani non pericolosi ☐ kg/ a ☐m^3/a
☐ rifiuti urbani pericolosi ☐ kg/ a ☐m^3/a
☐ rifiuti speciali ☐ kg/a ☐m^3/a
☐ rifiuti speciali non pericolosi ☐ kg/a ☐m^3/a
☐ rifiuti speciali pericolosi ☐ kg /a ☐m^3/a

<u>PRODUZIONE DEL COMPONENTE 2</u>

APPROVVIGIONAMENTO E STOCCAGGIO MATERIE PRIME NECESSARIE PER REALIZZARE IL COMPONENTE 2

Materia prima 1: (indicare il nome della materia prima 1)

1. Quale è il consumo di materia prima 1 per realizzare il componente 2? kg o litri

oppure

Quale è il consumo materia prima 1 per realizzare n. … componenti 2 (indicare il numero di componenti 2)? kg

2. Quale è la provenienza della materia prima 1, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t.

2.1 Quanti chilometri dista la fornitura A di materia prima 1 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 1, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto (se noto)?

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?

2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 1, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 1?

☐ contenitori riciclabili in_____ kg imballaggio/kg materia prima 1_____

☐ altro (descrivere), _____ kg imballaggio/kg materia prima 1_____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 1 (kWh), oppure

Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 1 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 1 (specificare i kg)?

Materia prima 2: indicare il nome della materia prima

1. Quale è il consumo della materia prima 2 per realizzare il componente 2? kg o litri

oppure

Quale è il consumo della materia prima 2 per realizzare n. … componenti 2 (indicare il numero di componenti 2)? kg o litri

2. Quale è la provenienza della materia prima 2, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t o litri.

2.1 Quanti chilometri dista la fornitura A della materia prima 2 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 2, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto? (se noto)

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?

2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 2, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 2?

☐ contenitori riciclabili in_____ kg imballaggio/kg (o litro) materia prima 2_____

☐ altro (descrivere), _____ kg imballaggio/kg (o litro) materia prima 2_____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 2 (kWh), oppure

Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 2 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 2 (specificare i kg o i litri)?

Ripetere per tutte le materie prime impiegate per realizzare il componente 2

CONSUMI DI ACQUA PER LA PRODUZIONE DEL COMPONENTE 2

Qual è il consumo annuo d'acqua per realizzare il componente 2? kg o litri

Qual è il consumo annuo di energia elettrica per l'approvvigionamento e movimentazione (pompe) dell'acqua in (kWh)? Oppure indicare la potenza delle pompe, la dimensione e le ore di funzionamento:

CONSUMO DI COMBUSTIBILI PER LA PRODUZIONE DEL COMPONENTE 2

Qual è il consumo di combustibili fossili annuo stimato (kg, litri o m^3)? Oppure qual è il consumo di combustibili fossili per realizzare n. componenti 2 (indicare il numero di componenti 2)?

☐ olio combustibile kg/a l/a m^3/a

☐ carbone kg/a l/a m^3/a

☐ metano kg/a l/a m^3/a

☐ altro kg/a l/a m^3/a

PROCESSO PRODUTTIVO DEL COMPONENTE 2

Descrivere brevemente il processo produttivo e le unità impiantistiche impiegati nelle diverse fasi di produzione del componente 2.

Elenco dei macchinari utilizzati, delle relative potenze di targa (kW) e delle ore di funzionamento per realizzare n. componenti 2 (indicare il numero di componenti 2).

PRODUZIONE DI RIFIUTI

Qual è la produzione di rifiuti derivata dal processo produttivo del component2 2, in tonnellate (t) o metri cubi (m^3)? (I rifiuti vanno riferiti alla produzione annua oppure ad n. componenti 2). Descrizione del tipo di rifiuto

☐ rifiuti urbani domestici ☐ kg/ a ☐m^3/a

☐ rifiuti urbani non pericolosi ☐ kg/ a ☐m^3/a

☐ rifiuti urbani pericolosi ☐ kg/ a ☐m^3/a

☐ rifiuti speciali ☐ kg/a ☐m^3/a

☐ rifiuti speciali non pericolosi ☐ kg/a ☐m^3/a

☐ rifiuti speciali pericolosi ☐ kg /a ☐m^3/a

RIPETERE PER TUTTI I COMPONENTI DELLA BATTERIA

PRODUZIONE/ASSEMBLAGGIO DELLA BATTERIA

APPROVVIGIONAMENTO E STOCCAGGIO MATERIE PRIME NECESSARIE PER REALIZZARE LA BATTERIA

Materia prima 1: indicare il nome della materia prima

1. Quale è il consumo di materia prima 1 per realizzare una batteria? kg o litri

oppure

Quale è il consumo di materia prima 1 per realizzare n. …batterie. (indicare il numero di batterie)? kg

2. Quale è la provenienza della materia prima 1, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t.

2.1 Quanti chilometri dista la fornitura A di materia prima 1 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 1, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto (se noto)?

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?

2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 1, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 1?

☐ contenitori riciclabili in_____ kg imballaggio/kg materia prima 1 _____

☐ altro (descrivere),_____ kg imballaggio/kg materia prima 1 _____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 1 (kWh), oppure

Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 1 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 1 (specificare i kg)?:

Materia prima 2: indicare il nome della materia prima

1. Quale è il consumo della materia prima 2 per realizzare una batteria? kg o litri

oppure

Quale è il consumo della materia prima 2 per realizzare n. … batterie (indicare il numero di batterie)? kg o litri

2. Quale è la provenienza della materia prima 2, una o più forniture esterne? Indicare i quantitativi in tonnellate (t) per ciascuna fornitura.

Fornitura esterna A t o litri.

2.1 Quanti chilometri dista la fornitura A della materia prima 2 dal Vostro stabilimento?

2.1.1 Quale è il tipo di trasporto della materia prima 2, maggiormente utilizzato?

☐camion ☐ treno ☐ altro (descrivere)_____

2.1.1.1 Qual è il tipo di carburante utilizzato dal mezzo di trasporto? (se noto)

2.1.1.2 Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure indicare km/litro) (se noto)?

2.1.2 Qual è la capacità dei mezzi di trasporto della materia prima 2, in tonnellate (se noto)?

Ripetere per le altre forniture (se ci sono)

2.1.3 Qual è il tipo di imballaggio per la materia prima 2?

☐ contenitori riciclabili in_____ kg imballaggio/kg (o litro) materia prima 2_____

☐ altro (descrivere),_____ kg imballaggio/kg (o litro) materia prima 2_____

2.1.4 Qual è il consumo annuo di energia elettrica per lo stoccaggio e/o movimentazione della materia prima 2 (kWh), oppure

Qual è la potenza dei macchinari impiegati per lo stoccaggio e/o movimentazione della materia prima 2 e le ore di funzionamento per stoccare/movimentare …. kg di materia prima 2 (specificare i kg o i litri)?:

Ripetere per tutte le materie prime impiegate per realizzare la batteria

CONSUMI DI ACQUA

Qual è il consumo annuo d'acqua per realizzare una batteria? kg o litri

Qual è il consumo annuo di energia elettrica per l'approvvigionamento e movimentazione (pompe) dell'acqua in (kWh)? Oppure indicare la potenza delle pompe, la dimensione e le ore di funzionamento.

CONSUMO DI COMBUSTIBILI NELLA LINEA DI PRODUZIONE/ASSEMBLAGGIO DELLA BATTERIA

Qual è il consumo di combustibili fossili annuo stimato (kg, litri o m^3)? Oppure qual è il consumo di combustibili fossili per realizzare n. batterie (indicare il numero di batterie)?

☐ olio combustibile kg/a l/a m^3/a

☐ carbone kg/a l/a m^3/a

☐ metano kg/a l/a m^3/a

☐ altro kg/a l/a m^3/a

PROCESSO DI PRODUZIONE/ASSEMBLAGGIO DELLA BATTERIA

Descrivere brevemente il processo e le unità impiantistiche impiegati nelle diverse fasi di produzione/assemblaggio della batteria (ad esempio descrivere il processo di assemblaggio celle ecc e i materiali e combustibili impiegati in ciascun processo).

Elenco dei macchinari utilizzati, delle relative potenze di targa (kW) e delle ore di funzionamento per realizzare n. batterie (indicare il numero di batterie):

PRODUZIONE DI RIFIUTI

Qual è la produzione di rifiuti derivata dal processo produttivo della batteria, in tonnellate (t) o metri cubi (m^3)? (I rifiuti vanno riferiti alla produzione annua oppure ad n. batterie). Descrizione del tipo di rifiuto

☐ rifiuti urbani domestici ☐ kg/ a ☐m^3/a

☐ rifiuti urbani non pericolosi ☐ kg/ a ☐m^3/a

☐ rifiuti urbani pericolosi ☐ kg/ a ☐m^3/a

☐ rifiuti speciali ☐ kg/a ☐m^3/a

☐ rifiuti speciali non pericolosi ☐ kg/a ☐m^3/a

☐ rifiuti speciali pericolosi ☐ kg /a ☐m^3/a

CONFEZIONAMENTO/IMBALLAGGIO DELLA BATTERIA

1. Breve descrizione del processo di confezionamento del prodotto e delle principali macchine utilizzate, con indicazione dell'età.

2. Descrizione dei materiali utilizzati per l'imballaggio

(1) _____

(2) _____

2.1 Qual è il consumo annuo del materiale per imballaggio? Oppure il consumo di imballaggio per n. batterie (indicare il numero di batterie)

(1) kg/a

(2) kg/a

2.2 Qual è la produzione di rifiuti dovuta all'imballaggio, in tonnellate (t) o metri cubi (m^3)?

(1)_____ ☐ t/a ☐m^3/a

(2)_____ ☐ t/a ☐m^3/a

(3) _____ ☐ t/a ☐m^3/a

2.3 Qual è il consumo annuo di energia elettrica per il confezionamento/imballaggio, in kWh?

CONSUMI DI ACQUA

Qual è la provenienza dell'acqua utilizzata in tutto il processo produttivo?

☐acqua d'acquedotto

☐acqua estratta dal sottosuolo

☐acqua prelevata in superficie

☐acqua piovana

☐acqua depurata

☐acqua riciclata *(reimmessa nel ciclo produttivo in esame)*

☐acqua con autobotte

Con riferimento al trasporto di acqua con autobotte (se esiste) quanti chilometri dista il punto di fornitura dal Vostro sito produttivo?

Qual è il tipo di carburante utilizzato dal mezzo di trasporto (se noto)?

Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento in litri/anno (oppure km/litro) (se noto)?

CONSUMI DI ENERGIA ELETTRICA

Qual è la provenienza dell'energia elettrica utilizzata nell'impianto?

☐ rete nazionale _____

☐ gruppo elettrogeno (specificare i consumi per n. di batterie)_____

☐ fonti rinnovabili (specificare fonte)_____

SCARICHI IDRICI E TRATTAMENTO ACQUE

Quale è la principale destinazione degli scarichi idrici?

☐ Suolo

☐ Acque superficiali

☐ Fognatura

☐ Depuratore consortile

☐ Altro (specificare)

Qual è il consumo annuo di energia elettrica per il trattamento delle acque (se presente)?

kWh/a

DISTRIBUZIONE DEL PRODOTTO

1 Qual è la percentuale (%) di prodotto distribuito nel raggio di 50 km? %

1.1 Qual è il tipo di trasporto utilizzato?_____

☐camion ☐ treno ☐ altro (descrivere)_____

1.2.1. Qual è il tipo di carburante utilizzato dal mezzo di trasporto?_____

1.2.2.Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento? l/a

1.2.3 Qual è la capacità dei mezzi di trasporto, in tonnellate (se noto)?

2 Qual è la percentuale (%) di prodotto distribuito tra 50-200 km? %

1.1 Qual è il tipo di trasporto utilizzato?_____

☐camion ☐ treno ☐ altro (descrivere)_____

1.2.1. Qual è il tipo di carburante utilizzato dal mezzo di trasporto?_____

1.2.2.Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento? l/a

1.2.3 Qual è la capacità dei mezzi di trasporto, in tonnellate (se noto)?

4 Quale è la percentuale (%) di prodotto distribuito oltre i 200 km? %

1.1 Qual è il tipo di trasporto utilizzato?_____

☐camion ☐ treno ☐ altro (descrivere)_____

1.2.1. Qual è il tipo di carburante utilizzato dal mezzo di trasporto?_____

1.2.2.Qual è il consumo annuo di carburante per il trasporto dalla fornitura al Vostro stabilimento? l/a

1.2.3 Qual è la capacità dei mezzi di trasporto, in tonnellate (se noto)?

QUESTIONNAIRE TO COLLECT DATA RELATED TO THE PRODUCTIVE PROCESS OF BATTERIES

COMPANY INFORMATION

Name:

Representative of the company:

Representative contact: e-mail: Phone:

PERIOD OF REFERENCE

_____(indicate the year to which the data are referred)

PRODUCT INFORMATION

Name:

Technical characteristics of the product (attach the specifications of the product):

Dimensions [mm]:

Weight [kg]

Other:

Technical characteristics of product components (for each component attach the specifications):

Dimensions [mm]:

Weight [kg]

Other:

AMOUNT OF BATTERIES ANNUALLY PRODUCED (annual quantity)

OTHER PRODUCTS ANNUALLY PRODUCED (if present) (annual quantity)

<u>PRODUCTION OF "COMPONENT A"</u>

PRODUCTIVE PROCESS OF "COMPONENT A"

- Short description of the productive process of "component A" and of the machineries:
- List of machineries, relative power (kW) and hours of working to produce n. "components A" (specify the number of "components A"):
- Annual electricity consumed: kWh/y

  or

electricity consumed to produce n. "components A" (indicate the number of components): kWh/n. components

SUPPLYING AND STORAGE OF RAW MATERIALS USED TO PRODUCE THE "COMPONENT A"

Raw material 1: (specify the name of the raw material)

1. Consumption of raw material 1 to produce one "component A":

kg

or

Consumption of raw material 1 to produce n. "components A" (specify the number of "components A"): kg

2. Source of supply of raw material 1, one or several external sources. Specify the amount (in tons) for each source.

External source 1 t.

2.1 Distance (in km) between the external source 1 and your company:

2.1.1 Kind of transport used for raw material 1:

☐truck ☐ train ☐ other (specify)_____

2.1.1.1 Kind of fuel used (if known)

2.1.2 Capacity of the means of transportation, in tons (if known):

Please, if there are other external sources, repeat for each source

2.1.3 Packaging of raw material 1

☐ (specify the kind of packaging)_____ kg packaging/kg raw material 1_____

2.1.4 Annual electricity consumption for the storage and/or movement of raw material 1 (kWh),

or

Power of machineries used for the storage and/or movement of raw material 1and hours of working to stock/move ……. kg of raw material 1 (specify the kg):

Please, repeat for the other raw materials

WATER CONSUMPTION FOR THE PRODUCTION OF "COMPONENT A"

Water consumption to produce one "component A": kg o litre

Annual electricity consumption for the supplying and movement of water (with pumps) (kWh):

or

indication of the pumps power, their dimensions and hours of working:

FUEL CONSUMPTION FOR THE PRODUCTION OF "COMPONENT A"

1. Annual fuel consumption (kg, litre or m^3) or fuel consumption to produce n. "components A" (specify the number of "components A")

☐ fuel oil kg/y l/y m^3/y

☐ coal kg/y l/y m^3/y

☐ natural gas kg/y l/y m^3/y

☐ biomass kg/y l/y m^3/y

☐ other kg/y l/y m^3/y

WASTE

1.Production of waste in the productive process of "component A", in tons or m^3. (Waste have to be referred to the annual production or to the production of n. "components A"). Description of the waste

☐ household waste not dangerous ☐ kg/y ☐m^3/y

☐ household waste dangerous ☐ kg/y ☐m^3/y

☐ special waste not dangerous ☐ kg/y ☐m^3/y

☐ special waste dangerous ☐ kg /y ☐m^3/y

PLEASE REPEAT FOR ALL THE COMPONENTS OF THE BATTERY AND FOR THE ASSEMBLY OF ALL THE COMPONENTS TO OBTAIN THE BATTERY

PACKAGING OF BATTERY

1. Short description of the packaging process of battery and of the machineries used.

2. Description of the materials used for the packaging

(1) _____

(2) _____

...

2.1 Annual consumption of the material for the packaging:

Or

Consumption of the material for the packaging of n. batteries (specify the number of batteries)

(1) kg/y

(2) kg/y

2.2 Waste production in the packaging step, in tons or $m^{3:}$

(1)_____ ☐ t/y ☐m^3/y

(2)_____ ☐ t/y ☐m^3/y

(3) _____ ☐ t/y ☐m^3/y

2.3 Annual electricity consumption for the packaging, in kWh:

WATER CONSUMPTION

1. Source of water used in the productive process

☐water from aqueduct

☐water from well

☐rainwater

☐purified water

☐recycled water

☐water transported with tanker

If the water is transported with tanker, specify:

- the km from the source of supply to your company
- kind of fuel used (if known)
- annual consumption of fuel to transport the water in litre/year (or specify km/litre) (if known).

ELECTRICITY CONSUMPTION

Source of the electricity used in your company:

☐ national grid _____

☐ renewable sources (specify the kind of source)_____

☐ other (specify)_____

WASTEWATER AND RELATIVE TREATMENT

1- Main destination of wastewater

☐ Soil

☐ Sewage system

☐ Water purification plant

☐ Other (specify)

Annual electricity consumption for the wastewater treatment (if present): kWh/y

SALE OF THE PRODUCT

1 Percentage (%) of product sold within a 50 km radius: %

1.1 Kind of transport used _____

☐truck ☐ train ☐ other (specify)_____

1.2.1. Kind of fuel used (if known)_____

1.2.2. Consumption of fuel to transport the final product from your company to the purchaser: litre/y (or specify km/litre) (if known)

1.2.3 Capacity of the means of transportation, in tons (if known)

2 Percentage (%) of product sold between 50-200 km radius: %

2.1 Kind of transport used _____

☐truck ☐ train ☐ other (specify)_____

2.2.1. Kind of fuel used (if known)_____

2.2.2. Consumption of fuel to transport the final product from your company to the purchaser: litre/y (or specify km/litre) (if known)

2.2.3 Capacity of the means of transportation, in tons (if known)

3 Percentage (%) of product sold beyond a 200 km radius: %

3.1 Kind of transport used _____

☐truck ☐ train ☐ other (specify)_____

3.2.1. Kind of fuel used (if known)_____

3.2.2. Consumption of fuel to transport the final product from your company to the purchaser: litre/y (or specify km/litre) (if known)

3.2.3 Capacity of the means of transportation, in tons (if known)

Allegato 3

Datasets primari

Analisi di inventario: fase di produzione batteria con celle da 30 Ah

Sostanza	Compartimento	Sottocompartimento	U.M.	Totale	Celle	BMS	Box batteria	Si raffr
Energy, gross calorific value, in biomass	Resource	biotic	MJ	10,95	3,38	3,28	2,65	
Energy, gross calorific value, in biomass, primary forest	Resource	biotic	kJ	38,05	37,37	0,27	0,26	
Peat, in ground	Resource	biotic	g	15,34	0,43	14,81	0,07	
Wood, hard, standing	Resource	biotic	cm3	285,74	59,62	101,46	76,94	
Wood, primary forest, standing	Resource	biotic	cm3	3,53	3,47	0,02	0,02	
Wood, soft, standing	Resource	biotic	cm3	745,14	240,85	213,09	179,73	
Wood, unspecified, standing/m3	Resource	biotic	mm3	14,03	2,56	10,85	0,38	
Carbon dioxide, in air	Resource	in air	kg	1,09	0,32	0,34	0,27	
Energy, kinetic (in wind), converted	Resource	in air	MJ	2,84	0,56	1,13	0,71	
Energy, solar, converted	Resource	in air	kJ	40,98	8,39	15,93	10,28	
Aluminium, 24% in bauxite, 11% in crude ore, in ground	Resource	in ground	g	159,52	37,87	6,68	70,96	
Anhydrite, in ground	Resource	in ground	mg	1,26	1,01	0,16	0,05	
Barite, 15% in crude ore, in ground	Resource	in ground	g	24,73	10,27	6,21	5,10	
Basalt, in ground	Resource	in ground	g	8,09	3,41	0,76	2,42	
Borax, in ground	Resource	in ground	µg	831,29	140,66	518,90	105,99	
Cadmium, 0.30% in sulfide, Cd 0.18%, Pb, Zn, Ag, In, in ground	Resource	in ground	mg	5,02	3,24	0,68	0,68	
Calcite, in ground	Resource	in ground	kg	10,65	2,91	5,08	1,64	
Carbon, in organic matter, in soil	Resource	in ground	mg	548,80	538,95	3,85	3,70	
Chromium, 25.5% in chromite, 11.6% in crude ore, in ground	Resource	in ground	kg	1,69	0,03	0,02	1,02	
Chrysotile, in ground	Resource	in ground	mg	12,68	11,32	1,10	0,16	
Cinnabar, in ground	Resource	in ground	mg	1,17	1,04	0,10	0,01	
Clay, bentonite, in ground	Resource	in ground	g	55,61	10,18	2,14	26,71	
Clay, unspecified, in ground	Resource	in ground	kg	2,93	0,57	1,86	0,30	
Coal, brown, in ground	Resource	in ground	kg	7,18	1,37	2,99	1,74	
Coal, hard, unspecified, in ground	Resource	in ground	kg	14,57	3,48	1,99	5,61	
Cobalt, in ground	Resource	in ground	µg	36,43	14,60	11,91	6,12	
Colemanite, in ground	Resource	in ground	mg	88,45	44,72	33,25	6,47	

Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	kg	1,16	1,16	0,00	0,00
Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	9,69	4,53	1,70	2,13
Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	2,57	1,20	0,45	0,57
Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	96,62	6,00	86,08	2,81
Diatomite, in ground	Resource	in ground	µg	1,64	0,46	0,72	0,28
Dolomite, in ground	Resource	in ground	g	15,06	0,95	0,73	8,26
Feldspar, in ground	Resource	in ground	µg	17,13	10,26	3,11	2,32
Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Resource	in ground	g	101,67	101,40	0,25	0,01
Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Resource	in ground	g	44,58	44,46	0,11	0,01
Fluorspar, 92%, in ground	Resource	in ground	g	307,79	305,49	1,92	0,23
Gallium, 0.014% in bauxite, in ground	Resource	in ground	ng	115,88	23,72	44,93	29,15
Gas, mine, off-gas, process, coal mining/m3	Resource	in ground	l	142,27	33,51	20,71	54,34
Gas, natural, in ground	Resource	in ground	m3	6,66	2,14	1,32	1,98
Gold, Au 1.1E-4%, Ag 4.2E-3%, in ore, in ground	Resource	in ground	mg	10,12	0,03	10,09	0,00
Gold, Au 1.3E-4%, Ag 4.6E-5%, in ore, in ground	Resource	in ground	mg	18,56	0,05	18,50	0,00
Gold, Au 1.4E-4%, in ore, in ground	Resource	in ground	mg	22,23	0,07	22,16	0,00
Gold, Au 2.1E-4%, Ag 2.1E-4%, in ore, in ground	Resource	in ground	mg	33,95	0,10	33,84	0,00
Gold, Au 4.3E-4%, in ore, in ground	Resource	in ground	mg	8,41	0,02	8,39	0,00
Gold, Au 4.9E-5%, in ore, in ground	Resource	in ground	mg	20,15	0,06	20,09	0,00
Gold, Au 6.7E-4%, in ore, in ground	Resource	in ground	mg	31,20	0,09	31,10	0,00
Gold, Au 7.1E-4%, in ore, in ground	Resource	in ground	mg	35,18	0,10	35,07	0,00
Gold, Au 9.7E-4%, Ag 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	2,11	0,01	2,10	0,00
Granite, in ground	Resource	in ground	µg	1,45	0,07	1,35	0,02
Gravel, in ground	Resource	in ground	kg	18,79	4,10	6,07	5,32
Gypsum, in ground	Resource	in ground	mg	19,46	1,15	17,11	0,74
Indium, 0.005% in sulfide, In 0.003%, Pb, Zn, Ag, Cd, in ground	Resource	in ground	µg	89,39	55,13	13,64	12,73
Iron, 46% in ore, 25% in crude ore, in ground	Resource	in ground	kg	3,75	0,18	0,11	2,14
Kaolinite, 24% in crude ore, in ground	Resource	in ground	g	1,49	1,02	0,32	0,09
Kieserite, 25% in crude ore, in ground	Resource	in ground	mg	3,93	2,56	0,90	0,29
Lead, 5.0% in sulfide, Pb 3.0%, Zn, Ag, Cd, In, in ground	Resource	in ground	mg	432,54	107,99	244,21	49,58
Lithium, 0.15% in brine, in ground	Resource	in ground	g	314,58	314,58	0,00	0,00
Magnesite, 60% in crude ore, in ground	Resource	in ground	g	80,95	3,04	3,18	46,12
Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Resource	in ground	g	1,90	0,88	0,22	0,49
Metamorphous rock, graphite containing, in ground	Resource	in ground	g	726,40	726,35	0,03	0,01
Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Resource	in ground	g	1,80	0,11	1,60	0,05

Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Resource	in ground	mg	33,76	15,79	5,93	7,43
Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Resource	in ground	g	14,56	14,52	0,02	0,01
Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Resource	in ground	mg	123,72	57,85	21,74	27,24
Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	42,09	19,51	5,04	10,83
Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Resource	in ground	g	11,69	11,61	0,07	0,00
Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Resource	in ground	kg	3,87	0,07	0,04	2,32
Oil, crude, in ground	Resource	in ground	kg	4,17	1,88	1,15	0,70
Olivine, in ground	Resource	in ground	µg	564,09	387,25	139,35	23,14
Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	11,05	7,94	1,48	1,00
Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	26,55	19,08	3,56	2,41
Phosphorus, 18% in apatite, 12% in crude ore, in ground	Resource	in ground	g	177,59	177,08	0,48	0,02
Phosphorus, 18% in apatite, 4% in crude ore, in ground	Resource	in ground	g	406,70	405,61	1,01	0,05
Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	430,30	116,56	156,93	96,78
Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	1,54	0,42	0,56	0,35
Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	144,91	54,74	44,30	28,31
Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	ng	453,89	171,46	138,74	88,69
Rhenium, in crude ore, in ground	Resource	in ground	ng	177,00	102,13	37,42	23,11
Sand, unspecified, in ground	Resource	in ground	g	1,22	0,07	1,13	0,01
Shale, in ground	Resource	in ground	mg	3,56	2,86	0,45	0,15
Silver, 0.007% in sulfide, Ag 0.004%, Pb, Zn, Cd, In, in ground	Resource	in ground	mg	41,30	0,66	40,59	0,03
Silver, 3.2ppm in sulfide, Ag 1.2ppm, Cu and Te, in crude ore, in ground	Resource	in ground	mg	29,61	0,47	29,11	0,02
Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, in ground	Resource	in ground	mg	2,73	0,04	2,69	0,00
Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, in ground	Resource	in ground	mg	6,24	0,10	6,14	0,00
Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, in ground	Resource	in ground	mg	6,12	0,10	6,02	0,00
Silver, Ag 9.7E-4%, Au 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	4,04	0,06	3,97	0,00
Sodium chloride, in ground	Resource	in ground	kg	1,44	1,37	0,05	0,01
Sodium nitrate, in ground	Resource	in ground	ng	820,82	788,24	8,98	14,56
Sodium sulphate, various forms, in ground	Resource	in ground	g	2,87	2,66	0,14	0,04
Stibnite, in ground	Resource	in ground	ng	170,75	48,06	75,24	29,28
Sulfur, in ground	Resource	in ground	mg	447,22	72,93	369,33	3,06
Sylvite, 25 % in sylvinite, in ground	Resource	in ground	mg	551,02	440,71	95,97	8,86
Talc, in ground	Resource	in ground	mg	192,11	125,70	35,75	18,92
Tantalum, 81.9% in tantalite, 1.6E-4% in crude ore, in ground	Resource	in ground	µg	589,48	517,73	31,69	24,72
Tellurium, 0.5ppm in sulfide, Te 0.2ppm, Cu and Ag, in crude ore, in ground	Resource	in ground	mg	4,44	0,07	4,37	0,00
Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Resource	in ground	g	1,15	0,03	1,11	0,01

TiO2, 54% in ilmenite, 2.6% in crude ore, in ground	Resource	in ground	g	5,83	5,02	0,45	0,22
TiO2, 95% in rutile, 0.40% in crude ore, in ground	Resource	in ground	µg	228,13	225,36	1,94	0,51
Ulexite, in ground	Resource	in ground	mg	101,39	1,28	97,99	1,31
Uranium, in ground	Resource	in ground	mg	290,96	61,26	116,23	70,03
Vermiculite, in ground	Resource	in ground	mg	25,47	21,40	3,44	0,39
Volume occupied, final repository for low-active radioactive waste	Resource	in ground	mm3	594,55	122,67	238,07	144,31
Volume occupied, final repository for radioactive waste	Resource	in ground	mm3	149,31	30,48	59,77	36,45
Volume occupied, underground deposit	Resource	in ground	cm3	1,94	0,47	0,93	0,33
Zinc, 9.0% in sulfide, Zn 5.3%, Pb, Ag, Cd, In, in ground	Resource	in ground	g	5,50	3,03	1,03	0,89
Zirconium, 50% in zircon, 0.39% in crude ore, in ground	Resource	in ground	µg	800,82	710,06	39,72	31,50
Bromine, 0.0023% in water	Resource	in water	µg	429,68	317,70	77,15	21,50
Energy, potential (in hydropower reservoir), converted	Resource	in water	MJ	92,47	14,42	10,67	41,59
Iodine, 0.03% in water	Resource	in water	µg	116,83	92,59	16,40	4,84
Magnesium, 0.13% in water	Resource	in water	µg	392,80	159,76	98,62	82,96
Volume occupied, reservoir	Resource	in water	m3day	152,81	32,93	68,60	31,65
Water, cooling, unspecified natural origin/m3	Resource	in water	l	788,71	232,80	284,96	167,23
Water, lake	Resource	in water	l	26,83	22,54	3,62	0,41
Water, river	Resource	in water	l	366,45	209,70	71,46	52,64
Water, salt, ocean	Resource	in water	l	23,78	5,45	8,46	6,09
Water, salt, sole	Resource	in water	l	3,04	1,36	0,84	0,52
Water, turbine use, unspecified natural origin	Resource	in water	m3	1003,55	149,37	83,77	475,50
Water, unspecified natural origin/m3	Resource	in water	l	384,68	264,74	28,15	56,66
Water, well, in ground	Resource	in water	l	162,36	68,56	72,68	13,03
Occupation, arable, non-irrigated	Resource	land	cm2a	34,38	19,33	8,56	4,01
Occupation, construction site	Resource	land	m2a	0,45	0,43	0,01	0,01
Occupation, dump site	Resource	land	m2a	0,78	0,42	0,19	0,11
Occupation, dump site, benthos	Resource	land	cm2a	26,29	9,64	5,89	6,64
Occupation, forest, intensive	Resource	land	m2a	0,11	0,05	0,01	0,03
Occupation, forest, intensive, normal	Resource	land	m2a	1,41	0,49	0,19	0,45
Occupation, forest, intensive, short-cycle	Resource	land	cm2a	95,44	93,73	0,67	0,64
Occupation, industrial area	Resource	land	m2a	0,10	0,03	0,01	0,04
Occupation, industrial area, benthos	Resource	land	mm2a	23,80	8,45	5,31	6,19
Occupation, industrial area, built up	Resource	land	m2a	0,12	0,04	0,01	0,04
Occupation, industrial area, vegetation	Resource	land	cm2a	326,18	107,96	26,06	118,60
Occupation, mineral extraction site	Resource	land	m2a	0,33	0,05	0,26	0,02

Occupation, permanent crop, fruit, intensive	Resource	land	mm2a	335,77	124,72	63,35	91,16
Occupation, shrub land, sclerophyllous	Resource	land	cm2a	202,89	21,40	76,62	64,73
Occupation, traffic area, rail embankment	Resource	land	cm2a	63,01	25,81	8,39	17,78
Occupation, traffic area, rail network	Resource	land	cm2a	69,67	28,54	9,27	19,66
Occupation, traffic area, road embankment	Resource	land	cm2a	171,92	64,27	24,77	51,16
Occupation, traffic area, road network	Resource	land	m2a	0,18	0,02	0,07	0,05
Occupation, urban, discontinuously built	Resource	land	mm2a	18,06	15,39	1,57	0,68
Occupation, water bodies, artificial	Resource	land	cm2a	442,59	82,68	195,07	101,74
Occupation, water courses, artificial	Resource	land	m2a	0,10	0,02	0,01	0,05
Transformation, from arable	Resource	land	mm2	74,35	17,40	8,30	30,03
Transformation, from arable, non-irrigated	Resource	land	cm2	61,18	35,49	13,72	7,39
Transformation, from arable, non-irrigated, fallow	Resource	land	mm2	19,36	4,60	0,81	8,61
Transformation, from dump site, inert material landfill	Resource	land	mm2	386,52	64,51	16,95	188,29
Transformation, from dump site, residual material landfill	Resource	land	cm2	36,63	3,61	15,12	11,04
Transformation, from dump site, sanitary landfill	Resource	land	mm2	2,40	1,48	0,45	0,29
Transformation, from dump site, slag compartment	Resource	land	mm2	0,48	0,17	0,12	0,12
Transformation, from forest	Resource	land	cm2	63,84	27,53	15,86	12,62
Transformation, from forest, extensive	Resource	land	cm2	113,79	41,92	14,89	35,16
Transformation, from forest, intensive, clear-cutting	Resource	land	mm2	340,86	334,75	2,39	2,30
Transformation, from industrial area	Resource	land	mm2	63,66	16,39	19,23	17,31
Transformation, from industrial area, benthos	Resource	land	mm2	0,20	0,06	0,04	0,06
Transformation, from industrial area, built up	Resource	land	mm2	145,20	144,81	0,36	0,02
Transformation, from industrial area, vegetation	Resource	land	mm2	247,69	247,03	0,62	0,03
Transformation, from mineral extraction site	Resource	land	cm2	111,60	19,01	89,23	2,07
Transformation, from pasture and meadow	Resource	land	cm2	86,99	23,21	25,19	23,82
Transformation, from pasture and meadow, intensive	Resource	land	mm2	4,75	2,89	0,88	0,60
Transformation, from sea and ocean	Resource	land	cm2	26,88	9,65	6,46	6,65
Transformation, from shrub land, sclerophyllous	Resource	land	cm2	46,76	5,20	15,83	15,89
Transformation, from tropical rain forest	Resource	land	mm2	340,86	334,75	2,39	2,30
Transformation, from unknown	Resource	land	cm2	213,41	54,00	108,38	31,49
Transformation, to arable	Resource	land	mm2	770,87	191,05	213,48	226,11
Transformation, to arable, non-irrigated	Resource	land	cm2	61,25	35,52	13,76	7,39
Transformation, to arable, non-irrigated, fallow	Resource	land	mm2	31,61	7,05	7,72	10,39
Transformation, to dump site	Resource	land	cm2	51,94	31,18	11,56	5,68
Transformation, to dump site, benthos	Resource	land	cm2	26,29	9,64	5,89	6,64

Transformation, to dump site, inert material landfill	Resource	land	mm2	386,52	64,51	16,95	188,29
Transformation, to dump site, residual material landfill	Resource	land	cm2	36,63	3,61	15,12	11,04
Transformation, to dump site, sanitary landfill	Resource	land	mm2	2,40	1,48	0,45	0,29
Transformation, to dump site, slag compartment	Resource	land	mm2	0,48	0,17	0,12	0,12
Transformation, to forest	Resource	land	cm2	45,14	7,02	16,18	13,54
Transformation, to forest, intensive	Resource	land	mm2	701,16	363,92	65,43	167,76
Transformation, to forest, intensive, clear-cutting	Resource	land	mm2	340,86	334,75	2,39	2,30
Transformation, to forest, intensive, normal	Resource	land	cm2	105,42	37,80	14,07	33,05
Transformation, to forest, intensive, short-cycle	Resource	land	mm2	340,86	334,75	2,39	2,30
Transformation, to heterogeneous, agricultural	Resource	land	cm2	13,54	1,09	11,46	0,61
Transformation, to industrial area	Resource	land	cm2	20,51	6,43	1,59	7,71
Transformation, to industrial area, benthos	Resource	land	mm2	59,11	1,68	56,30	0,69
Transformation, to industrial area, built up	Resource	land	cm2	26,95	10,77	1,74	8,91
Transformation, to industrial area, vegetation	Resource	land	mm2	797,08	346,88	62,02	239,59
Transformation, to mineral extraction site	Resource	land	cm2	176,86	43,92	105,42	16,99
Transformation, to pasture and meadow	Resource	land	cm2	15,38	15,13	0,10	0,09
Transformation, to permanent crop, fruit, intensive	Resource	land	mm2	4,73	1,76	0,89	1,28
Transformation, to sea and ocean	Resource	land	mm2	0,20	0,06	0,04	0,06
Transformation, to shrub land, sclerophyllous	Resource	land	cm2	40,52	4,27	15,30	12,93
Transformation, to traffic area, rail embankment	Resource	land	mm2	14,66	6,01	1,95	4,14
Transformation, to traffic area, rail network	Resource	land	mm2	16,12	6,60	2,15	4,55
Transformation, to traffic area, road embankment	Resource	land	mm2	119,67	45,23	16,00	36,07
Transformation, to traffic area, road network	Resource	land	cm2	25,49	2,84	9,65	8,03
Transformation, to unknown	Resource	land	cm2	80,41	3,50	76,51	0,24
Transformation, to urban, discontinuously built	Resource	land	mm2	0,36	0,31	0,03	0,01
Transformation, to water bodies, artificial	Resource	land	mm2	407,10	80,24	162,89	101,21
Transformation, to water courses, artificial	Resource	land	cm2	12,66	1,91	1,06	5,98
Acenaphthene	Emission to air		pg	331,10	7,73	319,95	2,10
Acetaldehyde	Emission to air		mg	6,34	0,89	3,13	1,43
Acetic acid	Emission to air		mg	37,75	33,45	1,66	1,63
Acrolein	Emission to air		ng	191,67	4,48	185,22	1,22
Aldehydes, unspecified	Emission to air		µg	1,41	0,03	1,36	0,01
Aluminium	Emission to air		g	28,03	19,67	5,65	1,67
Ammonia	Emission to air		g	11,35	7,78	2,34	0,76
Antimony	Emission to air		µg	9,14	0,62	8,04	0,30

Arsenic	Emission to air	µg	54,88	3,71	48,29	1,78
Barium	Emission to air	pg	35,71	0,80	33,91	0,62
Benzal chloride	Emission to air	pg	24,32	0,57	23,50	0,15
Benzene	Emission to air	mg	12,66	2,60	1,69	5,17
Benzene, hexachloro-	Emission to air	µg	54,15	1,99	1,04	31,55
Benzo(a)pyrene	Emission to air	mg	1,75	1,55	0,02	0,11
Beryllium	Emission to air	µg	13,71	0,93	12,06	0,44
Boron	Emission to air	pg	206,10	4,60	195,75	3,55
Bromine	Emission to air	pg	169,39	3,78	160,90	2,90
Butadiene	Emission to air	µg	3,82	0,06	3,75	0,00
Butane	Emission to air	µg	348,01	8,13	336,30	2,21
Cadmium	Emission to air	µg	197,23	10,73	35,12	93,43
Carbon dioxide, biogenic	Emission to air	g	97,89	10,45	72,09	9,48
Carbon dioxide, fossil	Emission to air	kg	10,50	1,27	4,50	2,91
Carbon disulfide	Emission to air	pg	4,51	0,11	4,36	0,03
Carbon monoxide, fossil	Emission to air	g	140,43	20,24	11,55	67,05
Chlorine	Emission to air	µg	3,44	2,28	0,35	0,50
Chloroform	Emission to air	pg	2,05	0,05	1,98	0,01
Chromium	Emission to air	mg	7,18	0,27	0,16	4,16
Chromium VI	Emission to air	µg	2,54	0,18	2,22	0,09
Cobalt	Emission to air	µg	18,30	1,24	16,10	0,59
Copper	Emission to air	mg	4,02	1,03	0,85	1,33
Cumene	Emission to air	pg	0,18	0,00	0,18	0,00
Cyanide	Emission to air	pg	86,81	2,03	83,89	0,55
Dinitrogen monoxide	Emission to air	mg	293,51	65,85	119,13	66,98
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	ng	37,97	1,76	4,77	19,40
Ethane	Emission to air	µg	514,87	12,02	497,55	3,27
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	pg	3,80	0,09	3,67	0,02
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	mg	2,10	0,97	0,52	0,38
Ethane, hexafluoro-, HFC-116	Emission to air	mg	1,27	0,85	0,12	0,19
Ethene, chloro-	Emission to air	pg	1,39	0,03	1,34	0,01
Ethene, tetrachloro-	Emission to air	ng	3,01	0,07	2,91	0,02
Ethylene oxide	Emission to air	mg	5,84	5,81	0,04	0,00
Ethyne	Emission to air	mg	4,14	4,08	0,04	0,01
Fluorine	Emission to air	ng	480,01	144,26	169,63	102,53

Formaldehyde	Emission to air	mg	22,43	6,87	6,63	5,51
Furan	Emission to air	pg	0,30	0,01	0,29	0,00
Heat, waste	Emission to air	MJ	135,90	26,99	34,24	46,09
Helium	Emission to air	pg	117,21	43,52	53,04	12,75
Hexane	Emission to air	µg	298,02	6,96	288,00	1,89
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	mg	441,04	21,46	12,88	251,02
Hydrocarbons, aliphatic, unsaturated	Emission to air	pg	63,54	1,42	60,35	1,09
Hydrocarbons, aromatic	Emission to air	mg	211,19	7,73	6,59	121,51
Hydrocarbons, chlorinated	Emission to air	µg	724,76	383,05	74,70	164,80
Hydrogen	Emission to air	mg	2,23	1,98	0,10	0,10
Hydrogen chloride	Emission to air	mg	318,94	52,76	44,48	136,83
Hydrogen fluoride	Emission to air	mg	135,59	84,74	4,23	28,77
Hydrogen sulfide	Emission to air	mg	46,80	4,67	7,19	21,56
Iodine	Emission to air	pg	85,99	1,92	81,67	1,48
Iron	Emission to air	mg	44,16	1,52	0,82	25,81
Isoprene	Emission to air	pg	3,95	0,09	3,81	0,03
Lead	Emission to air	mg	18,03	0,81	0,79	10,14
Lead-210	Emission to air	nBq	35,71	0,80	33,91	0,62
Magnesium	Emission to air	ng	714,06	16,68	690,03	4,54
Manganese	Emission to air	mg	5,42	0,20	0,12	3,15
Mercury	Emission to air	mg	6,44	0,24	0,26	3,67
Methane, biogenic	Emission to air	mg	634,41	126,81	249,92	159,04
Methane, bromo-, Halon 1001	Emission to air	pg	5,56	0,13	5,37	0,04
Methane, dichlorodifluoro-, CFC-12	Emission to air	pg	3,70	0,09	3,57	0,02
Methane, fossil	Emission to air	mg	334,96	82,56	204,35	29,65
Methane, tetrachloro-, CFC-10	Emission to air	ng	1,65	0,04	1,60	0,01
Methane, tetrafluoro-, CFC-14	Emission to air	mg	11,47	7,67	1,08	1,67
Methanol	Emission to air	mg	19,01	16,86	0,81	0,82
Molybdenum	Emission to air	ng	20,35	4,10	8,11	5,03
Nickel	Emission to air	mg	3,88	0,16	0,12	2,23
Nitrogen oxides	Emission to air	g	100,47	50,95	30,10	11,99
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	g	16,91	8,62	4,08	2,60
Ozone	Emission to air	mg	181,34	37,74	73,06	43,54
PAH, polycyclic aromatic hydrocarbons	Emission to air	mg	55,16	46,79	1,33	4,35
Particulates, < 2.5 um	Emission to air	g	5,05	1,31	1,34	1,48

Particulates, > 10 um	Emission to air	g	1,01	0,35	0,13	0,33
Particulates, > 2.5 um, and < 10um	Emission to air	g	1,23	0,37	0,11	0,47
Pentane	Emission to air	µg	432,19	10,09	417,65	2,75
Phenol	Emission to air	µg	84,99	41,55	6,65	22,70
Phosphorus	Emission to air	µg	3,62	2,42	0,34	0,53
Polonium-210	Emission to air	nBq	65,24	1,46	61,97	1,12
Polychlorinated biphenyls	Emission to air	µg	82,26	3,23	1,76	47,69
Potassium-40	Emission to air	nBq	8,78	0,20	8,34	0,15
Propanal	Emission to air	pg	13,19	0,31	12,75	0,08
Propane	Emission to air	µg	264,95	6,19	256,04	1,68
Propene	Emission to air	ng	312,31	7,29	301,80	1,98
Propionic acid	Emission to air	µg	6,01	0,14	5,81	0,04
Radium-226	Emission to air	nBq	9,22	0,21	8,75	0,16
Radium-228	Emission to air	nBq	2,73	0,06	2,59	0,05
Radon-220	Emission to air	nBq	191,66	4,28	182,04	3,30
Radon-222	Emission to air	nBq	107,65	2,40	102,24	1,85
Selenium	Emission to air	µg	16,84	2,55	11,29	1,86
Silicon	Emission to air	pg	462,95	171,88	209,47	50,36
Sodium	Emission to air	µg	1,10	0,34	0,12	0,39
Strontium	Emission to air	pg	32,56	0,73	30,92	0,56
Styrene	Emission to air	pg	0,87	0,02	0,84	0,01
Sulfate	Emission to air	µg	7,42	1,87	3,14	1,49
Sulfur dioxide	Emission to air	g	7,93	1,20	2,07	2,87
Sulfur hexafluoride	Emission to air	mg	2,08	0,49	1,12	0,29
Thallium	Emission to air	µg	59,38	4,02	52,25	1,92
Thorium-228	Emission to air	nBq	1,47	0,03	1,40	0,03
Thorium-232	Emission to air	nBq	2,31	0,05	2,19	0,04
Tin	Emission to air	µg	227,43	97,81	57,77	44,34
Titanium	Emission to air	µg	48,26	2,29	1,38	27,52
Toluene	Emission to air	mg	4,89	0,91	2,47	0,93
Uranium-238	Emission to air	nBq	7,68	0,17	7,29	0,13
Vanadium	Emission to air	µg	155,26	7,83	23,88	76,25
Water	Emission to air	g	43,31	30,23	8,92	2,57
Xylene	Emission to air	mg	3,28	0,75	1,44	0,67
Zinc	Emission to air	mg	67,86	4,37	1,98	37,97

1-Butanol	Emission to air	high. pop.	ng	12,28	10,06	1,96	0,16
1-Pentanol	Emission to air	high. pop.	ng	26,78	17,92	5,94	1,81
1-Pentene	Emission to air	high. pop.	ng	20,24	13,54	4,49	1,37
1-Propanol	Emission to air	high. pop.	ng	737,15	238,12	258,47	148,48
1,4-Butanediol	Emission to air	high. pop.	ng	267,18	236,37	17,00	8,52
2-Aminopropanol	Emission to air	high. pop.	ng	1,29	0,24	0,93	0,07
2-Butene, 2-methyl-	Emission to air	high. pop.	µg	996,59	996,59	0,00	0,00
2-Methyl-1-propanol	Emission to air	high. pop.	ng	55,85	39,07	11,55	3,23
2-Nitrobenzoic acid	Emission to air	high. pop.	ng	2,56	0,23	2,15	0,11
2-Propanol	Emission to air	high. pop.	mg	3,63	3,22	0,18	0,14
Acenaphthene	Emission to air	high. pop.	ng	47,52	9,87	18,45	11,85
Acetaldehyde	Emission to air	high. pop.	mg	8,61	2,17	3,27	1,95
Acetic acid	Emission to air	high. pop.	mg	72,73	27,76	18,09	16,59
Acetone	Emission to air	high. pop.	mg	12,50	5,95	3,32	2,00
Acrolein	Emission to air	high. pop.	µg	7,09	1,99	2,30	1,73
Acrylic acid	Emission to air	high. pop.	mg	3,05	0,01	3,04	0,00
Aldehydes, unspecified	Emission to air	high. pop.	µg	431,65	159,71	230,37	25,66
Aluminium	Emission to air	high. pop.	g	1,29	0,16	0,02	0,69
Ammonia	Emission to air	high. pop.	g	1,54	1,45	0,07	0,02
Ammonium carbonate	Emission to air	high. pop.	µg	10,49	3,22	5,18	1,29
Aniline	Emission to air	high. pop.	ng	324,79	286,68	24,98	8,10
Anthranilic acid	Emission to air	high. pop.	ng	1,98	0,17	1,67	0,08
Antimony	Emission to air	high. pop.	µg	196,92	26,39	4,57	102,43
Arsenic	Emission to air	high. pop.	mg	3,62	0,54	0,24	1,75
Arsine	Emission to air	high. pop.	ng	35,52	0,10	35,41	0,00
Barium	Emission to air	high. pop.	mg	15,23	1,85	0,19	8,14
Benzaldehyde	Emission to air	high. pop.	µg	3,70	1,04	1,20	0,90
Benzene	Emission to air	high. pop.	mg	155,26	44,34	17,65	57,57
Benzene, 1-methyl-2-nitro-	Emission to air	high. pop.	ng	2,21	0,20	1,86	0,10
Benzene, 1,2-dichloro-	Emission to air	high. pop.	ng	61,06	33,38	19,62	4,98
Benzene, ethyl-	Emission to air	high. pop.	mg	5,32	2,13	1,60	0,98
Benzene, hexachloro-	Emission to air	high. pop.	ng	185,57	83,28	21,20	50,04
Benzene, pentachloro-	Emission to air	high. pop.	ng	465,73	209,05	53,18	125,60
Benzo(a)pyrene	Emission to air	high. pop.	µg	6,81	1,83	1,79	1,96
Beryllium	Emission to air	high. pop.	µg	153,15	18,65	2,25	81,63

Boron	Emission to air	high. pop.	mg	57,36	6,99	0,73	30,64
Boron trifluoride	Emission to air	high. pop.	pg	486,06	1,33	484,63	0,06
Bromine	Emission to air	high. pop.	mg	1,55	0,24	0,16	0,70
Butadiene	Emission to air	high. pop.	ng	17,26	11,55	3,83	1,17
Butane	Emission to air	high. pop.	mg	377,34	137,58	98,46	87,21
Butene	Emission to air	high. pop.	mg	5,39	2,33	1,54	0,94
Butyrolactone	Emission to air	high. pop.	ng	56,43	49,85	2,89	2,28
Cadmium	Emission to air	high. pop.	mg	1,26	0,36	0,39	0,31
Calcium	Emission to air	high. pop.	mg	188,46	26,78	17,11	89,23
Carbon dioxide, biogenic	Emission to air	high. pop.	g	810,01	252,91	258,07	184,57
Carbon dioxide, fossil	Emission to air	high. pop.	kg	29,66	7,84	4,41	10,74
Carbon disulfide	Emission to air	high. pop.	µg	2,77	0,97	1,61	0,12
Carbon monoxide, biogenic	Emission to air	high. pop.	mg	165,89	41,25	83,50	25,39
Carbon monoxide, fossil	Emission to air	high. pop.	g	15,74	3,08	0,97	7,22
Chloramine	Emission to air	high. pop.	ng	96,78	63,17	23,11	6,48
Chlorine	Emission to air	high. pop.	mg	84,91	63,89	12,37	5,34
Chloroacetic acid	Emission to air	high. pop.	ng	966,11	502,44	136,24	202,10
Chloroform	Emission to air	high. pop.	g	4,03	4,02	0,00	0,00
Chlorosilane, trimethyl-	Emission to air	high. pop.	µg	58,73	1,83	54,95	1,20
Chlorosulfonic acid	Emission to air	high. pop.	ng	5,47	1,26	2,95	0,78
Chromium	Emission to air	high. pop.	mg	3,53	0,58	0,33	1,62
Chromium VI	Emission to air	high. pop.	µg	346,03	43,41	8,00	181,84
Cobalt	Emission to air	high. pop.	mg	2,18	0,55	0,67	0,59
Copper	Emission to air	high. pop.	mg	13,57	8,97	1,46	1,93
Cumene	Emission to air	high. pop.	mg	6,27	4,37	0,61	0,80
Cyanide	Emission to air	high. pop.	mg	29,89	4,57	25,17	0,09
Cyanoacetic acid	Emission to air	high. pop.	ng	4,48	1,03	2,41	0,64
Diethylamine	Emission to air	high. pop.	ng	144,50	127,30	11,31	3,64
Dimethyl malonate	Emission to air	high. pop.	ng	5,62	1,29	3,03	0,81
Dinitrogen monoxide	Emission to air	high. pop.	g	1,06	0,59	0,22	0,15
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	high. pop.	ng	4,36	1,09	0,37	1,79
Dipropylamine	Emission to air	high. pop.	ng	91,61	81,22	6,69	2,28
Ethane	Emission to air	high. pop.	mg	315,98	60,36	49,80	127,04
Ethane, 1,1-difluoro-, HFC-152a	Emission to air	high. pop.	µg	15,05	3,08	5,83	3,79
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	high. pop.	mg	966,32	966,00	0,32	0,00

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-, CFC-113	Emission to air	high. pop.	µg	144,60	0,40	144,18	0,02
Ethane, 1,2-dichloro-	Emission to air	high. pop.	mg	9,58	9,08	0,19	0,19
Ethane, hexafluoro-, HFC-116	Emission to air	high. pop.	mg	9,97	0,03	9,94	0,00
Ethanol	Emission to air	high. pop.	mg	16,28	4,08	6,24	3,68
Ethene	Emission to air	high. pop.	mg	384,18	57,93	8,51	196,12
Ethene, chloro-	Emission to air	high. pop.	mg	1,20	0,92	0,09	0,12
Ethene, tetrachloro-	Emission to air	high. pop.	ng	463,58	3,82	454,50	3,24
Ethyl acetate	Emission to air	high. pop.	mg	16,88	14,95	0,84	0,67
Ethyl cellulose	Emission to air	high. pop.	µg	34,08	30,26	1,67	1,33
Ethylamine	Emission to air	high. pop.	ng	46,71	21,70	21,12	2,40
Ethylene diamine	Emission to air	high. pop.	ng	634,15	437,24	127,12	43,07
Ethylene oxide	Emission to air	high. pop.	mg	4,16	0,54	3,61	0,01
Ethyne	Emission to air	high. pop.	mg	60,41	7,33	0,75	32,30
Fluorine	Emission to air	high. pop.	µg	293,58	60,94	133,04	61,47
Fluosilicic acid	Emission to air	high. pop.	mg	1,49	1,00	0,14	0,22
Formaldehyde	Emission to air	high. pop.	mg	62,67	22,96	12,86	16,57
Formamide	Emission to air	high. pop.	ng	48,98	32,77	10,86	3,31
Formic acid	Emission to air	high. pop.	µg	21,10	18,73	1,04	0,82
Heat, waste	Emission to air	high. pop.	MJ	438,11	132,97	63,19	149,34
Heptane	Emission to air	high. pop.	mg	51,00	20,67	15,16	9,36
Hexane	Emission to air	high. pop.	mg	170,76	68,05	50,92	31,97
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	high. pop.	µg	255,18	212,90	20,82	13,25
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	high. pop.	mg	116,69	31,04	17,50	42,07
Hydrocarbons, aliphatic, unsaturated	Emission to air	high. pop.	mg	79,44	11,49	8,84	36,48
Hydrocarbons, aromatic	Emission to air	high. pop.	mg	18,65	13,13	3,07	1,51
Hydrocarbons, chlorinated	Emission to air	high. pop.	mg	1,10	0,97	0,12	0,00
Hydrogen	Emission to air	high. pop.	mg	423,85	366,91	41,83	9,33
Hydrogen chloride	Emission to air	high. pop.	g	6,35	2,02	0,08	2,63
Hydrogen fluoride	Emission to air	high. pop.	mg	974,09	795,23	45,35	82,40
Hydrogen peroxide	Emission to air	high. pop.	µg	25,27	22,41	1,25	0,99
Hydrogen sulfide	Emission to air	high. pop.	µg	187,75	120,00	45,88	13,50
Iodine	Emission to air	high. pop.	mg	1,38	0,17	0,02	0,74
Iron	Emission to air	high. pop.	mg	541,05	67,27	9,06	286,83
Isocyanic acid	Emission to air	high. pop.	µg	263,25	62,52	90,49	68,04
Isopropylamine	Emission to air	high. pop.	ng	8,16	1,94	5,74	0,29

Lactic acid	Emission to air	high. pop.	ng	71,76	63,62	5,24	1,79
Lead	Emission to air	high. pop.	mg	11,94	1,99	1,11	5,46
Lead-210	Emission to air	high. pop.	Bq	5,62	0,68	0,07	3,00
m-Xylene	Emission to air	high. pop.	µg	670,99	144,74	288,07	147,01
Magnesium	Emission to air	high. pop.	mg	460,02	56,02	6,57	245,29
Manganese	Emission to air	high. pop.	mg	3,87	0,58	0,54	1,70
Mercury	Emission to air	high. pop.	µg	684,17	328,53	41,59	193,83
Methane, biogenic	Emission to air	high. pop.	mg	26,83	18,67	5,32	1,75
Methane, bromotrifluoro-, Halon 1301	Emission to air	high. pop.	pg	78,12	21,99	34,43	13,40
Methane, chlorodifluoro-, HCFC-22	Emission to air	high. pop.	g	13,71	13,70	0,00	0,00
Methane, dichloro-, HCC-30	Emission to air	high. pop.	mg	120,00	119,93	0,07	0,00
Methane, dichlorodifluoro-, CFC-12	Emission to air	high. pop.	mg	318,20	318,09	0,11	0,00
Methane, dichlorofluoro-, HCFC-21	Emission to air	high. pop.	mg	2,75	2,75	0,00	0,00
Methane, fossil	Emission to air	high. pop.	g	7,08	3,42	1,99	1,04
Methane, monochloro-, R-40	Emission to air	high. pop.	µg	1,04	0,03	0,98	0,02
Methane, tetrachloro-, CFC-10	Emission to air	high. pop.	mg	400,89	400,63	0,25	0,01
Methane, tetrafluoro-, CFC-14	Emission to air	high. pop.	ng	773,85	158,39	300,03	194,69
Methane, trichlorofluoro-, CFC-11	Emission to air	high. pop.	mg	4,46	4,46	0,00	0,00
Methane, trifluoro-, HFC-23	Emission to air	high. pop.	mg	874,76	874,47	0,29	0,00
Methanesulfonic acid	Emission to air	high. pop.	ng	4,53	1,04	2,44	0,65
Methanol	Emission to air	high. pop.	g	1,28	1,24	0,03	0,00
Methyl acetate	Emission to air	high. pop.	pg	592,78	52,78	497,80	26,05
Methyl acrylate	Emission to air	high. pop.	mg	3,46	0,01	3,45	0,00
Methyl amine	Emission to air	high. pop.	ng	59,11	54,58	2,44	1,29
Methyl borate	Emission to air	high. pop.	ng	12,16	6,65	4,41	0,67
Methyl ethyl ketone	Emission to air	high. pop.	mg	16,88	14,95	0,84	0,67
Methyl formate	Emission to air	high. pop.	ng	54,26	45,34	4,90	2,48
Methyl lactate	Emission to air	high. pop.	ng	78,78	69,85	5,76	1,96
Molybdenum	Emission to air	high. pop.	mg	1,23	0,27	0,25	0,44
Monoethanolamine	Emission to air	high. pop.	mg	179,01	152,72	26,19	0,06
Nickel	Emission to air	high. pop.	mg	27,06	7,42	9,28	6,39
Nitrate	Emission to air	high. pop.	mg	1,26	0,88	0,25	0,08
Nitrobenzene	Emission to air	high. pop.	ng	435,81	383,35	34,78	10,92
Nitrogen oxides	Emission to air	high. pop.	g	45,54	11,29	6,02	17,43
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	high. pop.	g	2,21	0,94	0,63	0,40

Ozone	Emission to air	high. pop.	µg	872,39	732,83	117,73	13,47
PAH, polycyclic aromatic hydrocarbons	Emission to air	high. pop.	mg	2,11	0,71	0,40	0,62
Particulates, < 2.5 um	Emission to air	high. pop.	g	4,55	0,98	0,80	1,71
Particulates, > 10 um	Emission to air	high. pop.	g	2,12	0,44	0,25	0,88
Particulates, > 2.5 um, and < 10um	Emission to air	high. pop.	g	3,09	0,52	0,20	1,47
Pentane	Emission to air	high. pop.	mg	553,74	197,90	133,02	137,53
Phenol	Emission to air	high. pop.	µg	743,02	457,86	78,80	127,37
Phenol, 2,4-dichloro-	Emission to air	high. pop.	ng	39,61	35,19	3,84	0,35
Phenol, pentachloro-	Emission to air	high. pop.	ng	96,23	32,65	25,24	23,67
Phosphine	Emission to air	high. pop.	µg	2,63	0,01	2,63	0,00
Phosphorus	Emission to air	high. pop.	mg	9,42	1,32	0,88	4,46
Platinum	Emission to air	high. pop.	pg	374,06	105,85	181,73	53,37
Polonium-210	Emission to air	high. pop.	Bq	10,27	1,24	0,13	5,49
Polychlorinated biphenyls	Emission to air	high. pop.	pg	847,23	303,64	521,98	13,34
Potassium	Emission to air	high. pop.	mg	283,24	46,80	58,09	110,09
Potassium-40	Emission to air	high. pop.	Bq	1,63	0,20	0,02	0,87
Propanal	Emission to air	high. pop.	µg	4,22	1,28	1,35	0,98
Propane	Emission to air	high. pop.	mg	408,25	120,80	85,82	124,45
Propene	Emission to air	high. pop.	mg	93,94	29,26	8,74	34,53
Propionic acid	Emission to air	high. pop.	mg	3,80	1,17	0,71	1,19
Propylamine	Emission to air	high. pop.	ng	15,51	10,38	3,44	1,05
Propylene oxide	Emission to air	high. pop.	µg	284,20	127,61	111,31	27,95
Radioactive species, other beta emitters	Emission to air	high. pop.	Bq	2,64	0,74	1,16	0,45
Radium-226	Emission to air	high. pop.	Bq	1,45	0,18	0,02	0,78
Radium-228	Emission to air	high. pop.	Bq	7,85	0,95	0,10	4,20
Radon-220	Emission to air	high. pop.	mBq	120,85	14,65	1,55	64,59
Radon-222	Emission to air	high. pop.	mBq	120,83	14,65	1,53	64,59
Scandium	Emission to air	high. pop.	µg	152,20	18,45	1,89	81,39
Selenium	Emission to air	high. pop.	mg	1,63	0,29	0,19	0,71
Silicon	Emission to air	high. pop.	g	1,91	0,23	0,02	1,02
Silver	Emission to air	high. pop.	µg	2,42	0,50	0,94	0,61
Sodium	Emission to air	high. pop.	mg	112,15	19,92	14,26	48,13
Sodium chlorate	Emission to air	high. pop.	µg	120,00	106,64	8,23	3,17
Sodium dichromate	Emission to air	high. pop.	µg	51,65	14,39	26,20	6,83
Sodium formate	Emission to air	high. pop.	µg	23,27	11,97	1,98	5,75

Sodium hydroxide	Emission to air	high. pop.	µg	94,21	83,59	4,64	3,69
Strontium	Emission to air	high. pop.	mg	22,95	2,78	0,28	12,27
Styrene	Emission to air	high. pop.	µg	142,49	53,50	17,84	43,92
Sulfate	Emission to air	high. pop.	g	16,53	16,31	0,16	0,04
Sulfur dioxide	Emission to air	high. pop.	g	133,03	63,51	9,40	37,11
Sulfur trioxide	Emission to air	high. pop.	µg	3,49	3,08	0,26	0,09
Sulfuric acid	Emission to air	high. pop.	µg	19,73	17,50	0,98	0,78
t-Butyl methyl ether	Emission to air	high. pop.	µg	33,92	9,88	12,04	7,40
t-Butylamine	Emission to air	high. pop.	ng	11,53	2,87	7,46	0,74
Thallium	Emission to air	high. pop.	µg	190,91	23,16	2,37	102,07
Thorium	Emission to air	high. pop.	µg	229,51	27,82	2,85	122,73
Thorium-228	Emission to air	high. pop.	mBq	664,38	80,54	8,24	355,26
Thorium-232	Emission to air	high. pop.	mBq	422,78	51,26	5,24	226,08
Tin	Emission to air	high. pop.	µg	83,61	12,64	2,78	42,09
Titanium	Emission to air	high. pop.	mg	45,83	5,57	0,58	24,49
Toluene	Emission to air	high. pop.	mg	75,72	25,34	14,12	22,38
Toluene, 2-chloro-	Emission to air	high. pop.	ng	131,19	113,32	12,41	3,36
Trimethylamine	Emission to air	high. pop.	ng	1,22	0,10	1,04	0,05
Uranium	Emission to air	high. pop.	µg	305,61	37,05	3,79	163,42
Uranium-238	Emission to air	high. pop.	Bq	1,21	0,15	0,01	0,65
Vanadium	Emission to air	high. pop.	mg	97,23	26,05	35,39	22,08
Water	Emission to air	high. pop.	mg	6,91	0,06	6,78	0,05
Xylene	Emission to air	high. pop.	mg	33,25	10,28	6,35	10,26
Zinc	Emission to air	high. pop.	mg	12,46	8,68	1,81	1,22
Acenaphthene	Emission to air	low. pop.	ng	12,12	0,32	11,32	0,30
Acetaldehyde	Emission to air	low. pop.	mg	1,35	1,32	0,01	0,01
Acetic acid	Emission to air	low. pop.	mg	8,86	8,70	0,06	0,06
Acetone	Emission to air	low. pop.	mg	43,61	42,24	0,68	0,43
Acetonitrile	Emission to air	low. pop.	µg	370,59	363,94	2,60	2,50
Acrolein	Emission to air	low. pop.	µg	58,95	50,57	7,26	0,69
Actinides, radioactive, unspecified	Emission to air	low. pop.	mBq	49,19	1,30	45,94	1,21
Aerosols, radioactive, unspecified	Emission to air	low. pop.	mBq	125,59	24,67	51,27	30,65
Aldehydes, unspecified	Emission to air	low. pop.	µg	253,00	48,09	113,58	56,37
Aluminium	Emission to air	low. pop.	mg	36,47	14,63	0,75	13,02
Ammonia	Emission to air	low. pop.	mg	159,71	53,94	27,72	48,17

Antimony	Emission to air	low. pop.	mg	117,20	104,23	12,60	0,23
Antimony-124	Emission to air	low. pop.	nBq	971,52	319,96	390,77	160,96
Antimony-125	Emission to air	low. pop.	µBq	10,14	3,34	4,08	1,68
Argon-41	Emission to air	low. pop.	Bq	62,83	12,58	24,17	16,10
Arsenic	Emission to air	low. pop.	mg	877,71	835,84	8,14	20,81
Barium	Emission to air	low. pop.	mg	2,90	0,54	1,09	0,78
Barium-140	Emission to air	low. pop.	µBq	659,50	217,20	265,27	109,27
Benzene	Emission to air	low. pop.	g	1,12	1,05	0,03	0,03
Benzene, ethyl-	Emission to air	low. pop.	µg	2,24	0,06	2,09	0,05
Benzo(a)pyrene	Emission to air	low. pop.	mg	7,86	7,54	0,13	0,12
Beryllium	Emission to air	low. pop.	µg	429,55	124,50	244,67	37,27
Boron	Emission to air	low. pop.	mg	186,37	35,89	77,97	44,76
Bromine	Emission to air	low. pop.	mg	20,38	3,89	8,58	4,88
Butadiene	Emission to air	low. pop.	ng	269,25	4,49	264,40	0,22
Butane	Emission to air	low. pop.	mg	58,00	18,15	12,06	17,15
Cadmium	Emission to air	low. pop.	mg	294,38	292,15	1,38	0,52
Calcium	Emission to air	low. pop.	mg	12,34	9,65	0,17	1,56
Carbon-14	Emission to air	low. pop.	Bq	515,05	106,81	205,46	125,16
Carbon dioxide, biogenic	Emission to air	low. pop.	g	95,76	19,69	41,52	21,32
Carbon dioxide, fossil	Emission to air	low. pop.	kg	16,15	4,06	5,82	3,87
Carbon dioxide, land transformation	Emission to air	low. pop.	g	11,35	5,48	5,26	0,38
Carbon disulfide	Emission to air	low. pop.	g	10,76	10,28	0,42	0,04
Carbon monoxide, biogenic	Emission to air	low. pop.	mg	715,45	114,78	572,52	17,38
Carbon monoxide, fossil	Emission to air	low. pop.	g	33,30	22,06	3,28	4,91
Cerium-141	Emission to air	low. pop.	µBq	159,88	52,65	64,31	26,49
Cesium-134	Emission to air	low. pop.	µBq	7,66	2,52	3,08	1,27
Cesium-137	Emission to air	low. pop.	µBq	135,74	44,70	54,60	22,49
Chlorine	Emission to air	low. pop.	µg	76,93	14,31	35,87	16,51
Chloroform	Emission to air	low. pop.	µg	2,33	0,06	2,18	0,06
Chromium	Emission to air	low. pop.	g	5,83	0,10	0,07	3,50
Chromium-51	Emission to air	low. pop.	µBq	10,24	3,37	4,12	1,70
Chromium VI	Emission to air	low. pop.	mg	145,62	2,47	1,63	87,35
Cobalt	Emission to air	low. pop.	mg	79,02	12,36	1,28	40,36
Cobalt-58	Emission to air	low. pop.	µBq	14,27	4,70	5,74	2,36
Cobalt-60	Emission to air	low. pop.	µBq	126,03	41,51	50,69	20,88

Copper	Emission to air	low. pop.	g	2,56	2,31	0,03	0,14
Cumene	Emission to air	low. pop.	ng	129,42	3,40	120,88	3,17
Cyanide	Emission to air	low. pop.	mg	68,29	4,87	0,83	38,64
Dinitrogen monoxide	Emission to air	low. pop.	mg	269,92	60,38	106,50	63,59
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	low. pop.	ng	28,08	2,74	1,23	14,88
Ethane	Emission to air	low. pop.	g	1,40	0,61	0,24	0,34
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	low. pop.	ng	475,32	12,50	443,94	11,65
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	low. pop.	µg	12,55	2,62	5,16	2,94
Ethane, 1,2-dichloro-	Emission to air	low. pop.	ng	949,47	24,98	886,78	23,27
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Emission to air	low. pop.	µg	216,38	45,80	88,09	50,91
Ethanol	Emission to air	low. pop.	µg	140,40	88,74	26,73	15,39
Ethene	Emission to air	low. pop.	mg	75,05	8,27	8,64	35,88
Ethene, tetrachloro-	Emission to air	low. pop.	µg	1,02	0,03	0,95	0,03
Ethylene oxide	Emission to air	low. pop.	µg	2,60	0,04	2,56	0,00
Ethyne	Emission to air	low. pop.	mg	2,86	0,91	0,06	1,16
Fluorine	Emission to air	low. pop.	mg	68,08	45,01	2,06	12,97
Formaldehyde	Emission to air	low. pop.	mg	10,70	4,11	3,12	2,14
Formic acid	Emission to air	low. pop.	mg	2,48	2,43	0,02	0,02
Furan	Emission to air	low. pop.	µg	703,82	691,19	4,94	4,74
Heat, waste	Emission to air	low. pop.	MJ	316,73	57,89	87,12	105,99
Helium	Emission to air	low. pop.	mg	14,35	5,42	4,54	2,71
Hexane	Emission to air	low. pop.	mg	4,98	1,03	2,00	1,21
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	low. pop.	µg	13,77	0,36	12,86	0,34
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	low. pop.	mg	89,12	24,93	22,72	25,60
Hydrocarbons, aliphatic, unsaturated	Emission to air	low. pop.	mg	29,16	5,44	11,19	7,73
Hydrocarbons, aromatic	Emission to air	low. pop.	mg	32,14	10,18	5,96	9,88
Hydrocarbons, chlorinated	Emission to air	low. pop.	µg	4,82	0,13	4,51	0,12
Hydrogen-3, Tritium	Emission to air	low. pop.	Bq	2949,69	591,50	1186,11	723,42
Hydrogen chloride	Emission to air	low. pop.	g	1,23	0,23	0,53	0,29
Hydrogen fluoride	Emission to air	low. pop.	mg	340,01	126,11	111,08	63,46
Hydrogen sulfide	Emission to air	low. pop.	mg	204,76	48,52	29,24	78,39
Iodine	Emission to air	low. pop.	mg	10,99	2,09	4,65	2,62
Iodine-129	Emission to air	low. pop.	mBq	514,10	104,07	205,00	126,55
Iodine-131	Emission to air	low. pop.	Bq	24,82	4,95	9,54	6,37
Iodine-133	Emission to air	low. pop.	mBq	7,24	0,41	6,38	0,28

Iodine-135	Emission to air	low. pop.	mBq	13,99	0,32	13,16	0,32
Iron	Emission to air	low. pop.	mg	45,73	1,08	0,68	27,14
Isoprene	Emission to air	low. pop.	µg	32,66	32,07	0,23	0,22
Krypton-85	Emission to air	low. pop.	Bq	196,87	39,48	75,73	50,40
Krypton-85m	Emission to air	low. pop.	Bq	12,64	3,75	5,03	2,38
Krypton-87	Emission to air	low. pop.	Bq	4,50	1,17	1,77	0,96
Krypton-88	Emission to air	low. pop.	Bq	4,66	1,29	1,84	0,94
Krypton-89	Emission to air	low. pop.	Bq	1,34	0,42	0,54	0,24
Lanthanum-140	Emission to air	low. pop.	µBq	56,37	18,56	22,67	9,34
Lead	Emission to air	low. pop.	g	2,28	2,09	0,02	0,11
Lead-210	Emission to air	low. pop.	Bq	5,78	3,52	1,17	0,67
Magnesium	Emission to air	low. pop.	mg	16,66	8,50	0,53	4,70
Manganese	Emission to air	low. pop.	mg	333,53	295,95	15,39	13,70
Manganese-54	Emission to air	low. pop.	µBq	5,25	1,73	2,11	0,87
Mercury	Emission to air	low. pop.	mg	5,60	1,82	3,53	0,15
Methane, biogenic	Emission to air	low. pop.	mg	637,60	167,20	364,77	65,19
Methane, bromochlorodifluoro-, Halon 1211	Emission to air	low. pop.	µg	319,82	98,15	61,31	98,98
Methane, bromotrifluoro-, Halon 1301	Emission to air	low. pop.	µg	154,42	66,75	44,04	26,93
Methane, chlorodifluoro-, HCFC-22	Emission to air	low. pop.	mg	4,36	3,49	0,26	0,37
Methane, dichloro-, HCC-30	Emission to air	low. pop.	µg	6,89	0,18	6,44	0,17
Methane, dichlorodifluoro-, CFC-12	Emission to air	low. pop.	µg	1,10	0,35	0,20	0,34
Methane, fossil	Emission to air	low. pop.	g	124,24	34,63	20,88	42,42
Methane, monochloro-, R-40	Emission to air	low. pop.	µg	12,59	0,33	11,76	0,31
Methanol	Emission to air	low. pop.	mg	26,31	12,56	12,76	0,61
Molybdenum	Emission to air	low. pop.	µg	171,12	31,01	73,21	41,29
Nickel	Emission to air	low. pop.	g	1,73	1,64	0,01	0,05
Niobium-95	Emission to air	low. pop.	nBq	622,81	205,12	250,51	103,19
Nitrate	Emission to air	low. pop.	µg	706,93	145,72	283,75	171,25
Nitrogen oxides	Emission to air	low. pop.	g	49,97	9,30	13,46	16,80
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	low. pop.	g	22,99	13,39	2,70	4,26
Noble gases, radioactive, unspecified	Emission to air	low. pop.	kBq	4940,37	1000,04	1970,06	1216,07
Ozone	Emission to air	low. pop.	µg	882,56	2,70	879,54	0,20
PAH, polycyclic aromatic hydrocarbons	Emission to air	low. pop.	mg	2,85	2,34	0,16	0,21
Particulates, < 2.5 um	Emission to air	low. pop.	g	92,33	29,06	3,92	36,63
Particulates, > 10 um	Emission to air	low. pop.	g	63,50	17,27	6,60	24,46

Particulates, > 2.5 um, and < 10um	Emission to air	low. pop.	g	69,98	25,14	2,27	26,27
Pentane	Emission to air	low. pop.	mg	18,46	3,64	7,57	4,47
Phenol	Emission to air	low. pop.	mg	1,22	0,52	0,11	0,36
Phenol, pentachloro-	Emission to air	low. pop.	mg	3,43	3,32	0,05	0,03
Phosphorus	Emission to air	low. pop.	µg	202,65	55,59	13,65	82,34
Platinum	Emission to air	low. pop.	ng	7,02	1,40	2,77	1,76
Plutonium-238	Emission to air	low. pop.	nBq	70,13	14,20	27,97	17,26
Plutonium-alpha	Emission to air	low. pop.	nBq	160,77	32,54	64,11	39,57
Polonium-210	Emission to air	low. pop.	Bq	8,19	4,22	2,04	1,18
Potassium	Emission to air	low. pop.	mg	2,77	0,16	0,10	1,54
Potassium-40	Emission to air	low. pop.	mBq	674,10	159,88	270,82	150,23
Propane	Emission to air	low. pop.	mg	333,63	103,67	63,17	102,94
Propene	Emission to air	low. pop.	mg	8,89	3,34	0,96	2,83
Protactinium-234	Emission to air	low. pop.	mBq	73,67	14,65	31,16	17,20
Radioactive species, other beta emitters	Emission to air	low. pop.	mBq	2,90	0,58	1,12	0,74
Radium-226	Emission to air	low. pop.	Bq	9,16	6,76	1,23	0,72
Radium-228	Emission to air	low. pop.	mBq	238,31	45,88	100,07	57,00
Radon-220	Emission to air	low. pop.	Bq	28,67	5,64	11,88	6,88
Radon-222	Emission to air	low. pop.	kBq	222,78	49,06	87,80	53,03
Ruthenium-103	Emission to air	low. pop.	nBq	136,84	45,07	55,04	22,67
Scandium	Emission to air	low. pop.	µg	6,89	0,58	0,79	3,40
Selenium	Emission to air	low. pop.	mg	92,42	83,83	7,73	0,53
Silicon	Emission to air	low. pop.	mg	41,00	5,40	3,38	19,89
Silicon tetrafluoride	Emission to air	low. pop.	mg	3,07	3,07	0,01	0,00
Silver	Emission to air	low. pop.	µg	1,30	1,29	0,01	0,00
Silver-110	Emission to air	low. pop.	µBq	1,36	0,45	0,55	0,22
Sodium	Emission to air	low. pop.	mg	1,45	0,09	0,08	0,79
Strontium	Emission to air	low. pop.	mg	2,84	0,51	1,08	0,77
Styrene	Emission to air	low. pop.	µg	44,27	42,30	1,24	0,45
Sulfate	Emission to air	low. pop.	mg	5,34	1,10	2,14	1,29
Sulfur dioxide	Emission to air	low. pop.	g	481,10	414,05	32,12	21,56
Sulfur hexafluoride	Emission to air	low. pop.	µg	26,33	0,72	25,04	0,35
Sulfuric acid	Emission to air	low. pop.	ng	14,94	3,06	5,79	3,76
Terpenes	Emission to air	low. pop.	µg	308,82	303,28	2,17	2,08
Thallium	Emission to air	low. pop.	µg	2,86	1,53	0,06	0,78

Thorium	Emission to air	low. pop.	µg	5,30	0,26	0,15	3,02
Thorium-228	Emission to air	low. pop.	mBq	138,17	34,23	54,22	30,69
Thorium-230	Emission to air	low. pop.	Bq	5,88	5,66	0,12	0,06
Thorium-232	Emission to air	low. pop.	mBq	287,43	125,00	84,36	48,19
Thorium-234	Emission to air	low. pop.	mBq	73,68	14,65	31,16	17,20
Tin	Emission to air	low. pop.	mg	141,03	104,83	1,18	21,62
Titanium	Emission to air	low. pop.	µg	816,80	39,82	23,69	464,94
Toluene	Emission to air	low. pop.	mg	23,30	7,43	6,16	6,00
Tungsten	Emission to air	low. pop.	ng	212,08	43,72	85,12	51,38
Uranium	Emission to air	low. pop.	µg	2,70	0,13	0,08	1,53
Uranium-234	Emission to air	low. pop.	Bq	6,45	5,77	0,35	0,20
Uranium-235	Emission to air	low. pop.	mBq	40,06	8,26	16,08	9,70
Uranium-238	Emission to air	low. pop.	Bq	6,97	5,90	0,55	0,32
Uranium alpha	Emission to air	low. pop.	Bq	3,86	0,80	1,55	0,93
Vanadium	Emission to air	low. pop.	mg	7,15	6,41	0,38	0,22
Water	Emission to air	low. pop.	mg	17,66	0,29	17,35	0,01
Xenon-131m	Emission to air	low. pop.	Bq	21,12	5,65	8,32	4,42
Xenon-133	Emission to air	low. pop.	Bq	690,29	190,41	272,61	140,27
Xenon-133m	Emission to air	low. pop.	Bq	2,50	0,55	0,97	0,61
Xenon-135	Emission to air	low. pop.	Bq	281,63	77,26	111,16	57,53
Xenon-135m	Emission to air	low. pop.	Bq	168,34	46,88	66,54	33,89
Xenon-137	Emission to air	low. pop.	Bq	3,68	1,16	1,47	0,65
Xenon-138	Emission to air	low. pop.	Bq	30,98	9,32	12,34	5,75
Xylene	Emission to air	low. pop.	mg	119,57	23,78	47,93	29,54
Zinc	Emission to air	low. pop.	g	1,23	0,65	0,02	0,34
Zinc-65	Emission to air	low. pop.	µBq	26,20	8,63	10,54	4,34
Zirconium	Emission to air	low. pop.	µg	65,34	3,19	1,89	37,19
Zirconium-95	Emission to air	low. pop.	µBq	25,61	8,43	10,30	4,24
Aluminium	Emission to air	low. pop., long-term	mg	239,57	49,38	96,16	58,04
Antimony	Emission to air	low. pop., long-term	µg	21,60	4,45	8,67	5,23
Arsenic	Emission to air	low. pop., long-term	mg	1,27	0,26	0,51	0,31
Barium	Emission to air	low. pop., long-term	mg	1,39	0,29	0,56	0,34
Beryllium	Emission to air	low. pop., long-term	µg	30,24	6,23	12,14	7,33
Boron	Emission to air	low. pop., long-term	µg	402,56	82,98	161,58	97,52
Cadmium	Emission to air	low. pop., long-term	µg	32,73	6,75	13,14	7,93

Calcium	Emission to air	low. pop., long-term	mg	77,89	16,06	31,27	18,87
Chlorine	Emission to air	low. pop., long-term	mg	2,97	0,61	1,19	0,72
Chromium VI	Emission to air	low. pop., long-term	µg	154,48	31,84	62,00	37,42
Cobalt	Emission to air	low. pop., long-term	µg	192,44	39,67	77,24	46,62
Copper	Emission to air	low. pop., long-term	mg	2,03	0,42	0,81	0,49
Fluorine	Emission to air	low. pop., long-term	mg	14,60	3,01	5,86	3,54
Iron	Emission to air	low. pop., long-term	mg	260,52	53,70	104,57	63,11
Lead	Emission to air	low. pop., long-term	mg	2,15	0,44	0,86	0,52
Magnesium	Emission to air	low. pop., long-term	mg	23,89	4,92	9,59	5,79
Manganese	Emission to air	low. pop., long-term	mg	5,39	1,11	2,16	1,31
Mercury	Emission to air	low. pop., long-term	µg	16,50	3,40	6,62	4,00
Molybdenum	Emission to air	low. pop., long-term	µg	416,96	85,95	167,36	101,01
Nickel	Emission to air	low. pop., long-term	µg	439,87	90,67	176,56	106,56
Nitrate	Emission to air	low. pop., long-term	mg	2,06	0,42	0,82	0,50
Particulates, < 2.5 um	Emission to air	low. pop., long-term	mg	191,13	39,40	76,72	46,30
Particulates, > 10 um	Emission to air	low. pop., long-term	mg	477,83	98,50	191,79	115,75
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop., long-term	mg	286,70	59,10	115,08	69,45
Phosphorus	Emission to air	low. pop., long-term	µg	402,56	82,98	161,58	97,52
Potassium	Emission to air	low. pop., long-term	mg	40,98	8,45	16,45	9,93
Radon-222	Emission to air	low. pop., long-term	kBq	9163,93	1888,97	3678,24	2219,94
Scandium	Emission to air	low. pop., long-term	µg	857,48	176,75	344,18	207,72
Selenium	Emission to air	low. pop., long-term	µg	119,79	24,69	48,08	29,02
Silicon	Emission to air	low. pop., long-term	mg	53,35	11,00	21,41	12,92
Silver	Emission to air	low. pop., long-term	µg	35,87	7,39	14,40	8,69
Sodium	Emission to air	low. pop., long-term	mg	14,07	2,90	5,65	3,41
Strontium	Emission to air	low. pop., long-term	µg	870,57	179,45	349,43	210,89
Sulfate	Emission to air	low. pop., long-term	mg	220,59	45,47	88,54	53,44
Tin	Emission to air	low. pop., long-term	µg	49,94	10,29	20,05	12,10
Titanium	Emission to air	low. pop., long-term	mg	15,64	3,22	6,28	3,79
Tungsten	Emission to air	low. pop., long-term	µg	96,88	19,97	38,88	23,47
Vanadium	Emission to air	low. pop., long-term	mg	1,49	0,31	0,60	0,36
Zinc	Emission to air	low. pop., long-term	mg	1,54	0,32	0,62	0,37
Benzene	Emission to air	stratosphere + troposphere	µg	1,73	0,03	1,70	0,00
Butadiene	Emission to air	stratosphere + troposphere	µg	1,64	0,03	1,61	0,00
Cadmium	Emission to air	stratosphere + troposphere	pg	865,76	14,43	850,16	0,72

Carbon dioxide, fossil	Emission to air	stratosphere + troposphere	mg	272,72	4,55	267,80	0,23
Carbon monoxide, fossil	Emission to air	stratosphere + troposphere	µg	320,33	5,34	314,56	0,27
Chromium	Emission to air	stratosphere + troposphere	ng	4,33	0,07	4,25	0,00
Copper	Emission to air	stratosphere + troposphere	ng	147,18	2,45	144,52	0,12
Dinitrogen monoxide	Emission to air	stratosphere + troposphere	µg	2,60	0,04	2,55	0,00
Ethylene oxide	Emission to air	stratosphere + troposphere	µg	15,82	0,26	15,53	0,01
Formaldehyde	Emission to air	stratosphere + troposphere	µg	13,64	0,23	13,39	0,01
Heat, waste	Emission to air	stratosphere + troposphere	kJ	3,95	0,07	3,88	0,00
Hydrogen chloride	Emission to air	stratosphere + troposphere	ng	74,46	1,24	73,11	0,06
Lead	Emission to air	stratosphere + troposphere	ng	1,73	0,03	1,70	0,00
Mercury	Emission to air	stratosphere + troposphere	pg	6,06	0,10	5,95	0,01
Methane, fossil	Emission to air	stratosphere + troposphere	µg	4,33	0,07	4,25	0,00
Nickel	Emission to air	stratosphere + troposphere	ng	6,06	0,10	5,95	0,01
Nitrogen oxides	Emission to air	stratosphere + troposphere	mg	1,21	0,02	1,19	0,00
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	stratosphere + troposphere	µg	58,09	0,97	57,04	0,05
Particulates, < 2.5 um	Emission to air	stratosphere + troposphere	µg	3,29	0,05	3,23	0,00
Selenium	Emission to air	stratosphere + troposphere	pg	865,76	14,43	850,16	0,72
Sulfur dioxide	Emission to air	stratosphere + troposphere	µg	86,58	1,44	85,02	0,07
Water	Emission to air	stratosphere + troposphere	mg	107,35	1,79	105,42	0,09
Zinc	Emission to air	stratosphere + troposphere	ng	86,58	1,44	85,02	0,07
4-Methyl-2-pentanone	Emission to water		ng	144,31	3,37	139,45	0,92
Acetone	Emission to water		ng	343,95	8,03	332,37	2,19
Acidity, unspecified	Emission to water		µg	7,24	0,17	6,99	0,05
Aluminium	Emission to water		mg	1,79	0,09	0,74	0,59
Ammonium, ion	Emission to water		µg	424,24	9,91	409,96	2,70
Antimony	Emission to water		ng	387,35	9,05	374,31	2,46
AOX, Adsorbable Organic Halogen as Cl	Emission to water		µg	22,07	7,30	13,26	0,93
Arsenic, ion	Emission to water		µg	291,33	13,57	15,42	161,92
Barium	Emission to water		mg	9,80	0,23	9,47	0,06
Benzene	Emission to water		µg	57,72	1,35	55,78	0,37
Benzene, ethyl-	Emission to water		µg	3,24	0,08	3,14	0,02
Beryllium	Emission to water		ng	345,03	8,06	333,42	2,19
BOD5, Biological Oxygen Demand	Emission to water		mg	731,76	36,89	35,40	407,03
Boron	Emission to water		µg	108,07	2,52	104,43	0,69
Bromine	Emission to water		mg	7,38	0,17	7,13	0,05

Cadmium, ion	Emission to water	mg	1,31	0,05	0,04	0,75
Calcium, ion	Emission to water	mg	110,67	2,58	106,95	0,70
Chloride	Emission to water	g	1,34	0,06	1,22	0,04
Chromium VI	Emission to water	µg	488,43	21,17	14,13	279,67
Chromium, ion	Emission to water	mg	3,71	0,14	0,13	2,12
Cobalt	Emission to water	ng	762,76	17,81	737,10	4,85
COD, Chemical Oxygen Demand	Emission to water	mg	741,08	39,20	43,28	406,49
Copper, ion	Emission to water	mg	3,52	0,19	0,13	1,97
Cyanide	Emission to water	mg	2,84	0,13	0,08	1,62
DOC, Dissolved Organic Carbon	Emission to water	mg	114,10	7,56	8,10	60,76
Fluoride	Emission to water	g	1,89	1,89	0,00	0,00
Formaldehyde	Emission to water	mg	2,21	0,73	1,33	0,09
Heat, waste	Emission to water	kJ	31,44	17,61	8,33	3,39
Hydrocarbons, unspecified	Emission to water	mg	12,87	0,49	0,38	7,41
Iron, ion	Emission to water	g	39,41	39,35	0,01	0,03
Lead	Emission to water	mg	2,69	0,14	0,10	1,51
Lead-210	Emission to water	mBq	9,96	0,23	9,63	0,06
Lithium, ion	Emission to water	g	207,04	207,00	0,04	0,00
m-Xylene	Emission to water	µg	1,04	0,02	1,01	0,01
Magnesium	Emission to water	mg	21,59	0,50	20,87	0,14
Manganese	Emission to water	mg	4,21	0,16	0,16	2,40
Mercury	Emission to water	µg	232,91	9,06	6,85	133,93
Methanol	Emission to water	µg	662,05	219,04	397,91	27,84
Molybdenum	Emission to water	ng	790,97	18,47	764,36	5,03
Nickel, ion	Emission to water	mg	7,23	0,30	0,22	4,14
o-Xylene	Emission to water	ng	759,51	17,74	733,95	4,83
Oils, unspecified	Emission to water	mg	39,62	4,05	2,78	20,24
Phenol	Emission to water	µg	236,09	73,37	147,53	9,38
Phosphate	Emission to water	g	66,24	66,24	x	x
Phosphorus	Emission to water	µg	221,29	73,39	132,68	9,39
Radium-226	Emission to water	mBq	45,57	1,06	44,04	0,29
Radium-228	Emission to water	mBq	64,12	1,50	61,97	0,41
Selenium	Emission to water	ng	76,49	1,79	73,92	0,49
Silver, ion	Emission to water	µg	72,15	1,68	69,73	0,46
Sodium, ion	Emission to water	g	4,04	2,97	0,68	0,24

Solved solids	Emission to water		g	1,53	0,04	1,48	0,01
Strontium	Emission to water		mg	1,88	0,04	1,81	0,01
Sulfate	Emission to water		mg	3,05	0,24	2,56	0,16
Sulfur	Emission to water		µg	91,25	2,13	88,18	0,58
Suspended solids, unspecified	Emission to water		g	1,11	0,06	0,03	0,63
Thallium	Emission to water		ng	81,81	1,91	79,06	0,52
Tin, ion	Emission to water		µg	3,79	0,09	3,66	0,02
Titanium, ion	Emission to water		µg	5,95	0,14	5,75	0,04
TOC, Total Organic Carbon	Emission to water		mg	114,10	7,56	8,10	60,76
Toluene	Emission to water		µg	54,58	1,27	52,74	0,35
Vanadium, ion	Emission to water		ng	935,28	21,84	903,81	5,94
Xylene	Emission to water		µg	27,56	0,64	26,63	0,18
Zinc, ion	Emission to water		mg	12,01	2,52	1,41	4,99
Aluminium	Emission to water	groundwater	mg	723,82	504,23	192,80	16,53
Ammonium, ion	Emission to water	groundwater	mg	10,58	2,52	1,43	4,09
Antimony	Emission to water	groundwater	mg	5,05	2,42	1,73	0,56
Arsenic, ion	Emission to water	groundwater	mg	20,01	8,34	7,12	2,81
Barium	Emission to water	groundwater	mg	3,00	1,69	0,78	0,32
Beryllium	Emission to water	groundwater	mg	1,92	1,36	0,50	0,04
BOD5, Biological Oxygen Demand	Emission to water	groundwater	mg	2,09	0,50	0,27	0,82
Boron	Emission to water	groundwater	g	12,06	8,85	3,17	0,03
Bromine	Emission to water	groundwater	mg	5,52	1,16	2,27	1,29
Cadmium, ion	Emission to water	groundwater	mg	7,00	5,09	1,83	0,04
Calcium, ion	Emission to water	groundwater	g	73,41	50,40	19,50	2,17
Chloride	Emission to water	groundwater	g	141,20	33,45	19,39	54,53
Chromium VI	Emission to water	groundwater	mg	8,70	2,55	3,42	1,69
Chromium, ion	Emission to water	groundwater	µg	10,19	4,68	1,62	2,40
Cobalt	Emission to water	groundwater	mg	16,16	11,37	4,27	0,32
COD, Chemical Oxygen Demand	Emission to water	groundwater	mg	2,09	0,50	0,27	0,82
Copper, ion	Emission to water	groundwater	mg	41,67	30,31	10,96	0,24
Fluoride	Emission to water	groundwater	mg	767,70	536,54	198,50	20,16
Iodide	Emission to water	groundwater	µg	645,64	123,27	268,97	156,41
Iron, ion	Emission to water	groundwater	g	13,52	3,62	5,33	2,82
Lead	Emission to water	groundwater	mg	4,07	2,98	1,07	0,02
Lead-210	Emission to water	groundwater	mBq	982,23	979,60	2,45	0,11

Magnesium	Emission to water	groundwater	g	21,28	14,22	5,67	0,86
Manganese	Emission to water	groundwater	mg	764,74	484,54	202,10	48,20
Mercury	Emission to water	groundwater	µg	27,91	12,41	7,60	4,88
Molybdenum	Emission to water	groundwater	mg	87,25	55,41	25,56	3,87
Nickel, ion	Emission to water	groundwater	mg	12,80	6,20	3,33	2,02
Nitrate	Emission to water	groundwater	g	6,37	4,50	1,65	0,14
Phosphate	Emission to water	groundwater	g	272,31	195,15	71,94	3,22
Phosphorus	Emission to water	groundwater	µg	61,78	58,60	2,53	0,40
Polonium-210	Emission to water	groundwater	Bq	1,49	1,49	0,00	0,00
Potassium-40	Emission to water	groundwater	mBq	118,72	118,41	0,30	0,01
Potassium, ion	Emission to water	groundwater	g	5,48	3,23	1,63	0,39
Radium-226	Emission to water	groundwater	Bq	1,10	1,10	0,00	0,00
Scandium	Emission to water	groundwater	mg	4,41	2,78	1,28	0,22
Selenium	Emission to water	groundwater	mg	9,52	5,99	2,77	0,47
Silicon	Emission to water	groundwater	g	1,82	0,69	0,62	0,31
Silver, ion	Emission to water	groundwater	µg	356,29	227,90	94,76	20,76
Sodium, ion	Emission to water	groundwater	g	7,93	3,91	2,46	0,97
Solids, inorganic	Emission to water	groundwater	g	25,62	4,90	10,58	6,26
Solved solids	Emission to water	groundwater	g	2,25	0,54	0,29	0,88
Strontium	Emission to water	groundwater	mg	382,29	218,08	96,04	42,07
Sulfate	Emission to water	groundwater	kg	2,56	1,83	0,68	0,03
Thallium	Emission to water	groundwater	µg	493,99	360,67	129,98	2,06
Thorium-228	Emission to water	groundwater	mBq	12,04	12,01	0,03	0,00
Tin, ion	Emission to water	groundwater	mg	4,76	3,49	1,25	0,01
Titanium, ion	Emission to water	groundwater	mg	4,45	2,88	1,24	0,20
Tungsten	Emission to water	groundwater	mg	63,12	45,63	16,79	0,43
Uranium-238	Emission to water	groundwater	mBq	503,93	502,58	1,26	0,06
Vanadium, ion	Emission to water	groundwater	mg	3,07	1,87	0,90	0,18
Zinc, ion	Emission to water	groundwater	mg	284,28	205,54	74,61	2,55
Aluminium	Emission to water	groundwater, long-term	g	508,89	313,09	167,18	17,67
Ammonium, ion	Emission to water	groundwater, long-term	mg	5,54	3,56	1,02	0,59
Antimony	Emission to water	groundwater, long-term	g	1,60	1,17	0,42	0,01
Arsenic, ion	Emission to water	groundwater, long-term	g	5,02	3,63	1,32	0,04
Barium	Emission to water	groundwater, long-term	g	2,17	1,09	0,62	0,28
Beryllium	Emission to water	groundwater, long-term	mg	677,17	478,12	179,24	12,23

BOD5, Biological Oxygen Demand	Emission to water	groundwater, long-term	g	258,71	4,18	200,37	33,43
Boron	Emission to water	groundwater, long-term	g	125,78	92,07	33,13	0,36
Bromine	Emission to water	groundwater, long-term	mg	79,07	53,92	19,61	3,42
Cadmium, ion	Emission to water	groundwater, long-term	g	3,18	2,32	0,84	0,01
Calcium, ion	Emission to water	groundwater, long-term	kg	6,04	3,99	1,76	0,17
Chloride	Emission to water	groundwater, long-term	g	58,60	13,12	17,46	17,30
Chromium VI	Emission to water	groundwater, long-term	g	2,33	0,95	0,38	0,62
Cobalt	Emission to water	groundwater, long-term	g	14,26	6,38	2,39	3,39
COD, Chemical Oxygen Demand	Emission to water	groundwater, long-term	g	790,36	12,59	612,39	102,07
Copper, ion	Emission to water	groundwater, long-term	g	25,94	18,21	6,62	0,69
DOC, Dissolved Organic Carbon	Emission to water	groundwater, long-term	g	313,13	5,22	242,40	40,43
Fluoride	Emission to water	groundwater, long-term	g	736,94	208,10	527,53	0,81
Heat, waste	Emission to water	groundwater, long-term	kJ	103,31	64,92	19,47	11,68
Hydrogen sulfide	Emission to water	groundwater, long-term	mg	18,39	10,08	3,97	2,68
Iodide	Emission to water	groundwater, long-term	ng	25,23	17,79	4,42	1,87
Iron, ion	Emission to water	groundwater, long-term	kg	1,26	0,86	0,32	0,05
Lead	Emission to water	groundwater, long-term	g	2,48	1,79	0,66	0,02
Magnesium	Emission to water	groundwater, long-term	kg	3,50	2,44	0,93	0,08
Manganese	Emission to water	groundwater, long-term	g	388,02	275,00	102,91	6,24
Mercury	Emission to water	groundwater, long-term	mg	15,09	6,91	4,06	2,54
Molybdenum	Emission to water	groundwater, long-term	g	3,14	2,25	0,83	0,04
Nickel, ion	Emission to water	groundwater, long-term	g	26,81	4,35	2,07	12,59
Nitrate	Emission to water	groundwater, long-term	g	72,03	42,93	17,73	7,02
Nitrite	Emission to water	groundwater, long-term	µg	301,56	193,92	55,31	32,30
Nitrogen, organic bound	Emission to water	groundwater, long-term	mg	9,04	5,81	1,66	0,97
Phosphate	Emission to water	groundwater, long-term	g	489,28	319,44	130,87	24,05
Potassium, ion	Emission to water	groundwater, long-term	kg	1,98	1,38	0,52	0,05
Scandium	Emission to water	groundwater, long-term	g	1,18	0,83	0,31	0,02
Selenium	Emission to water	groundwater, long-term	g	2,43	1,75	0,64	0,03
Silicon	Emission to water	groundwater, long-term	kg	13,01	0,66	7,65	2,91
Silver, ion	Emission to water	groundwater, long-term	mg	175,46	128,35	46,21	0,55
Sodium, ion	Emission to water	groundwater, long-term	g	900,76	514,65	267,90	72,96
Strontium	Emission to water	groundwater, long-term	g	57,55	37,90	15,54	2,54
Sulfate	Emission to water	groundwater, long-term	kg	19,25	13,10	5,20	0,58
Thallium	Emission to water	groundwater, long-term	mg	297,64	216,37	78,86	1,49

Tin, ion	Emission to water	groundwater, long-term	g	2,86	2,09	0,75	0,01
Titanium, ion	Emission to water	groundwater, long-term	g	4,59	2,48	1,02	0,67
TOC, Total Organic Carbon	Emission to water	groundwater, long-term	g	313,13	5,22	242,40	40,43
Tungsten	Emission to water	groundwater, long-term	g	4,26	3,12	1,12	0,01
Vanadium, ion	Emission to water	groundwater, long-term	g	2,35	1,42	0,64	0,19
Zinc, ion	Emission to water	groundwater, long-term	g	169,32	122,92	44,59	1,12
Arsenic, ion	Emission to water	lake	ng	9,45	0,39	9,03	0,02
Cadmium, ion	Emission to water	lake	ng	8,03	0,33	7,67	0,01
Calcium, ion	Emission to water	lake	mg	700,88	695,68	4,31	0,55
Copper, ion	Emission to water	lake	ng	364,26	14,87	348,29	0,68
DOC, Dissolved Organic Carbon	Emission to water	lake	µg	248,72	121,75	99,37	17,03
Lead	Emission to water	lake	ng	23,78	0,97	22,74	0,04
Mercury	Emission to water	lake	pg	205,69	8,40	196,68	0,38
Nickel, ion	Emission to water	lake	ng	32,30	1,32	30,88	0,06
Zinc, ion	Emission to water	lake	ng	23,43	0,96	22,40	0,04
Acenaphthene	Emission to water	ocean	ng	421,02	179,80	118,79	75,57
Acenaphthylene	Emission to water	ocean	ng	26,33	11,24	7,43	4,73
Actinides, radioactive, unspecified	Emission to water	ocean	mBq	835,04	169,03	332,98	205,55
Aluminium	Emission to water	ocean	mg	32,02	11,46	7,23	8,23
Ammonium, ion	Emission to water	ocean	mg	7,34	3,64	1,89	1,11
AOX, Adsorbable Organic Halogen as Cl	Emission to water	ocean	µg	30,02	15,30	7,12	4,69
Arsenic, ion	Emission to water	ocean	mg	25,67	25,15	0,50	0,02
Barite	Emission to water	ocean	g	1,64	0,60	0,37	0,41
Barium	Emission to water	ocean	mg	59,06	25,24	16,66	10,59
Benzene	Emission to water	ocean	mg	5,61	2,40	1,58	1,01
Benzene, ethyl-	Emission to water	ocean	mg	1,62	0,69	0,46	0,29
BOD5, Biological Oxygen Demand	Emission to water	ocean	g	11,11	4,41	2,23	2,75
Boron	Emission to water	ocean	µg	697,22	378,27	157,45	99,68
Bromine	Emission to water	ocean	mg	47,38	20,23	13,37	8,50
Cadmium, ion	Emission to water	ocean	mg	10,74	9,52	1,21	0,01
Calcium, ion	Emission to water	ocean	g	445,09	442,69	1,70	0,43
Carboxylic acids, unspecified	Emission to water	ocean	mg	392,06	166,23	109,48	71,82
Cesium	Emission to water	ocean	µg	67,69	28,91	19,10	12,15
Cesium-137	Emission to water	ocean	Bq	95,69	19,37	38,16	23,55
Chloride	Emission to water	ocean	g	34,00	14,53	9,58	6,10

Chlorinated solvents, unspecified	Emission to water	ocean	pg	12,95	5,27	3,25	2,74
Chromium, ion	Emission to water	ocean	mg	3,23	3,02	0,10	0,06
Cobalt	Emission to water	ocean	µg	2,88	0,58	1,15	0,71
COD, Chemical Oxygen Demand	Emission to water	ocean	g	11,19	4,45	2,26	2,77
Copper, ion	Emission to water	ocean	mg	184,28	3,69	180,50	0,05
Cyanide	Emission to water	ocean	mg	309,00	1,09	307,78	0,08
DOC, Dissolved Organic Carbon	Emission to water	ocean	g	3,45	1,38	0,73	0,83
Fluoride	Emission to water	ocean	g	4,57	4,56	0,01	0,00
Glutaraldehyde	Emission to water	ocean	µg	202,23	74,12	45,32	51,10
Heat, waste	Emission to water	ocean	kJ	31,77	0,73	29,88	0,72
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	ocean	mg	8,80	3,76	2,48	1,58
Hydrocarbons, aliphatic, unsaturated	Emission to water	ocean	µg	812,26	346,88	229,17	145,79
Hydrocarbons, aromatic	Emission to water	ocean	mg	38,79	16,57	10,74	7,09
Hydrocarbons, unspecified	Emission to water	ocean	mg	30,69	11,27	6,90	7,73
Hydrogen-3, Tritium	Emission to water	ocean	kBq	198,80	40,24	79,28	48,94
Hypochlorite	Emission to water	ocean	mg	5,94	1,20	2,31	1,49
Iodide	Emission to water	ocean	mg	6,77	2,89	1,91	1,21
Iron, ion	Emission to water	ocean	mg	3,85	1,75	1,03	0,66
Lead	Emission to water	ocean	mg	2,60	1,65	0,75	0,12
Lead-210	Emission to water	ocean	Bq	1153,82	1150,72	2,88	0,13
Magnesium	Emission to water	ocean	mg	381,92	168,12	105,31	66,96
Manganese	Emission to water	ocean	mg	19,16	17,41	0,88	0,54
Mercury	Emission to water	ocean	µg	9,18	1,16	6,81	0,74
Methanol	Emission to water	ocean	mg	4,30	1,36	0,80	1,33
Molybdenum	Emission to water	ocean	µg	17,43	9,46	3,94	2,49
Nickel, ion	Emission to water	ocean	mg	32,05	17,07	14,96	0,01
Nitrate	Emission to water	ocean	mg	76,70	20,39	28,11	17,41
Nitrite	Emission to water	ocean	mg	1,30	0,26	0,52	0,32
Nitrogen	Emission to water	ocean	µg	376,35	152,88	93,31	80,34
Nitrogen, organic bound	Emission to water	ocean	mg	17,25	7,23	4,77	3,24
Oils, unspecified	Emission to water	ocean	g	3,53	1,40	0,71	0,87
PAH, polycyclic aromatic hydrocarbons	Emission to water	ocean	µg	542,28	233,88	151,57	96,80
Phenol	Emission to water	ocean	mg	8,67	3,74	2,42	1,55
Phosphate	Emission to water	ocean	g	19,46	19,41	0,05	0,00
Phosphorus	Emission to water	ocean	µg	698,56	370,55	162,05	102,44

Polonium-210	Emission to water	ocean	Bq	1760,83	1756,10	4,39	0,20
Potassium-40	Emission to water	ocean	Bq	139,46	139,09	0,35	0,02
Potassium, ion	Emission to water	ocean	mg	289,76	125,65	80,68	51,49
Radioactive species, Nuclides, unspecified	Emission to water	ocean	Bq	499,24	101,06	199,08	122,89
Radium-224	Emission to water	ocean	Bq	3,38	1,45	0,95	0,61
Radium-226	Emission to water	ocean	Bq	1304,72	1298,13	4,77	1,12
Radium-228	Emission to water	ocean	Bq	6,77	2,89	1,91	1,21
Rubidium	Emission to water	ocean	µg	676,88	289,07	190,98	121,49
Selenium	Emission to water	ocean	µg	26,13	14,17	5,90	3,74
Silicon	Emission to water	ocean	µg	49,96	17,90	11,32	12,80
Silver, ion	Emission to water	ocean	µg	40,61	17,34	11,46	7,29
Sodium, ion	Emission to water	ocean	g	20,83	8,95	5,85	3,72
Strontium	Emission to water	ocean	mg	123,06	52,69	34,65	22,04
Strontium-90	Emission to water	ocean	Bq	10,64	2,15	4,24	2,62
Sulfate	Emission to water	ocean	g	878,65	876,07	2,30	0,17
Sulfide	Emission to water	ocean	µg	268,49	106,60	80,71	50,10
Sulfur	Emission to water	ocean	mg	1,19	0,49	0,30	0,25
Suspended solids, unspecified	Emission to water	ocean	g	5,84	2,15	1,31	1,47
t-Butyl methyl ether	Emission to water	ocean	µg	552,29	299,64	124,72	78,96
Thorium-228	Emission to water	ocean	Bq	27,68	19,89	3,85	2,43
Titanium, ion	Emission to water	ocean	µg	7,93	2,82	1,79	2,05
TOC, Total Organic Carbon	Emission to water	ocean	g	3,45	1,38	0,73	0,83
Toluene	Emission to water	ocean	mg	10,00	4,33	2,80	1,77
Tributyltin compounds	Emission to water	ocean	µg	957,52	263,93	129,11	348,40
Triethylene glycol	Emission to water	ocean	mg	3,58	1,12	0,66	1,10
Uranium-238	Emission to water	ocean	Bq	591,96	590,37	1,48	0,07
Vanadium, ion	Emission to water	ocean	µg	52,10	28,26	11,76	7,45
VOC, volatile organic compounds, unspecified origin	Emission to water	ocean	mg	23,69	10,12	6,68	4,25
Xylene	Emission to water	ocean	mg	8,05	3,46	2,26	1,44
Zinc, ion	Emission to water	ocean	mg	480,59	58,16	388,82	20,74
1-Butanol	Emission to water	river	µg	61,28	54,28	3,07	2,43
1-Pentanol	Emission to water	river	ng	64,27	43,00	14,25	4,34
1-Pentene	Emission to water	river	ng	48,57	32,49	10,77	3,28
1,4-Butanediol	Emission to water	river	ng	106,87	94,55	6,80	3,41
2-Aminopropanol	Emission to water	river	ng	3,12	0,58	2,24	0,19

2-Methyl-1-propanol	Emission to water	river	ng	134,05	93,78	27,71	7,75
2-Methyl-2-butene	Emission to water	river	mg	2,39	2,39	0,00	0,00
2-Propanol	Emission to water	river	ng	45,17	10,73	31,80	1,62
Acenaphthene	Emission to water	river	µg	1,04	0,45	0,30	0,18
Acenaphthylene	Emission to water	river	ng	65,17	28,04	18,51	11,49
Acetaldehyde	Emission to water	river	µg	116,28	102,71	5,95	4,70
Acetic acid	Emission to water	river	mg	14,49	4,83	9,40	0,16
Acetone	Emission to water	river	ng	270,40	128,57	48,41	57,66
Acetonitrile	Emission to water	river	ng	3,75	0,86	2,02	0,54
Acetyl chloride	Emission to water	river	ng	50,49	33,78	11,19	3,41
Acidity, unspecified	Emission to water	river	mg	2,36	0,84	1,41	0,07
Acrylate, ion	Emission to water	river	mg	7,21	0,02	7,19	0,00
Aluminium	Emission to water	river	mg	400,57	189,74	144,66	40,84
Ammonium, ion	Emission to water	river	mg	339,94	141,83	158,44	24,49
Aniline	Emission to water	river	ng	779,70	688,15	59,97	19,49
Antimony	Emission to water	river	mg	14,32	11,64	1,10	0,98
Antimony-122	Emission to water	river	µBq	391,68	129,00	157,54	64,89
Antimony-124	Emission to water	river	mBq	142,09	30,62	57,16	33,52
Antimony-125	Emission to water	river	mBq	132,28	28,68	54,02	30,61
AOX, Adsorbable Organic Halogen as Cl	Emission to water	river	mg	1,11	0,27	0,64	0,13
Arsenic, ion	Emission to water	river	mg	125,39	43,10	52,70	18,26
Barium	Emission to water	river	mg	146,71	63,01	41,72	25,91
Barium-140	Emission to water	river	mBq	1,72	0,57	0,69	0,28
Benzene	Emission to water	river	mg	25,57	15,65	4,32	3,46
Benzene, 1,2-dichloro-	Emission to water	river	µg	26,61	23,39	1,46	1,09
Benzene, chloro-	Emission to water	river	µg	546,67	481,39	29,22	22,26
Benzene, ethyl-	Emission to water	river	mg	4,02	1,73	1,14	0,71
Beryllium	Emission to water	river	µg	6,03	1,12	1,87	1,88
BOD5, Biological Oxygen Demand	Emission to water	river	g	41,79	19,07	11,64	6,84
Borate	Emission to water	river	µg	5,03	3,28	1,20	0,34
Boron	Emission to water	river	mg	10,20	2,35	3,93	2,43
Bromate	Emission to water	river	mg	66,90	59,69	5,87	0,83
Bromide	Emission to water	river	µg	396,06	300,70	65,68	18,32
Bromine	Emission to water	river	mg	180,94	86,28	38,57	34,62
Butene	Emission to water	river	µg	696,80	636,18	58,42	1,35

Butyl acetate	Emission to water	river	µg	79,62	70,53	3,98	3,15
Butyrolactone	Emission to water	river	ng	135,43	119,64	6,94	5,47
Cadmium, ion	Emission to water	river	mg	9,91	0,23	8,99	0,42
Calcium, ion	Emission to water	river	g	170,01	150,19	5,34	8,94
Carbon disulfide	Emission to water	river	µg	3,01	2,08	0,60	0,21
Carbonate	Emission to water	river	g	20,38	20,33	0,05	0,00
Carboxylic acids, unspecified	Emission to water	river	mg	616,72	265,28	175,30	108,71
Cerium-141	Emission to water	river	µBq	685,99	225,92	275,92	113,66
Cerium-144	Emission to water	river	µBq	208,84	68,78	84,00	34,60
Cesium	Emission to water	river	µg	167,54	72,09	47,59	29,54
Cesium-134	Emission to water	river	mBq	117,79	23,88	48,21	28,21
Cesium-136	Emission to water	river	µBq	121,75	40,10	48,97	20,17
Cesium-137	Emission to water	river	mBq	448,39	115,66	182,38	92,80
Chloramine	Emission to water	river	ng	863,85	563,79	206,27	57,89
Chlorate	Emission to water	river	mg	517,16	461,27	45,31	6,53
Chloride	Emission to water	river	g	310,03	247,57	31,85	18,90
Chlorinated solvents, unspecified	Emission to water	river	µg	389,52	164,59	212,58	7,62
Chlorine	Emission to water	river	mg	13,18	11,00	1,84	0,21
Chloroacetic acid	Emission to water	river	µg	46,30	20,27	7,42	11,49
Chloroacetyl chloride	Emission to water	river	ng	4,16	0,77	2,98	0,25
Chloroform	Emission to water	river	mg	3,15	2,75	0,40	0,00
Chlorosulfonic acid	Emission to water	river	ng	13,65	3,14	7,35	1,96
Chromium-51	Emission to water	river	mBq	189,04	53,93	76,94	35,90
Chromium VI	Emission to water	river	mg	374,14	60,94	24,93	177,93
Chromium, ion	Emission to water	river	mg	1,47	0,44	0,33	0,43
Cobalt	Emission to water	river	mg	10,04	1,05	0,18	5,43
Cobalt-57	Emission to water	river	mBq	3,86	1,27	1,55	0,64
Cobalt-58	Emission to water	river	Bq	1,27	0,32	0,51	0,27
Cobalt-60	Emission to water	river	Bq	1,01	0,26	0,41	0,21
COD, Chemical Oxygen Demand	Emission to water	river	g	44,48	19,44	12,74	7,59
Copper, ion	Emission to water	river	mg	207,73	3,15	198,98	3,45
Cumene	Emission to water	river	mg	15,07	10,50	1,46	1,92
Cyanide	Emission to water	river	mg	787,45	409,37	369,59	5,24
Dichromate	Emission to water	river	µg	171,46	51,32	79,22	25,26
Diethylamine	Emission to water	river	ng	346,81	305,53	27,13	8,73

Dimethylamine	Emission to water	river	ng	194,53	132,94	47,70	8,57
Dipropylamine	Emission to water	river	ng	219,86	194,93	16,07	5,47
DOC, Dissolved Organic Carbon	Emission to water	river	g	17,85	10,54	3,87	2,12
Ethane, 1,2-dichloro-	Emission to water	river	mg	18,46	18,39	0,06	0,01
Ethanol	Emission to water	river	µg	144,04	126,93	7,78	5,76
Ethene	Emission to water	river	mg	17,38	15,93	0,51	0,58
Ethene, chloro-	Emission to water	river	µg	7,88	3,39	1,96	1,56
Ethyl acetate	Emission to water	river	ng	376,78	333,86	27,34	9,62
Ethylamine	Emission to water	river	ng	112,11	52,09	50,68	5,76
Ethylene diamine	Emission to water	river	µg	1,53	1,05	0,31	0,10
Ethylene oxide	Emission to water	river	mg	3,44	0,23	3,21	0,00
Fluoride	Emission to water	river	g	27,83	1,38	26,43	0,01
Fluosilicic acid	Emission to water	river	mg	2,68	1,79	0,25	0,39
Formaldehyde	Emission to water	river	µg	116,11	73,48	12,31	18,72
Formamide	Emission to water	river	ng	117,55	78,64	26,06	7,94
Formate	Emission to water	river	µg	3,55	0,88	2,30	0,23
Formic acid	Emission to water	river	ng	34,12	22,83	7,56	2,30
Heat, waste	Emission to water	river	MJ	29,02	7,03	11,25	6,63
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	river	mg	21,78	9,37	6,19	3,84
Hydrocarbons, aliphatic, unsaturated	Emission to water	river	mg	2,01	0,87	0,57	0,35
Hydrocarbons, aromatic	Emission to water	river	mg	88,26	38,02	25,05	15,55
Hydrocarbons, unspecified	Emission to water	river	mg	28,91	5,88	21,14	1,17
Hydrogen-3, Tritium	Emission to water	river	kBq	21,46	4,36	8,63	5,23
Hydrogen peroxide	Emission to water	river	mg	1,53	0,27	1,24	0,01
Hydrogen sulfide	Emission to water	river	mg	6,18	2,98	0,14	1,89
Hydroxide	Emission to water	river	g	11,51	11,51	0,00	0,00
Hypochlorite	Emission to water	river	mg	5,67	1,15	2,20	1,43
Iodide	Emission to water	river	mg	19,64	8,46	5,03	3,80
Iodine-131	Emission to water	river	mBq	26,50	5,94	10,69	6,09
Iodine-133	Emission to water	river	mBq	1,08	0,35	0,43	0,18
Iron-59	Emission to water	river	µBq	296,12	97,52	119,11	49,06
Iron, ion	Emission to water	river	mg	250,40	76,77	31,37	87,80
Isopropylamine	Emission to water	river	ng	19,58	4,65	13,78	0,70
Lactic acid	Emission to water	river	ng	172,23	152,69	12,59	4,29
Lanthanum-140	Emission to water	river	mBq	1,83	0,60	0,74	0,30

Lead	Emission to water	river	mg	76,07	11,29	61,25	2,18
Lead-210	Emission to water	river	Bq	1,24	0,25	0,51	0,30
Lithium, ion	Emission to water	river	g	4,74	4,74	0,00	0,00
m-Xylene	Emission to water	river	ng	125,69	84,75	27,12	8,54
Magnesium	Emission to water	river	g	1,42	0,48	0,57	0,23
Manganese	Emission to water	river	mg	23,64	8,58	7,32	4,78
Manganese-54	Emission to water	river	mBq	78,00	19,60	31,72	16,47
Mercury	Emission to water	river	mg	1,23	0,06	1,10	0,05
Methane, dichloro-, HCC-30	Emission to water	river	mg	5,27	3,30	0,87	0,68
Methanol	Emission to water	river	mg	85,70	0,48	85,20	0,02
Methyl acetate	Emission to water	river	ng	1,42	0,13	1,19	0,06
Methyl acrylate	Emission to water	river	mg	67,53	0,18	67,34	0,01
Methyl amine	Emission to water	river	ng	141,86	131,00	5,87	3,09
Methyl formate	Emission to water	river	ng	21,66	18,10	1,95	0,99
Molybdenum	Emission to water	river	mg	10,01	1,73	2,54	3,54
Molybdenum-99	Emission to water	river	µBq	630,06	207,50	253,42	104,39
Nickel, ion	Emission to water	river	mg	155,98	5,77	113,85	22,45
Niobium-95	Emission to water	river	mBq	11,78	2,62	4,99	2,57
Nitrate	Emission to water	river	g	3,72	2,57	1,07	0,05
Nitrite	Emission to water	river	mg	7,53	4,12	3,24	0,10
Nitrobenzene	Emission to water	river	µg	1,75	1,54	0,14	0,04
Nitrogen	Emission to water	river	mg	319,44	193,70	65,16	37,40
Nitrogen, organic bound	Emission to water	river	g	2,86	2,37	0,08	0,25
Oils, unspecified	Emission to water	river	g	11,72	4,98	3,29	2,13
PAH, polycyclic aromatic hydrocarbons	Emission to water	river	mg	1,06	0,41	0,24	0,25
Phenol	Emission to water	river	mg	14,79	6,64	4,03	2,55
Phosphate	Emission to water	river	mg	913,06	37,08	867,86	5,01
Phosphorus	Emission to water	river	mg	119,69	109,96	6,09	2,25
Polonium-210	Emission to water	river	Bq	1,24	0,25	0,51	0,30
Potassium-40	Emission to water	river	Bq	1,55	0,31	0,64	0,37
Potassium, ion	Emission to water	river	g	2,66	1,08	0,70	0,54
Propanal	Emission to water	river	ng	93,05	62,25	20,62	6,28
Propanol	Emission to water	river	ng	91,30	58,69	21,96	6,57
Propene	Emission to water	river	mg	62,80	49,62	11,91	0,78
Propionic acid	Emission to water	river	ng	101,54	85,34	14,14	1,27

Propylamine	Emission to water	river	ng	37,23	24,90	8,25	2,51
Propylene oxide	Emission to water	river	µg	683,07	306,78	267,34	67,24
Protactinium-234	Emission to water	river	Bq	1,31	0,27	0,53	0,32
Radioactive species, alpha emitters	Emission to water	river	Bq	3,46	3,45	0,01	0,00
Radioactive species, Nuclides, unspecified	Emission to water	river	Bq	1,71	0,30	0,80	0,38
Radium-224	Emission to water	river	Bq	8,38	3,60	2,38	1,48
Radium-226	Emission to water	river	Bq	828,45	173,77	330,96	199,80
Radium-228	Emission to water	river	Bq	16,75	7,21	4,76	2,95
Rubidium	Emission to water	river	mg	1,68	0,72	0,48	0,30
Ruthenium-103	Emission to water	river	µBq	132,95	43,79	53,47	22,03
Scandium	Emission to water	river	mg	1,58	0,23	0,26	0,67
Selenium	Emission to water	river	mg	1,86	0,38	0,40	0,66
Silicon	Emission to water	river	g	28,16	0,85	17,01	6,36
Silver-110	Emission to water	river	mBq	942,95	246,89	379,80	195,20
Silver, ion	Emission to water	river	µg	169,14	75,92	46,73	28,69
Sodium-24	Emission to water	river	mBq	4,77	1,57	1,92	0,79
Sodium formate	Emission to water	river	µg	55,90	28,76	4,75	13,82
Sodium, ion	Emission to water	river	g	104,05	50,57	35,41	11,15
Solids, inorganic	Emission to water	river	g	64,88	63,75	0,15	0,60
Solved solids	Emission to water	river	g	5,76	4,57	0,20	0,61
Strontium	Emission to water	river	mg	303,80	130,65	86,23	53,65
Strontium-89	Emission to water	river	mBq	18,19	4,99	7,52	3,51
Strontium-90	Emission to water	river	Bq	675,57	134,75	259,77	173,47
Sulfate	Emission to water	river	g	438,80	358,25	33,19	29,23
Sulfide	Emission to water	river	mg	1,13	0,34	0,39	0,24
Sulfite	Emission to water	river	mg	31,67	6,44	12,38	7,93
Sulfur	Emission to water	river	mg	40,91	18,83	10,69	7,03
Suspended solids, unspecified	Emission to water	river	g	5,90	4,32	0,58	0,62
t-Butyl methyl ether	Emission to water	river	ng	607,72	170,46	229,45	128,26
t-Butylamine	Emission to water	river	ng	27,66	6,89	17,90	1,77
Technetium-99m	Emission to water	river	mBq	14,55	4,78	5,85	2,42
Tellurium-123m	Emission to water	river	mBq	15,15	3,10	6,15	3,64
Tellurium-132	Emission to water	river	µBq	36,48	12,01	14,67	6,04
Thallium	Emission to water	river	µg	62,35	12,38	24,78	15,55
Thorium-228	Emission to water	river	Bq	33,51	14,42	9,52	5,91

Thorium-230	Emission to water	river	Bq	178,62	36,82	71,69	43,27
Thorium-232	Emission to water	river	mBq	289,67	58,53	118,64	69,44
Thorium-234	Emission to water	river	Bq	1,31	0,27	0,53	0,32
Tin, ion	Emission to water	river	µg	669,82	153,99	53,55	285,33
Titanium, ion	Emission to water	river	mg	3,14	1,24	0,44	0,90
TOC, Total Organic Carbon	Emission to water	river	g	18,07	10,71	3,90	2,13
Toluene	Emission to water	river	mg	19,87	8,86	5,50	3,40
Toluene, 2-chloro-	Emission to water	river	ng	271,46	236,99	23,26	6,92
Trimethylamine	Emission to water	river	ng	2,92	0,24	2,50	0,11
Tungsten	Emission to water	river	mg	1,22	0,18	0,23	0,50
Uranium-234	Emission to water	river	Bq	1,57	0,32	0,63	0,38
Uranium-235	Emission to water	river	Bq	2,59	0,53	1,04	0,63
Uranium-238	Emission to water	river	Bq	4,56	0,94	1,83	1,10
Uranium alpha	Emission to water	river	Bq	75,42	15,55	30,27	18,27
Urea	Emission to water	river	ng	108,47	71,65	25,02	7,28
Vanadium, ion	Emission to water	river	mg	4,91	1,67	1,61	1,01
VOC, volatile organic compounds, unspecified origin	Emission to water	river	mg	61,91	25,90	17,97	11,13
Xylene	Emission to water	river	mg	15,88	6,84	4,51	2,80
Zinc-65	Emission to water	river	mBq	64,63	21,29	26,00	10,71
Zinc, ion	Emission to water	river	g	1,99	0,02	1,95	0,01
Zirconium-95	Emission to water	river	µBq	748,46	246,50	301,05	124,01
Benzene, chloro-	Emission to water	river, long-term	ng	114,08	74,26	27,60	7,54
Chloride	Emission to water	river, long-term	mg	9,24	0,04	9,19	0,00
Boron	Emission to water		mg	1,16	0,35	0,54	0,17
Cadmium	Emission to soil		µg	1,69	0,77	0,42	0,31
Chloride	Emission to soil		g	1,93	0,82	0,59	0,32
Chromium	Emission to soil		µg	8,07	3,69	2,01	1,46
Chromium VI	Emission to soil		mg	6,57	1,97	3,04	0,97
Copper	Emission to soil		mg	4,21	1,28	1,92	0,62
Fluoride	Emission to soil		mg	4,45	1,33	2,06	0,65
Heat, waste	Emission to soil		kJ	695,10	174,23	335,90	114,17
Iron	Emission to soil		mg	815,65	332,37	105,34	233,26
Lead	Emission to soil		µg	69,66	31,83	17,35	12,64
Nickel	Emission to soil		µg	21,88	10,00	5,45	3,97
Oils, biogenic	Emission to soil		mg	4,56	1,87	0,61	1,29

Oils, unspecified	Emission to soil		mg	71,71	27,06	23,41	13,11
Sodium	Emission to soil		mg	82,72	7,39	73,79	0,95
Zinc	Emission to soil		mg	4,78	2,18	1,19	0,87
2,4-D	Emission to soil	agricultural	µg	128,98	122,12	5,50	0,84
Aclonifen	Emission to soil	agricultural	µg	3,41	1,34	0,51	0,96
Aldrin	Emission to soil	agricultural	µg	71,89	0,60	71,28	0,01
Aluminium	Emission to soil	agricultural	mg	30,89	9,04	16,55	3,28
Antimony	Emission to soil	agricultural	ng	61,28	31,16	13,45	10,29
Arsenic	Emission to soil	agricultural	µg	482,83	3,10	477,95	1,10
Atrazine	Emission to soil	agricultural	µg	18,86	0,16	18,70	0,00
Barium	Emission to soil	agricultural	µg	2,99	1,18	0,90	0,56
Benomyl	Emission to soil	agricultural	ng	792,50	778,28	5,56	5,34
Bentazone	Emission to soil	agricultural	µg	1,74	0,68	0,26	0,49
Boron	Emission to soil	agricultural	ng	616,80	218,19	203,06	120,69
Cadmium	Emission to soil	agricultural	mg	1,09	0,01	1,08	0,00
Calcium	Emission to soil	agricultural	mg	222,73	61,18	90,67	43,75
Carbetamide	Emission to soil	agricultural	µg	1,32	0,73	0,23	0,22
Carbofuran	Emission to soil	agricultural	µg	434,48	426,68	3,05	2,93
Carbon	Emission to soil	agricultural	mg	120,54	73,46	41,91	3,20
Chloride	Emission to soil	agricultural	mg	2,26	0,46	1,01	0,49
Chlorothalonil	Emission to soil	agricultural	µg	692,31	478,50	136,82	47,52
Chromium	Emission to soil	agricultural	mg	1,25	0,06	1,14	0,03
Cobalt	Emission to soil	agricultural	µg	16,22	5,84	5,85	2,80
Copper	Emission to soil	agricultural	mg	15,45	0,11	15,29	0,03
Cypermethrin	Emission to soil	agricultural	µg	61,40	60,28	0,44	0,42
Fenpiclonil	Emission to soil	agricultural	µg	27,37	18,88	5,40	1,90
Glyphosate	Emission to soil	agricultural	µg	911,34	865,48	24,07	13,45
Iron	Emission to soil	agricultural	mg	265,08	58,10	199,91	4,36
Lead	Emission to soil	agricultural	mg	2,04	0,05	1,96	0,01
Linuron	Emission to soil	agricultural	µg	42,01	10,45	19,52	7,43
Magnesium	Emission to soil	agricultural	mg	25,36	6,90	10,46	4,94
Mancozeb	Emission to soil	agricultural	µg	899,16	621,47	177,71	61,71
Manganese	Emission to soil	agricultural	mg	14,24	2,98	6,31	3,06
Mercury	Emission to soil	agricultural	ng	870,80	704,15	99,43	41,49
Metaldehyde	Emission to soil	agricultural	ng	425,57	259,46	78,55	54,04

Metolachlor	Emission to soil	agricultural	µg	190,33	74,70	28,50	53,78
Metribuzin	Emission to soil	agricultural	µg	31,66	21,88	6,26	2,17
Molybdenum	Emission to soil	agricultural	µg	4,69	2,46	1,27	0,59
Napropamide	Emission to soil	agricultural	ng	752,93	459,05	138,97	95,61
Nickel	Emission to soil	agricultural	mg	8,18	0,04	8,11	0,01
Orbencarb	Emission to soil	agricultural	µg	170,97	118,17	33,79	11,73
Phosphorus	Emission to soil	agricultural	mg	6,92	1,41	3,09	1,50
Pirimicarb	Emission to soil	agricultural	ng	164,78	64,67	24,68	46,56
Potassium	Emission to soil	agricultural	mg	38,48	7,81	17,17	8,33
Silicon	Emission to soil	agricultural	mg	90,77	23,93	46,06	12,83
Strontium	Emission to soil	agricultural	µg	6,69	2,15	2,36	1,35
Sulfur	Emission to soil	agricultural	mg	13,28	7,61	3,25	1,50
Sulfuric acid	Emission to soil	agricultural	µg	3,95	0,01	3,94	0,00
Tebutam	Emission to soil	agricultural	µg	1,78	1,09	0,33	0,23
Teflubenzuron	Emission to soil	agricultural	µg	2,11	1,46	0,42	0,14
Thiram	Emission to soil	agricultural	µg	1,41	1,38	0,01	0,01
Tin	Emission to soil	agricultural	µg	13,20	8,18	4,80	0,14
Titanium	Emission to soil	agricultural	µg	974,26	197,87	434,67	210,92
Vanadium	Emission to soil	agricultural	µg	27,89	5,66	12,44	6,04
Zinc	Emission to soil	agricultural	mg	1,61	0,56	0,57	0,29
Oils, biogenic	Emission to soil	forestry	mg	14,35	5,78	1,75	4,21
Oils, unspecified	Emission to soil	forestry	g	14,45	6,17	4,08	2,59
Aluminium	Emission to soil	industrial	mg	129,31	51,23	34,32	27,01
Arsenic	Emission to soil	industrial	µg	51,73	20,49	13,73	10,80
Barium	Emission to soil	industrial	mg	64,66	25,62	17,16	13,51
Boron	Emission to soil	industrial	mg	1,29	0,51	0,34	0,27
Calcium	Emission to soil	industrial	mg	517,25	204,93	137,26	108,05
Carbon	Emission to soil	industrial	mg	387,94	153,70	102,95	81,04
Chloride	Emission to soil	industrial	mg	452,60	179,32	120,10	94,54
Chromium	Emission to soil	industrial	µg	646,57	256,17	171,58	135,06
Copper	Emission to soil	industrial	µg	127,82	117,74	4,04	3,73
Fluoride	Emission to soil	industrial	mg	6,47	2,56	1,72	1,35
Glyphosate	Emission to soil	industrial	µg	424,09	173,74	56,45	119,68
Heat, waste	Emission to soil	industrial	kJ	7,81	5,28	1,42	0,68
Iron	Emission to soil	industrial	mg	258,63	102,47	68,63	54,02

Magnesium	Emission to soil	industrial	mg	103,45	40,99	27,45	21,61
Manganese	Emission to soil	industrial	mg	5,17	2,05	1,37	1,08
Oils, unspecified	Emission to soil	industrial	g	4,07	4,06	0,01	0,00
Phosphorus	Emission to soil	industrial	mg	6,47	2,56	1,72	1,35
Potassium	Emission to soil	industrial	mg	45,26	17,93	12,01	9,45
Silicon	Emission to soil	industrial	mg	12,93	5,12	3,43	2,70
Sodium	Emission to soil	industrial	mg	258,63	102,47	68,63	54,02
Strontium	Emission to soil	industrial	mg	1,29	0,51	0,34	0,27
Sulfur	Emission to soil	industrial	mg	77,59	30,74	20,59	16,21
Zinc	Emission to soil	industrial	mg	1,94	0,77	0,51	0,41

Analisi di inventario: fase di produzione batteria con celle da 60 Ah

Sostanza	Compartimento	Sottocompartimento	U.M.	Totale	Celle	BMS	Box batteria
Energy, gross calorific value, in biomass	Resource	biotic	MJ	17,57	5,99	6,56	3,09
Energy, gross calorific value, in biomass, primary forest	Resource	biotic	kJ	67,30	66,28	0,53	0,30
Peat, in ground	Resource	biotic	g	30,50	0,76	29,62	0,08
Wood, hard, standing	Resource	biotic	cm3	454,41	105,76	202,93	89,93
Wood, primary forest, standing	Resource	biotic	cm3	6,24	6,15	0,05	0,03
Wood, soft, standing	Resource	biotic	l	1,19	0,43	0,43	0,21
Wood, unspecified, standing/m3	Resource	biotic	mm3	26,96	4,54	21,69	0,45
Carbon dioxide, in air	Resource	in air	kg	1,75	0,56	0,68	0,31
Energy, kinetic (in wind), converted	Resource	in air	MJ	4,60	0,99	2,26	0,83
Energy, solar, converted	Resource	in air	kJ	66,21	14,88	31,85	12,02
Aluminium, 24% in bauxite, 11% in crude ore, in ground	Resource	in ground	g	215,06	67,30	13,36	82,94
Anhydrite, in ground	Resource	in ground	mg	2,21	1,79	0,32	0,06
Barite, 15% in crude ore, in ground	Resource	in ground	g	40,28	18,21	12,41	5,96
Basalt, in ground	Resource	in ground	g	12,14	6,04	1,51	2,83
Borax, in ground	Resource	in ground	mg	1,49	0,25	1,04	0,12
Cadmium, 0.30% in sulfide, Cd 0.18%, Pb, Zn, Ag, In, in ground	Resource	in ground	mg	8,19	5,54	1,37	0,79
Calcite, in ground	Resource	in ground	kg	18,43	5,17	10,16	1,92
Carbon, in organic matter, in soil	Resource	in ground	mg	970,77	956,06	7,71	4,32
Chromium, 25.5% in chromite, 11.6% in crude ore, in ground	Resource	in ground	kg	2,01	0,05	0,04	1,19
Chrysotile, in ground	Resource	in ground	mg	22,59	20,09	2,20	0,18
Cinnabar, in ground	Resource	in ground	mg	2,08	1,85	0,21	0,02
Clay, bentonite, in ground	Resource	in ground	g	72,94	18,06	4,29	31,22
Clay, unspecified, in ground	Resource	in ground	kg	5,32	1,01	3,73	0,35
Coal, brown, in ground	Resource	in ground	kg	11,71	2,43	5,98	2,03
Coal, hard, unspecified, in ground	Resource	in ground	kg	20,79	6,17	3,99	6,56
Cobalt, in ground	Resource	in ground	µg	61,32	25,90	23,83	7,15
Colemanite, in ground	Resource	in ground	mg	158,08	79,33	66,51	7,56
Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	kg	2,06	2,05	0,00	0,00
Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	15,48	8,04	3,40	2,49
Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	4,11	2,13	0,90	0,66
Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	188,11	10,64	172,15	3,28
Diatomite, in ground	Resource	in ground	µg	2,80	0,82	1,45	0,33

Dolomite, in ground	Resource	in ground	g	18,79	1,68	1,47	9,65
Feldspar, in ground	Resource	in ground	µg	28,82	18,21	6,21	2,72
Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Resource	in ground	g	180,41	179,88	0,51	0,01
Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Resource	in ground	g	79,09	78,86	0,22	0,01
Fluorspar, 92%, in ground	Resource	in ground	g	546,20	541,92	3,83	0,27
Gallium, 0.014% in bauxite, in ground	Resource	in ground	ng	187,15	42,08	89,85	34,07
Gas, mine, off-gas, process, coal mining/m3	Resource	in ground	l	203,80	59,45	41,43	63,51
Gas, natural, in ground	Resource	in ground	m3	10,18	3,79	2,65	2,31
Gold, Au 1.1E-4%, Ag 4.2E-3%, in ore, in ground	Resource	in ground	mg	20,24	0,05	20,18	0,00
Gold, Au 1.3E-4%, Ag 4.6E-5%, in ore, in ground	Resource	in ground	mg	37,11	0,10	37,01	0,00
Gold, Au 1.4E-4%, in ore, in ground	Resource	in ground	mg	44,43	0,12	44,31	0,00
Gold, Au 2.1E-4%, Ag 2.1E-4%, in ore, in ground	Resource	in ground	mg	67,87	0,18	67,68	0,01
Gold, Au 4.3E-4%, in ore, in ground	Resource	in ground	mg	16,82	0,04	16,77	0,00
Gold, Au 4.9E-5%, in ore, in ground	Resource	in ground	mg	40,29	0,10	40,18	0,00
Gold, Au 6.7E-4%, in ore, in ground	Resource	in ground	mg	62,37	0,16	62,20	0,00
Gold, Au 7.1E-4%, in ore, in ground	Resource	in ground	mg	70,33	0,18	70,14	0,01
Gold, Au 9.7E-4%, Ag 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	4,21	0,01	4,20	0,00
Granite, in ground	Resource	in ground	µg	2,86	0,12	2,69	0,03
Gravel, in ground	Resource	in ground	kg	29,49	7,27	12,13	6,22
Gypsum, in ground	Resource	in ground	mg	37,66	2,05	34,21	0,86
Indium, 0.005% in sulfide, In 0.003%, Pb, Zn, Ag, Cd, in ground	Resource	in ground	µg	145,78	94,39	27,29	14,88
Iron, 46% in ore, 25% in crude ore, in ground	Resource	in ground	kg	4,58	0,31	0,21	2,50
Kaolinite, 24% in crude ore, in ground	Resource	in ground	g	2,62	1,81	0,64	0,11
Kieserite, 25% in crude ore, in ground	Resource	in ground	mg	6,88	4,53	1,80	0,34
Lead, 5.0% in sulfide, Pb 3.0%, Zn, Ag, Cd, In, in ground	Resource	in ground	mg	773,92	191,59	488,43	57,95
Lithium, 0.15% in brine, in ground	Resource	in ground	g	558,05	558,05	0,00	0,00
Magnesite, 60% in crude ore, in ground	Resource	in ground	g	99,11	5,39	6,36	53,91
Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Resource	in ground	g	2,93	1,56	0,44	0,58
Metamorphous rock, graphite containing, in ground	Resource	in ground	kg	1,29	1,29	0,00	0,00
Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Resource	in ground	g	3,50	0,20	3,20	0,06
Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Resource	in ground	mg	53,95	28,00	11,86	8,69
Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Resource	in ground	g	25,82	25,76	0,05	0,01
Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Resource	in ground	mg	197,68	102,62	43,47	31,84
Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	65,19	34,60	10,08	12,66
Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Resource	in ground	g	20,85	20,70	0,14	0,00

Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Resource	in ground	kg	4,60	0,12	0,09	2,72
Oil, crude, in ground	Resource	in ground	kg	6,96	3,33	2,29	0,82
Olivine, in ground	Resource	in ground	mg	1,01	0,69	0,28	0,03
Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	18,95	14,08	2,97	1,17
Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	45,53	33,84	7,13	2,81
Phosphorus, 18% in apatite, 12% in crude ore, in ground	Resource	in ground	g	315,12	314,13	0,96	0,02
Phosphorus, 18% in apatite, 4% in crude ore, in ground	Resource	in ground	g	721,63	719,51	2,03	0,05
Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	703,93	206,76	313,87	113,11
Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	2,52	0,74	1,13	0,41
Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	239,33	97,11	88,59	33,09
Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	ng	749,60	304,15	277,48	103,65
Rhenium, in crude ore, in ground	Resource	in ground	ng	299,78	181,16	74,84	27,01
Sand, unspecified, in ground	Resource	in ground	g	2,41	0,12	2,26	0,02
Shale, in ground	Resource	in ground	mg	6,26	5,07	0,90	0,18
Silver, 0.007% in sulfide, Ag 0.004%, Pb, Zn, Cd, In, in ground	Resource	in ground	mg	82,41	1,16	81,19	0,04
Silver, 3.2ppm in sulfide, Ag 1.2ppm, Cu and Te, in crude ore, in ground	Resource	in ground	mg	59,09	0,83	58,22	0,03
Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, in ground	Resource	in ground	mg	5,46	0,08	5,38	0,00
Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, in ground	Resource	in ground	mg	12,46	0,18	12,28	0,01
Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, in ground	Resource	in ground	mg	12,21	0,17	12,03	0,01
Silver, Ag 9.7E-4%, Au 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	8,06	0,11	7,94	0,00
Sodium chloride, in ground	Resource	in ground	kg	2,55	2,43	0,10	0,01
Sodium nitrate, in ground	Resource	in ground	µg	1,44	1,40	0,02	0,02
Sodium sulphate, various forms, in ground	Resource	in ground	g	5,08	4,73	0,28	0,05
Stibnite, in ground	Resource	in ground	ng	291,20	85,26	150,48	34,23
Sulfur, in ground	Resource	in ground	mg	873,81	129,34	738,66	3,58
Sylvite, 25 % in sylvinite, in ground	Resource	in ground	mg	990,48	781,78	191,93	10,35
Talc, in ground	Resource	in ground	mg	330,33	222,99	71,51	22,12
Tantalum, 81.9% in tantalite, 1.6E-4% in crude ore, in ground	Resource	in ground	mg	1,03	0,92	0,06	0,03
Tellurium, 0.5ppm in sulfide, Te 0.2ppm, Cu and Ag, in crude ore, in ground	Resource	in ground	mg	8,86	0,12	8,73	0,00
Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Resource	in ground	g	2,29	0,05	2,22	0,01
TiO2, 54% in ilmenite, 2.6% in crude ore, in ground	Resource	in ground	g	10,22	8,91	0,90	0,26
TiO2, 95% in rutile, 0.40% in crude ore, in ground	Resource	in ground	µg	404,52	399,66	3,88	0,60
Ulexite, in ground	Resource	in ground	mg	200,73	2,28	195,97	1,53
Uranium, in ground	Resource	in ground	mg	473,78	108,67	232,47	81,85
Vermiculite, in ground	Resource	in ground	mg	45,58	37,96	6,87	0,46

Volume occupied, final repository for low-active radioactive waste	Resource	in ground	mm3	967,07	217,60	476,14	168,67
Volume occupied, final repository for radioactive waste	Resource	in ground	mm3	242,64	54,07	119,53	42,60
Volume occupied, underground deposit	Resource	in ground	cm3	3,33	0,83	1,87	0,39
Zinc, 9.0% in sulfide, Zn 5.3%, Pb, Ag, Cd, In, in ground	Resource	in ground	g	9,11	5,36	2,06	1,04
Zirconium, 50% in zircon, 0.39% in crude ore, in ground	Resource	in ground	mg	1,40	1,26	0,08	0,04
Bromine, 0.0023% in water	Resource	in water	µg	758,60	563,59	154,30	25,13
Energy, potential (in hydropower reservoir), converted	Resource	in water	MJ	125,69	25,58	21,34	48,61
Iodine, 0.03% in water	Resource	in water	µg	206,21	164,24	32,81	5,65
Magnesium, 0.13% in water	Resource	in water	µg	637,75	283,39	197,25	96,96
Volume occupied, reservoir	Resource	in water	m3day	255,57	58,43	137,20	36,99
Water, cooling, unspecified natural origin/m3	Resource	in water	m3	1,30	0,41	0,57	0,20
Water, lake	Resource	in water	l	48,00	39,98	7,24	0,48
Water, river	Resource	in water	l	614,62	372,00	142,92	61,52
Water, salt, ocean	Resource	in water	l	38,12	9,67	16,92	7,12
Water, salt, sole	Resource	in water	l	5,07	2,41	1,68	0,60
Water, turbine use, unspecified natural origin	Resource	in water	m3	1333,18	265,03	167,55	555,74
Water, unspecified natural origin/m3	Resource	in water	l	633,22	469,61	56,29	66,22
Water, well, in ground	Resource	in water	l	291,68	121,64	145,35	15,23
Occupation, arable, non-irrigated	Resource	land	cm2a	58,99	34,28	17,11	4,68
Occupation, construction site	Resource	land	m2a	0,80	0,77	0,02	0,01
Occupation, dump site	Resource	land	m2a	1,33	0,74	0,39	0,12
Occupation, dump site, benthos	Resource	land	cm2a	41,46	17,09	11,78	7,76
Occupation, forest, intensive	Resource	land	m2a	0,16	0,10	0,02	0,03
Occupation, forest, intensive, normal	Resource	land	m2a	2,10	0,86	0,39	0,52
Occupation, forest, intensive, short-cycle	Resource	land	cm2a	168,83	166,27	1,34	0,75
Occupation, industrial area	Resource	land	m2a	0,15	0,06	0,02	0,04
Occupation, industrial area, benthos	Resource	land	mm2a	37,35	15,00	10,62	7,24
Occupation, industrial area, built up	Resource	land	m2a	0,16	0,07	0,01	0,05
Occupation, industrial area, vegetation	Resource	land	cm2a	468,26	191,51	52,12	138,62
Occupation, mineral extraction site	Resource	land	m2a	0,63	0,09	0,51	0,02
Occupation, permanent crop, fruit, intensive	Resource	land	mm2a	520,60	221,25	126,71	106,54
Occupation, shrub land, sclerophyllous	Resource	land	cm2a	313,80	37,96	153,24	75,65
Occupation, traffic area, rail embankment	Resource	land	cm2a	96,24	45,79	16,77	20,78
Occupation, traffic area, rail network	Resource	land	cm2a	106,42	50,63	18,55	22,98
Occupation, traffic area, road embankment	Resource	land	cm2a	260,43	114,00	49,54	59,79

Occupation, traffic area, road network	Resource	land	m2a	0,29	0,04	0,15	0,06
Occupation, urban, discontinuously built	Resource	land	mm2a	31,72	27,31	3,13	0,79
Occupation, water bodies, artificial	Resource	land	cm2a	729,51	146,68	390,14	118,90
Occupation, water courses, artificial	Resource	land	m2a	0,14	0,03	0,02	0,06
Transformation, from arable	Resource	land	mm2	104,38	30,91	16,59	35,10
Transformation, from arable, non-irrigated	Resource	land	cm2	104,39	62,95	27,44	8,63
Transformation, from arable, non-irrigated, fallow	Resource	land	mm2	26,10	8,17	1,62	10,06
Transformation, from dump site, inert material landfill	Resource	land	mm2	504,94	114,43	33,89	220,06
Transformation, from dump site, residual material landfill	Resource	land	cm2	57,57	6,41	30,25	12,90
Transformation, from dump site, sanitary landfill	Resource	land	mm2	4,07	2,63	0,90	0,34
Transformation, from dump site, slag compartment	Resource	land	mm2	0,77	0,31	0,24	0,14
Transformation, from forest	Resource	land	cm2	104,45	48,83	31,71	14,75
Transformation, from forest, extensive	Resource	land	cm2	170,75	74,36	29,79	41,10
Transformation, from forest, intensive, clear-cutting	Resource	land	mm2	602,95	593,82	4,79	2,68
Transformation, from industrial area	Resource	land	mm2	100,31	29,07	38,46	20,23
Transformation, from industrial area, benthos	Resource	land	mm2	0,30	0,11	0,07	0,07
Transformation, from industrial area, built up	Resource	land	mm2	257,64	256,88	0,72	0,02
Transformation, from industrial area, vegetation	Resource	land	mm2	439,50	438,21	1,23	0,03
Transformation, from mineral extraction site	Resource	land	cm2	216,12	33,73	178,47	2,42
Transformation, from pasture and meadow	Resource	land	cm2	136,66	41,17	50,38	27,84
Transformation, from pasture and meadow, intensive	Resource	land	mm2	8,03	5,13	1,75	0,70
Transformation, from sea and ocean	Resource	land	cm2	42,63	17,12	12,91	7,77
Transformation, from shrub land, sclerophyllous	Resource	land	cm2	70,96	9,22	31,65	18,57
Transformation, from tropical rain forest	Resource	land	mm2	602,95	593,82	4,79	2,68
Transformation, from unknown	Resource	land	cm2	372,21	95,80	216,76	36,81
Transformation, to arable	Resource	land	cm2	11,94	3,39	4,27	2,64
Transformation, to arable, non-irrigated	Resource	land	cm2	104,53	63,00	27,52	8,64
Transformation, to arable, non-irrigated, fallow	Resource	land	mm2	47,65	12,53	15,44	12,15
Transformation, to dump site	Resource	land	cm2	89,19	55,31	23,12	6,64
Transformation, to dump site, benthos	Resource	land	cm2	41,46	17,09	11,78	7,76
Transformation, to dump site, inert material landfill	Resource	land	mm2	504,94	114,43	33,89	220,06
Transformation, to dump site, residual material landfill	Resource	land	cm2	57,57	6,41	30,25	12,90
Transformation, to dump site, sanitary landfill	Resource	land	mm2	4,07	2,63	0,90	0,34
Transformation, to dump site, slag compartment	Resource	land	mm2	0,77	0,31	0,24	0,14
Transformation, to forest	Resource	land	cm2	70,47	12,45	32,36	15,83

Transformation, to forest, intensive	Resource	land	cm2	10,94	6,46	1,31	1,96
Transformation, to forest, intensive, clear-cutting	Resource	land	mm2	602,95	593,82	4,79	2,68
Transformation, to forest, intensive, normal	Resource	land	cm2	157,79	67,04	28,15	38,63
Transformation, to forest, intensive, short-cycle	Resource	land	mm2	602,95	593,82	4,79	2,68
Transformation, to heterogeneous, agricultural	Resource	land	cm2	26,01	1,94	22,91	0,71
Transformation, to industrial area	Resource	land	cm2	29,18	11,40	3,17	9,01
Transformation, to industrial area, benthos	Resource	land	mm2	116,90	2,98	112,61	0,81
Transformation, to industrial area, built up	Resource	land	cm2	39,47	19,11	3,49	10,41
Transformation, to industrial area, vegetation	Resource	land	cm2	11,93	6,15	1,24	2,80
Transformation, to mineral extraction site	Resource	land	cm2	320,92	77,91	210,84	19,85
Transformation, to pasture and meadow	Resource	land	cm2	27,22	26,85	0,19	0,11
Transformation, to permanent crop, fruit, intensive	Resource	land	mm2	7,33	3,11	1,78	1,50
Transformation, to sea and ocean	Resource	land	mm2	0,30	0,11	0,07	0,07
Transformation, to shrub land, sclerophyllous	Resource	land	cm2	62,67	7,58	30,60	15,11
Transformation, to traffic area, rail embankment	Resource	land	mm2	22,39	10,65	3,90	4,84
Transformation, to traffic area, rail network	Resource	land	mm2	24,61	11,71	4,29	5,32
Transformation, to traffic area, road embankment	Resource	land	mm2	180,54	80,22	32,00	42,16
Transformation, to traffic area, road network	Resource	land	cm2	39,54	5,04	19,29	9,38
Transformation, to unknown	Resource	land	cm2	159,69	6,20	153,03	0,29
Transformation, to urban, discontinuously built	Resource	land	mm2	0,63	0,54	0,06	0,02
Transformation, to water bodies, artificial	Resource	land	mm2	659,82	142,36	325,78	118,29
Transformation, to water courses, artificial	Resource	land	cm2	16,84	3,39	2,12	6,99
Acenaphthene	Emission to air		pg	657,60	13,70	639,91	2,46
Acetaldehyde	Emission to air		mg	10,56	1,58	6,27	1,67
Acetic acid	Emission to air		mg	65,40	58,99	3,32	1,91
Acrolein	Emission to air		ng	380,68	7,93	370,44	1,42
Aldehydes, unspecified	Emission to air		µg	2,80	0,06	2,72	0,01
Aluminium	Emission to air		g	49,36	34,90	11,30	1,95
Ammonia	Emission to air		g	19,93	13,81	4,68	0,89
Antimony	Emission to air		µg	17,74	1,10	16,08	0,35
Arsenic	Emission to air		µg	106,54	6,59	96,58	2,08
Barium	Emission to air		pg	70,41	1,41	67,83	0,72
Benzal chloride	Emission to air		pg	48,29	1,01	46,99	0,18
Benzene	Emission to air		mg	17,78	4,60	3,39	6,04
Benzene, hexachloro-	Emission to air		µg	65,37	3,53	2,07	36,88

Benzo(a)pyrene	Emission to air	mg	3,00	2,76	0,04	0,12
Beryllium	Emission to air	µg	26,61	1,65	24,12	0,52
Boron	Emission to air	pg	406,39	8,16	391,50	4,15
Bromine	Emission to air	pg	334,02	6,71	321,81	3,39
Butadiene	Emission to air	µg	7,62	0,11	7,50	0,00
Butane	Emission to air	µg	691,19	14,40	672,60	2,58
Cadmium	Emission to air	µg	266,23	19,03	70,24	109,20
Carbon dioxide, biogenic	Emission to air	g	180,66	18,53	144,17	11,08
Carbon dioxide, fossil	Emission to air	kg	16,78	2,26	9,01	3,41
Carbon disulfide	Emission to air	pg	8,96	0,19	8,72	0,03
Carbon monoxide, fossil	Emission to air	g	186,01	35,92	23,09	78,37
Chlorine	Emission to air	µg	5,71	4,06	0,70	0,58
Chloroform	Emission to air	pg	4,08	0,08	3,97	0,02
Chromium	Emission to air	mg	8,69	0,48	0,33	4,86
Chromium VI	Emission to air	µg	4,93	0,32	4,44	0,10
Cobalt	Emission to air	µg	35,52	2,19	32,21	0,69
Copper	Emission to air	mg	6,03	1,83	1,69	1,55
Cumene	Emission to air	pg	0,37	0,01	0,36	0,00
Cyanide	Emission to air	pg	172,42	3,59	167,79	0,64
Dinitrogen monoxide	Emission to air	mg	481,95	116,82	238,26	78,29
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	ng	49,42	3,12	9,55	22,68
Ethane	Emission to air	mg	1,02	0,02	1,00	0,00
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	pg	7,54	0,16	7,34	0,03
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	mg	3,47	1,72	1,04	0,44
Ethane, hexafluoro-, HFC-116	Emission to air	mg	2,11	1,52	0,24	0,22
Ethene, chloro-	Emission to air	pg	2,76	0,06	2,69	0,01
Ethene, tetrachloro-	Emission to air	ng	5,97	0,12	5,81	0,02
Ethylene oxide	Emission to air	mg	10,28	10,21	0,07	0,00
Ethyne	Emission to air	mg	7,27	7,17	0,08	0,01
Fluorine	Emission to air	ng	789,34	255,89	339,26	119,84
Formaldehyde	Emission to air	mg	35,89	12,19	13,25	6,44
Furan	Emission to air	pg	0,59	0,01	0,57	0,00
Heat, waste	Emission to air	MJ	203,65	47,88	68,48	53,86
Helium	Emission to air	pg	207,42	77,20	106,07	14,90
Hexane	Emission to air	µg	591,91	12,34	575,99	2,21

Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	mg	539,25	38,07	25,76	293,38
Hydrocarbons, aliphatic, unsaturated	Emission to air	pg	125,28	2,52	120,69	1,28
Hydrocarbons, aromatic	Emission to air	mg	257,03	13,71	13,17	142,02
Hydrocarbons, chlorinated	Emission to air	mg	1,14	0,68	0,15	0,19
Hydrogen	Emission to air	mg	3,87	3,49	0,19	0,11
Hydrogen chloride	Emission to air	mg	441,72	93,59	88,96	159,93
Hydrogen fluoride	Emission to air	mg	213,35	150,39	8,47	33,63
Hydrogen sulfide	Emission to air	mg	63,51	8,29	14,38	25,20
Iodine	Emission to air	pg	169,54	3,40	163,33	1,73
Iron	Emission to air	mg	53,23	2,70	1,65	30,16
Isoprene	Emission to air	pg	7,84	0,16	7,63	0,03
Lead	Emission to air	mg	22,23	1,44	1,59	11,85
Lead-210	Emission to air	nBq	70,41	1,41	67,83	0,72
Magnesium	Emission to air	µg	1,42	0,03	1,38	0,01
Manganese	Emission to air	mg	6,55	0,35	0,24	3,68
Mercury	Emission to air	mg	7,89	0,43	0,51	4,28
Methane, biogenic	Emission to air	g	1,03	0,22	0,50	0,19
Methane, bromo-, Halon 1001	Emission to air	pg	11,05	0,23	10,75	0,04
Methane, dichlorodifluoro-, CFC-12	Emission to air	pg	7,34	0,15	7,15	0,03
Methane, fossil	Emission to air	mg	610,97	146,11	408,70	34,66
Methane, tetrachloro-, CFC-10	Emission to air	ng	3,28	0,07	3,20	0,01
Methane, tetrafluoro-, CFC-14	Emission to air	mg	18,98	13,64	2,17	1,96
Methanol	Emission to air	mg	32,92	29,73	1,63	0,96
Molybdenum	Emission to air	ng	33,02	7,28	16,22	5,87
Nickel	Emission to air	mg	4,73	0,28	0,24	2,60
Nitrogen oxides	Emission to air	g	173,29	90,38	60,20	14,01
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	g	28,38	15,29	8,16	3,04
Ozone	Emission to air	mg	295,54	66,95	146,12	50,89
PAH, polycyclic aromatic hydrocarbons	Emission to air	mg	93,90	83,00	2,67	5,08
Particulates, < 2.5 um	Emission to air	g	7,81	2,32	2,67	1,74
Particulates, > 10 um	Emission to air	g	1,50	0,61	0,27	0,38
Particulates, > 2.5 um, and < 10um	Emission to air	g	1,75	0,65	0,21	0,55
Pentane	Emission to air	µg	858,39	17,89	835,30	3,21
Phenol	Emission to air	µg	130,01	73,71	13,31	26,53
Phosphorus	Emission to air	µg	6,00	4,31	0,69	0,62

Polonium-210	Emission to air		nBq	128,65	2,58	123,93	1,31
Polychlorinated biphenyls	Emission to air		µg	99,57	5,73	3,51	55,74
Potassium-40	Emission to air		nBq	17,32	0,35	16,68	0,18
Propanal	Emission to air		pg	26,20	0,55	25,49	0,10
Propane	Emission to air		µg	526,23	10,97	512,07	1,97
Propene	Emission to air		ng	620,29	12,93	603,60	2,32
Propionic acid	Emission to air		µg	11,94	0,25	11,62	0,04
Radium-226	Emission to air		nBq	18,17	0,36	17,51	0,19
Radium-228	Emission to air		nBq	5,38	0,11	5,19	0,05
Radon-220	Emission to air		nBq	377,91	7,59	364,07	3,86
Radon-222	Emission to air		nBq	212,25	4,26	204,48	2,17
Selenium	Emission to air		µg	30,61	4,52	22,58	2,17
Silicon	Emission to air		pg	819,23	304,91	418,94	58,86
Sodium	Emission to air		µg	1,59	0,60	0,25	0,46
Strontium	Emission to air		pg	64,19	1,29	61,84	0,66
Styrene	Emission to air		pg	1,72	0,04	1,68	0,01
Sulfate	Emission to air		µg	12,42	3,32	6,28	1,74
Sulfur dioxide	Emission to air		g	11,73	2,14	4,14	3,36
Sulfur hexafluoride	Emission to air		mg	3,66	0,87	2,24	0,34
Thallium	Emission to air		µg	115,26	7,13	104,50	2,25
Thorium-228	Emission to air		nBq	2,90	0,06	2,79	0,03
Thorium-232	Emission to air		nBq	4,56	0,09	4,39	0,05
Tin	Emission to air		µg	373,04	173,51	115,54	51,83
Titanium	Emission to air		µg	58,95	4,07	2,76	32,17
Toluene	Emission to air		mg	8,33	1,62	4,94	1,09
Uranium-238	Emission to air		nBq	15,14	0,30	14,59	0,15
Vanadium	Emission to air		µg	206,08	13,90	47,76	89,12
Water	Emission to air		g	76,33	53,62	17,85	3,00
Xylene	Emission to air		mg	5,48	1,34	2,88	0,78
Zinc	Emission to air		mg	83,62	7,75	3,95	44,38
1-Butanol	Emission to air	high. pop.	ng	22,07	17,84	3,92	0,19
1-Pentanol	Emission to air	high. pop.	ng	47,08	31,78	11,87	2,11
1-Pentene	Emission to air	high. pop.	ng	35,58	24,02	8,97	1,60
1-Propanol	Emission to air	high. pop.	µg	1,22	0,42	0,52	0,17
1,4-Butanediol	Emission to air	high. pop.	ng	469,42	419,28	34,00	9,96

2-Aminopropanol	Emission to air	high. pop.	ng	2,42	0,42	1,86	0,09
2-Butene, 2-methyl-	Emission to air	high. pop.	mg	1,77	1,77	0,00	0,00
2-Methyl-1-propanol	Emission to air	high. pop.	ng	98,53	69,32	23,09	3,78
2-Nitrobenzoic acid	Emission to air	high. pop.	ng	4,92	0,40	4,30	0,13
2-Propanol	Emission to air	high. pop.	mg	6,34	5,71	0,36	0,17
Acenaphthene	Emission to air	high. pop.	ng	76,86	17,51	36,91	13,85
Acetaldehyde	Emission to air	high. pop.	mg	14,09	3,84	6,55	2,28
Acetic acid	Emission to air	high. pop.	mg	116,71	49,11	36,18	19,39
Acetone	Emission to air	high. pop.	mg	20,97	10,55	6,64	2,34
Acrolein	Emission to air	high. pop.	µg	11,41	3,53	4,61	2,02
Acrylic acid	Emission to air	high. pop.	mg	6,09	0,01	6,08	0,00
Aldehydes, unspecified	Emission to air	high. pop.	µg	792,52	283,18	460,74	29,99
Aluminium	Emission to air	high. pop.	g	1,62	0,28	0,03	0,81
Ammonia	Emission to air	high. pop.	g	2,74	2,57	0,13	0,02
Ammonium carbonate	Emission to air	high. pop.	µg	18,52	5,70	10,37	1,51
Aniline	Emission to air	high. pop.	ng	573,86	508,56	49,96	9,47
Anthranilic acid	Emission to air	high. pop.	ng	3,80	0,30	3,34	0,10
Antimony	Emission to air	high. pop.	µg	249,96	46,81	9,15	119,71
Arsenic	Emission to air	high. pop.	mg	4,76	0,96	0,49	2,04
Arsine	Emission to air	high. pop.	ng	71,00	0,17	70,82	0,00
Barium	Emission to air	high. pop.	mg	19,07	3,28	0,38	9,51
Benzaldehyde	Emission to air	high. pop.	µg	5,95	1,84	2,40	1,05
Benzene	Emission to air	high. pop.	mg	222,98	78,66	35,30	67,28
Benzene, 1-methyl-2-nitro-	Emission to air	high. pop.	ng	4,25	0,35	3,71	0,11
Benzene, 1,2-dichloro-	Emission to air	high. pop.	ng	107,88	59,21	39,24	5,82
Benzene, ethyl-	Emission to air	high. pop.	mg	8,84	3,77	3,20	1,15
Benzene, hexachloro-	Emission to air	high. pop.	ng	284,92	147,73	42,41	58,49
Benzene, pentachloro-	Emission to air	high. pop.	ng	715,08	370,82	106,36	146,80
Benzo(a)pyrene	Emission to air	high. pop.	µg	10,56	3,25	3,59	2,29
Beryllium	Emission to air	high. pop.	µg	192,19	33,09	4,50	95,40
Boron	Emission to air	high. pop.	mg	71,89	12,40	1,46	35,81
Boron trifluoride	Emission to air	high. pop.	pg	971,73	2,36	969,26	0,07
Bromine	Emission to air	high. pop.	mg	2,10	0,43	0,33	0,82
Butadiene	Emission to air	high. pop.	ng	30,34	20,48	7,65	1,36
Butane	Emission to air	high. pop.	mg	606,15	244,05	196,92	101,93

Butene	Emission to air	high. pop.	mg	8,99	4,13	3,08	1,10
Butyrolactone	Emission to air	high. pop.	ng	98,52	88,42	5,78	2,66
Cadmium	Emission to air	high. pop.	mg	2,01	0,64	0,78	0,36
Calcium	Emission to air	high. pop.	mg	250,72	47,50	34,23	104,29
Carbon dioxide, biogenic	Emission to air	high. pop.	kg	1,31	0,45	0,52	0,22
Carbon dioxide, fossil	Emission to air	high. pop.	kg	43,08	13,91	8,83	12,55
Carbon disulfide	Emission to air	high. pop.	µg	5,16	1,73	3,21	0,13
Carbon monoxide, biogenic	Emission to air	high. pop.	mg	288,26	73,16	167,00	29,68
Carbon monoxide, fossil	Emission to air	high. pop.	g	21,06	5,45	1,94	8,44
Chloramine	Emission to air	high. pop.	ng	170,57	112,07	46,22	7,57
Chlorine	Emission to air	high. pop.	mg	148,19	113,33	24,75	6,24
Chloroacetic acid	Emission to air	high. pop.	µg	1,55	0,89	0,27	0,24
Chloroform	Emission to air	high. pop.	g	7,14	7,14	0,00	0,00
Chlorosilane, trimethyl-	Emission to air	high. pop.	µg	115,43	3,25	109,90	1,41
Chlorosulfonic acid	Emission to air	high. pop.	ng	9,61	2,23	5,89	0,92
Chromium	Emission to air	high. pop.	mg	4,75	1,03	0,65	1,89
Chromium VI	Emission to air	high. pop.	µg	437,42	77,01	16,01	212,53
Cobalt	Emission to air	high. pop.	mg	3,44	0,97	1,34	0,69
Copper	Emission to air	high. pop.	mg	22,50	15,92	2,93	2,26
Cumene	Emission to air	high. pop.	mg	10,48	7,75	1,21	0,93
Cyanide	Emission to air	high. pop.	mg	58,62	8,10	50,34	0,11
Cyanoacetic acid	Emission to air	high. pop.	ng	7,87	1,83	4,83	0,75
Diethylamine	Emission to air	high. pop.	ng	255,32	225,82	22,61	4,25
Dimethyl malonate	Emission to air	high. pop.	ng	9,87	2,29	6,05	0,94
Dinitrogen monoxide	Emission to air	high. pop.	g	1,77	1,05	0,43	0,18
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	high. pop.	ng	6,07	1,94	0,74	2,09
Dipropylamine	Emission to air	high. pop.	ng	161,78	144,08	13,39	2,67
Ethane	Emission to air	high. pop.	mg	447,28	107,06	99,59	148,48
Ethane, 1,1-difluoro-, HFC-152a	Emission to air	high. pop.	µg	24,30	5,46	11,67	4,42
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	high. pop.	g	1,71	1,71	0,00	0,00
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-, CFC-113	Emission to air	high. pop.	µg	289,10	0,70	288,36	0,02
Ethane, 1,2-dichloro-	Emission to air	high. pop.	mg	16,85	16,11	0,39	0,22
Ethane, hexafluoro-, HFC-116	Emission to air	high. pop.	mg	19,92	0,05	19,87	0,00
Ethanol	Emission to air	high. pop.	mg	26,68	7,24	12,48	4,30
Ethene	Emission to air	high. pop.	mg	491,11	102,65	17,03	229,21

Ethene, chloro-	Emission to air	high. pop.	mg	2,04	1,64	0,18	0,14
Ethene, tetrachloro-	Emission to air	high. pop.	ng	921,93	6,78	909,01	3,79
Ethyl acetate	Emission to air	high. pop.	mg	29,47	26,52	1,69	0,78
Ethyl cellulose	Emission to air	high. pop.	µg	59,53	53,67	3,35	1,55
Ethylamine	Emission to air	high. pop.	ng	85,29	38,50	42,24	2,81
Ethylene diamine	Emission to air	high. pop.	µg	1,11	0,78	0,25	0,05
Ethylene oxide	Emission to air	high. pop.	mg	8,19	0,95	7,22	0,01
Ethyne	Emission to air	high. pop.	mg	75,67	13,00	1,50	37,75
Fluorine	Emission to air	high. pop.	µg	490,61	108,11	266,08	71,84
Fluosilicic acid	Emission to air	high. pop.	mg	2,46	1,77	0,28	0,25
Formaldehyde	Emission to air	high. pop.	mg	97,84	40,73	25,73	19,37
Formamide	Emission to air	high. pop.	ng	86,10	58,13	21,71	3,87
Formic acid	Emission to air	high. pop.	µg	36,86	33,23	2,08	0,96
Heat, waste	Emission to air	high. pop.	MJ	645,07	235,85	126,37	174,54
Heptane	Emission to air	high. pop.	mg	84,72	36,67	30,32	10,94
Hexane	Emission to air	high. pop.	mg	283,10	120,72	101,83	37,36
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	high. pop.	µg	444,34	377,61	41,64	15,48
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	high. pop.	mg	169,63	54,95	34,99	49,17
Hydrocarbons, aliphatic, unsaturated	Emission to air	high. pop.	mg	107,16	20,39	17,68	42,64
Hydrocarbons, aromatic	Emission to air	high. pop.	mg	32,26	23,26	6,14	1,77
Hydrocarbons, chlorinated	Emission to air	high. pop.	mg	1,98	1,73	0,25	0,01
Hydrogen	Emission to air	high. pop.	mg	752,18	650,86	83,66	10,90
Hydrogen chloride	Emission to air	high. pop.	g	8,72	3,58	0,16	3,07
Hydrogen fluoride	Emission to air	high. pop.	g	1,66	1,41	0,09	0,10
Hydrogen peroxide	Emission to air	high. pop.	µg	44,14	39,76	2,50	1,16
Hydrogen sulfide	Emission to air	high. pop.	µg	330,20	212,88	91,75	15,78
Iodine	Emission to air	high. pop.	mg	1,73	0,30	0,03	0,86
Iron	Emission to air	high. pop.	mg	680,70	119,33	18,11	335,24
Isocyanic acid	Emission to air	high. pop.	µg	420,75	110,90	180,98	79,52
Isopropylamine	Emission to air	high. pop.	ng	15,48	3,44	11,49	0,34
Lactic acid	Emission to air	high. pop.	ng	126,73	112,86	10,49	2,09
Lead	Emission to air	high. pop.	mg	16,09	3,54	2,22	6,38
Lead-210	Emission to air	high. pop.	Bq	7,04	1,21	0,14	3,51
m-Xylene	Emission to air	high. pop.	mg	1,11	0,26	0,58	0,17
Magnesium	Emission to air	high. pop.	mg	577,11	99,38	13,14	286,69

Manganese	Emission to air	high. pop.	mg	5,33	1,03	1,08	1,99
Mercury	Emission to air	high. pop.	mg	1,03	0,58	0,08	0,23
Methane, biogenic	Emission to air	high. pop.	mg	47,06	33,09	10,65	2,05
Methane, bromotrifluoro-, Halon 1301	Emission to air	high. pop.	pg	133,24	39,01	68,85	15,66
Methane, chlorodifluoro-, HCFC-22	Emission to air	high. pop.	g	24,32	24,31	0,01	0,00
Methane, dichloro-, HCC-30	Emission to air	high. pop.	mg	212,89	212,75	0,14	0,00
Methane, dichlorodifluoro-, CFC-12	Emission to air	high. pop.	mg	564,48	564,27	0,22	0,00
Methane, dichlorofluoro-, HCFC-21	Emission to air	high. pop.	mg	4,88	4,88	0,00	0,00
Methane, fossil	Emission to air	high. pop.	g	12,00	6,05	3,98	1,21
Methane, monochloro-, R-40	Emission to air	high. pop.	µg	2,04	0,05	1,96	0,02
Methane, tetrachloro-, CFC-10	Emission to air	high. pop.	mg	711,20	710,69	0,50	0,01
Methane, tetrafluoro-, CFC-14	Emission to air	high. pop.	µg	1,25	0,28	0,60	0,23
Methane, trichlorofluoro-, CFC-11	Emission to air	high. pop.	mg	7,92	7,91	0,00	0,00
Methane, trifluoro-, HFC-23	Emission to air	high. pop.	g	1,55	1,55	0,00	0,00
Methanesulfonic acid	Emission to air	high. pop.	ng	7,95	1,85	4,88	0,76
Methanol	Emission to air	high. pop.	g	2,28	2,20	0,07	0,01
Methyl acetate	Emission to air	high. pop.	ng	1,14	0,09	1,00	0,03
Methyl acrylate	Emission to air	high. pop.	mg	6,91	0,02	6,89	0,00
Methyl amine	Emission to air	high. pop.	ng	104,15	96,82	4,89	1,50
Methyl borate	Emission to air	high. pop.	ng	21,90	11,80	8,83	0,79
Methyl ethyl ketone	Emission to air	high. pop.	mg	29,47	26,52	1,69	0,78
Methyl formate	Emission to air	high. pop.	ng	94,92	80,42	9,79	2,90
Methyl lactate	Emission to air	high. pop.	ng	139,13	123,90	11,51	2,29
Molybdenum	Emission to air	high. pop.	mg	1,81	0,47	0,50	0,52
Monoethanolamine	Emission to air	high. pop.	mg	321,08	268,59	52,38	0,07
Nickel	Emission to air	high. pop.	mg	43,83	13,17	18,55	7,47
Nitrate	Emission to air	high. pop.	mg	2,22	1,57	0,51	0,09
Nitrobenzene	Emission to air	high. pop.	ng	770,27	680,04	69,55	12,76
Nitrogen oxides	Emission to air	high. pop.	g	65,06	20,02	12,03	20,37
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	high. pop.	g	3,67	1,66	1,25	0,47
Ozone	Emission to air	high. pop.	mg	1,56	1,30	0,24	0,02
PAH, polycyclic aromatic hydrocarbons	Emission to air	high. pop.	mg	3,22	1,25	0,80	0,72
Particulates, < 2.5 um	Emission to air	high. pop.	g	6,58	1,74	1,60	2,00
Particulates, > 10 um	Emission to air	high. pop.	g	2,96	0,79	0,51	1,03
Particulates, > 2.5 um, and < 10um	Emission to air	high. pop.	g	4,09	0,92	0,39	1,71

Pentane	Emission to air	high. pop.	mg	877,57	351,05	266,04	160,74
Phenol	Emission to air	high. pop.	mg	1,21	0,81	0,16	0,15
Phenol, 2,4-dichloro-	Emission to air	high. pop.	ng	70,78	62,43	7,69	0,41
Phenol, pentachloro-	Emission to air	high. pop.	ng	153,22	57,91	50,47	27,66
Phosphine	Emission to air	high. pop.	µg	5,27	0,01	5,25	0,00
Phosphorus	Emission to air	high. pop.	mg	12,53	2,34	1,75	5,21
Platinum	Emission to air	high. pop.	pg	652,32	187,78	363,46	62,38
Polonium-210	Emission to air	high. pop.	Bq	12,86	2,21	0,25	6,42
Polychlorinated biphenyls	Emission to air	high. pop.	ng	1,61	0,54	1,04	0,02
Potassium	Emission to air	high. pop.	mg	407,68	83,01	116,17	128,66
Potassium-40	Emission to air	high. pop.	Bq	2,04	0,35	0,04	1,02
Propanal	Emission to air	high. pop.	µg	6,82	2,27	2,70	1,15
Propane	Emission to air	high. pop.	mg	621,63	214,29	171,64	145,45
Propene	Emission to air	high. pop.	mg	134,76	51,88	17,49	40,36
Propionic acid	Emission to air	high. pop.	mg	5,74	2,08	1,42	1,39
Propylamine	Emission to air	high. pop.	ng	27,27	18,41	6,88	1,22
Propylene oxide	Emission to air	high. pop.	µg	501,90	226,35	222,61	32,67
Radioactive species, other beta emitters	Emission to air	high. pop.	Bq	4,49	1,32	2,32	0,53
Radium-226	Emission to air	high. pop.	Bq	1,82	0,31	0,04	0,91
Radium-228	Emission to air	high. pop.	Bq	9,84	1,69	0,19	4,91
Radon-220	Emission to air	high. pop.	mBq	151,42	25,98	3,10	75,49
Radon-222	Emission to air	high. pop.	mBq	151,38	25,98	3,06	75,49
Scandium	Emission to air	high. pop.	µg	190,65	32,73	3,78	95,12
Selenium	Emission to air	high. pop.	mg	2,24	0,51	0,38	0,83
Silicon	Emission to air	high. pop.	g	2,40	0,41	0,05	1,19
Silver	Emission to air	high. pop.	µg	3,91	0,88	1,87	0,71
Sodium	Emission to air	high. pop.	mg	155,01	35,34	28,51	56,25
Sodium chlorate	Emission to air	high. pop.	µg	211,63	189,18	16,45	3,70
Sodium dichromate	Emission to air	high. pop.	µg	90,87	25,53	52,40	7,98
Sodium formate	Emission to air	high. pop.	µg	36,08	21,23	3,95	6,72
Sodium hydroxide	Emission to air	high. pop.	µg	164,54	148,27	9,29	4,31
Strontium	Emission to air	high. pop.	mg	28,75	4,94	0,57	14,34
Styrene	Emission to air	high. pop.	µg	213,75	94,90	35,68	51,33
Sulfate	Emission to air	high. pop.	g	29,33	28,94	0,31	0,05
Sulfur dioxide	Emission to air	high. pop.	g	201,73	112,65	18,80	43,37

Sulfur trioxide	Emission to air	high. pop.	µg	6,16	5,46	0,53	0,10
Sulfuric acid	Emission to air	high. pop.	µg	34,46	31,03	1,96	0,91
t-Butyl methyl ether	Emission to air	high. pop.	µg	55,63	17,52	24,09	8,65
t-Butylamine	Emission to air	high. pop.	ng	21,41	5,09	14,92	0,86
Thallium	Emission to air	high. pop.	µg	239,15	41,08	4,75	119,29
Thorium	Emission to air	high. pop.	µg	287,49	49,36	5,69	143,44
Thorium-228	Emission to air	high. pop.	mBq	832,22	142,88	16,48	415,21
Thorium-232	Emission to air	high. pop.	mBq	529,59	90,92	10,49	264,23
Tin	Emission to air	high. pop.	µg	107,70	22,42	5,57	49,19
Titanium	Emission to air	high. pop.	mg	57,42	9,88	1,15	28,62
Toluene	Emission to air	high. pop.	mg	115,57	44,95	28,23	26,16
Toluene, 2-chloro-	Emission to air	high. pop.	ng	232,22	201,03	24,82	3,93
Trimethylamine	Emission to air	high. pop.	ng	2,35	0,18	2,09	0,05
Uranium	Emission to air	high. pop.	µg	382,82	65,72	7,58	191,00
Uranium-238	Emission to air	high. pop.	Bq	1,51	0,26	0,03	0,75
Vanadium	Emission to air	high. pop.	mg	158,84	46,22	70,79	25,81
Water	Emission to air	high. pop.	mg	13,75	0,10	13,56	0,06
Xylene	Emission to air	high. pop.	mg	50,36	18,23	12,69	12,00
Zinc	Emission to air	high. pop.	mg	21,33	15,40	3,62	1,42
Acenaphthene	Emission to air	low. pop.	ng	23,76	0,57	22,64	0,35
Acetaldehyde	Emission to air	low. pop.	mg	2,38	2,35	0,02	0,01
Acetic acid	Emission to air	low. pop.	mg	15,67	15,43	0,12	0,07
Acetone	Emission to air	low. pop.	mg	77,10	74,92	1,35	0,51
Acetonitrile	Emission to air	low. pop.	µg	655,53	645,60	5,20	2,92
Acrolein	Emission to air	low. pop.	µg	105,54	89,71	14,52	0,81
Actinides, radioactive, unspecified	Emission to air	low. pop.	mBq	96,45	2,30	91,87	1,41
Aerosols, radioactive, unspecified	Emission to air	low. pop.	mBq	204,34	43,76	102,54	35,82
Aldehydes, unspecified	Emission to air	low. pop.	µg	419,23	85,30	227,16	65,88
Aluminium	Emission to air	low. pop.	mg	52,21	26,06	1,49	15,22
Ammonia	Emission to air	low. pop.	mg	242,37	95,69	55,45	56,30
Antimony	Emission to air	low. pop.	mg	210,54	184,90	25,21	0,26
Antimony-124	Emission to air	low. pop.	µBq	1,65	0,57	0,78	0,19
Antimony-125	Emission to air	low. pop.	µBq	17,26	5,92	8,16	1,96
Argon-41	Emission to air	low. pop.	Bq	101,14	22,32	48,33	18,82
Arsenic	Emission to air	low. pop.	g	1,54	1,48	0,02	0,02

Barium	Emission to air	low. pop.	mg	4,62	0,95	2,19	0,91
Barium-140	Emission to air	low. pop.	mBq	1,12	0,39	0,53	0,13
Benzene	Emission to air	low. pop.	g	1,97	1,86	0,06	0,03
Benzene, ethyl-	Emission to air	low. pop.	µg	4,38	0,10	4,18	0,06
Benzo(a)pyrene	Emission to air	low. pop.	mg	13,85	13,38	0,25	0,14
Beryllium	Emission to air	low. pop.	µg	780,78	220,85	489,34	43,56
Boron	Emission to air	low. pop.	mg	304,38	63,68	155,93	52,31
Bromine	Emission to air	low. pop.	mg	33,31	6,91	17,16	5,70
Butadiene	Emission to air	low. pop.	ng	537,18	7,96	528,79	0,26
Butane	Emission to air	low. pop.	mg	88,81	32,20	24,12	20,05
Cadmium	Emission to air	low. pop.	mg	522,00	518,25	2,76	0,61
Calcium	Emission to air	low. pop.	mg	20,48	17,20	0,34	1,82
Carbon-14	Emission to air	low. pop.	Bq	837,44	189,47	410,91	146,28
Carbon dioxide, biogenic	Emission to air	low. pop.	g	158,36	34,94	83,04	24,92
Carbon dioxide, fossil	Emission to air	low. pop.	kg	26,18	7,20	11,64	4,53
Carbon dioxide, land transformation	Emission to air	low. pop.	g	20,96	9,71	10,53	0,44
Carbon disulfide	Emission to air	low. pop.	g	19,15	18,24	0,84	0,04
Carbon monoxide, biogenic	Emission to air	low. pop.	g	1,38	0,20	1,15	0,02
Carbon monoxide, fossil	Emission to air	low. pop.	g	54,99	39,13	6,56	5,74
Cerium-141	Emission to air	low. pop.	µBq	272,19	93,40	128,61	30,96
Cesium-134	Emission to air	low. pop.	µBq	13,04	4,47	6,16	1,48
Cesium-137	Emission to air	low. pop.	µBq	231,09	79,30	109,19	26,28
Chlorine	Emission to air	low. pop.	µg	128,39	25,38	71,74	19,30
Chloroform	Emission to air	low. pop.	µg	4,57	0,11	4,35	0,07
Chromium	Emission to air	low. pop.	g	6,94	0,18	0,13	4,09
Chromium-51	Emission to air	low. pop.	µBq	17,44	5,99	8,24	1,98
Chromium VI	Emission to air	low. pop.	mg	173,08	4,38	3,26	102,09
Cobalt	Emission to air	low. pop.	mg	101,00	22,01	2,55	47,17
Cobalt-58	Emission to air	low. pop.	µBq	24,29	8,33	11,48	2,76
Cobalt-60	Emission to air	low. pop.	µBq	214,56	73,63	101,39	24,41
Copper	Emission to air	low. pop.	g	4,41	4,09	0,06	0,16
Cumene	Emission to air	low. pop.	ng	253,80	6,04	241,75	3,71
Cyanide	Emission to air	low. pop.	mg	83,46	8,63	1,65	45,16
Dinitrogen monoxide	Emission to air	low. pop.	mg	440,56	107,12	213,00	74,33
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	low. pop.	ng	35,50	4,85	2,46	17,40

Ethane	Emission to air	low. pop.	g	2,21	1,08	0,48	0,40
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	low. pop.	ng	932,13	22,18	887,88	13,62
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	low. pop.	µg	20,55	4,65	10,32	3,44
Ethane, 1,2-dichloro-	Emission to air	low. pop.	µg	1,86	0,04	1,77	0,03
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Emission to air	low. pop.	µg	353,86	81,25	176,19	59,50
Ethanol	Emission to air	low. pop.	µg	240,03	157,42	53,46	17,98
Ethene	Emission to air	low. pop.	mg	99,92	14,67	17,29	41,94
Ethene, tetrachloro-	Emission to air	low. pop.	µg	2,00	0,05	1,91	0,03
Ethylene oxide	Emission to air	low. pop.	µg	5,19	0,08	5,11	0,00
Ethyne	Emission to air	low. pop.	mg	3,95	1,62	0,13	1,36
Fluorine	Emission to air	low. pop.	mg	108,52	79,84	4,12	15,16
Formaldehyde	Emission to air	low. pop.	mg	17,59	7,29	6,25	2,50
Formic acid	Emission to air	low. pop.	mg	4,38	4,32	0,03	0,02
Furan	Emission to air	low. pop.	mg	1,24	1,23	0,01	0,01
Heat, waste	Emission to air	low. pop.	MJ	477,68	102,70	174,23	123,87
Helium	Emission to air	low. pop.	mg	23,82	9,61	9,09	3,17
Hexane	Emission to air	low. pop.	mg	8,10	1,82	4,00	1,41
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	low. pop.	µg	26,99	0,64	25,71	0,39
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	low. pop.	mg	138,13	44,22	45,43	29,92
Hydrocarbons, aliphatic, unsaturated	Emission to air	low. pop.	mg	46,68	9,66	22,38	9,04
Hydrocarbons, aromatic	Emission to air	low. pop.	mg	48,68	18,06	11,91	11,54
Hydrocarbons, chlorinated	Emission to air	low. pop.	µg	9,46	0,23	9,01	0,14
Hydrogen-3, Tritium	Emission to air	low. pop.	Bq	4791,64	1049,27	2372,21	845,50
Hydrogen chloride	Emission to air	low. pop.	g	2,02	0,41	1,05	0,34
Hydrogen fluoride	Emission to air	low. pop.	mg	566,06	223,71	222,16	74,17
Hydrogen sulfide	Emission to air	low. pop.	mg	293,01	86,07	58,48	91,62
Iodine	Emission to air	low. pop.	mg	17,97	3,71	9,29	3,07
Iodine-129	Emission to air	low. pop.	mBq	834,29	184,61	410,00	147,90
Iodine-131	Emission to air	low. pop.	Bq	39,94	8,79	19,09	7,45
Iodine-133	Emission to air	low. pop.	mBq	14,02	0,72	12,77	0,32
Iodine-135	Emission to air	low. pop.	mBq	27,49	0,57	26,32	0,37
Iron	Emission to air	low. pop.	mg	54,68	1,92	1,36	31,72
Isoprene	Emission to air	low. pop.	µg	57,77	56,90	0,46	0,26
Krypton-85	Emission to air	low. pop.	Bq	316,95	70,04	151,46	58,91
Krypton-85m	Emission to air	low. pop.	Bq	21,22	6,66	10,06	2,78

Krypton-87	Emission to air	low. pop.	Bq	7,43	2,08	3,53	1,13
Krypton-88	Emission to air	low. pop.	Bq	7,75	2,29	3,68	1,10
Krypton-89	Emission to air	low. pop.	Bq	2,27	0,75	1,08	0,28
Lanthanum-140	Emission to air	low. pop.	µBq	95,96	32,93	45,34	10,91
Lead	Emission to air	low. pop.	g	3,95	3,70	0,04	0,13
Lead-210	Emission to air	low. pop.	Bq	9,85	6,25	2,33	0,78
Magnesium	Emission to air	low. pop.	mg	25,13	15,15	1,07	5,50
Manganese	Emission to air	low. pop.	mg	581,70	524,98	30,78	16,01
Manganese-54	Emission to air	low. pop.	µBq	8,93	3,07	4,22	1,02
Mercury	Emission to air	low. pop.	mg	10,58	3,22	7,06	0,18
Methane, biogenic	Emission to air	low. pop.	g	1,15	0,30	0,73	0,08
Methane, bromochlorodifluoro-, Halon 1211	Emission to air	low. pop.	µg	484,18	174,11	122,61	115,68
Methane, bromotrifluoro-, Halon 1301	Emission to air	low. pop.	µg	257,45	118,36	88,08	31,47
Methane, chlorodifluoro-, HCFC-22	Emission to air	low. pop.	mg	7,42	6,20	0,52	0,43
Methane, dichloro-, HCC-30	Emission to air	low. pop.	µg	13,52	0,32	12,88	0,20
Methane, dichlorodifluoro-, CFC-12	Emission to air	low. pop.	µg	1,66	0,62	0,41	0,39
Methane, fossil	Emission to air	low. pop.	g	183,54	61,43	41,77	49,58
Methane, monochloro-, R-40	Emission to air	low. pop.	µg	24,69	0,59	23,52	0,36
Methanol	Emission to air	low. pop.	mg	48,94	22,26	25,53	0,71
Molybdenum	Emission to air	low. pop.	µg	279,65	55,01	146,43	48,26
Nickel	Emission to air	low. pop.	g	3,02	2,91	0,02	0,06
Niobium-95	Emission to air	low. pop.	µBq	1,06	0,36	0,50	0,12
Nitrate	Emission to air	low. pop.	mg	1,15	0,26	0,57	0,20
Nitrogen oxides	Emission to air	low. pop.	g	75,22	16,50	26,92	19,63
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	low. pop.	g	37,22	23,76	5,39	4,98
Noble gases, radioactive, unspecified	Emission to air	low. pop.	kBq	8017,34	1773,99	3940,13	1421,28
Ozone	Emission to air	low. pop.	mg	1,76	0,00	1,76	0,00
PAH, polycyclic aromatic hydrocarbons	Emission to air	low. pop.	mg	4,88	4,16	0,32	0,25
Particulates, < 2.5 um	Emission to air	low. pop.	g	128,76	51,55	7,83	42,81
Particulates, > 10 um	Emission to air	low. pop.	g	90,16	30,63	13,20	28,59
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop.	g	98,90	44,60	4,55	30,70
Pentane	Emission to air	low. pop.	mg	30,07	6,45	15,15	5,23
Phenol	Emission to air	low. pop.	mg	1,84	0,92	0,23	0,42
Phenol, pentachloro-	Emission to air	low. pop.	mg	6,06	5,89	0,11	0,04
Phosphorus	Emission to air	low. pop.	µg	281,86	98,61	27,30	96,23

Platinum	Emission to air	low. pop.	ng	11,35	2,49	5,53	2,06
Plutonium-238	Emission to air	low. pop.	nBq	113,81	25,18	55,93	20,18
Plutonium-alpha	Emission to air	low. pop.	nBq	260,90	57,73	128,21	46,25
Polonium-210	Emission to air	low. pop.	Bq	13,82	7,49	4,09	1,38
Potassium	Emission to air	low. pop.	mg	3,42	0,29	0,20	1,80
Potassium-40	Emission to air	low. pop.	Bq	1,11	0,28	0,54	0,18
Propane	Emission to air	low. pop.	mg	505,22	183,90	126,34	120,31
Propene	Emission to air	low. pop.	mg	13,22	5,93	1,92	3,31
Protactinium-234	Emission to air	low. pop.	mBq	120,87	25,99	62,31	20,10
Radioactive species, other beta emitters	Emission to air	low. pop.	mBq	4,67	1,04	2,23	0,87
Radium-226	Emission to air	low. pop.	Bq	15,81	11,99	2,45	0,85
Radium-228	Emission to air	low. pop.	mBq	389,50	81,40	200,14	66,62
Radon-220	Emission to air	low. pop.	Bq	46,79	10,00	23,76	8,04
Radon-222	Emission to air	low. pop.	kBq	363,07	87,03	175,60	61,98
Ruthenium-103	Emission to air	low. pop.	nBq	232,96	79,94	110,08	26,50
Scandium	Emission to air	low. pop.	µg	9,06	1,04	1,58	3,98
Selenium	Emission to air	low. pop.	mg	165,17	148,71	15,46	0,61
Silicon	Emission to air	low. pop.	mg	54,03	9,59	6,77	23,24
Silicon tetrafluoride	Emission to air	low. pop.	mg	5,46	5,44	0,02	0,00
Silver	Emission to air	low. pop.	µg	2,32	2,30	0,02	0,00
Silver-110	Emission to air	low. pop.	µBq	2,31	0,79	1,09	0,26
Sodium	Emission to air	low. pop.	mg	1,82	0,16	0,17	0,92
Strontium	Emission to air	low. pop.	mg	4,52	0,90	2,15	0,90
Styrene	Emission to air	low. pop.	µg	78,37	75,03	2,48	0,53
Sulfate	Emission to air	low. pop.	mg	8,69	1,95	4,29	1,51
Sulfur dioxide	Emission to air	low. pop.	g	839,67	734,60	64,25	25,19
Sulfur hexafluoride	Emission to air	low. pop.	µg	52,02	1,28	50,08	0,41
Sulfuric acid	Emission to air	low. pop.	ng	24,12	5,42	11,58	4,39
Terpenes	Emission to air	low. pop.	µg	546,27	538,00	4,34	2,43
Thallium	Emission to air	low. pop.	µg	4,32	2,72	0,13	0,91
Thorium	Emission to air	low. pop.	µg	6,48	0,46	0,31	3,53
Thorium-228	Emission to air	low. pop.	mBq	227,28	60,72	108,43	35,87
Thorium-230	Emission to air	low. pop.	Bq	10,40	10,04	0,24	0,07
Thorium-232	Emission to air	low. pop.	mBq	481,73	221,74	168,72	56,32
Thorium-234	Emission to air	low. pop.	mBq	120,89	25,99	62,32	20,10

Tin	Emission to air	low. pop.	mg	229,26	185,95	2,36	25,27
Titanium	Emission to air	low. pop.	µg	998,60	70,63	47,38	543,40
Toluene	Emission to air	low. pop.	mg	36,85	13,17	12,32	7,01
Tungsten	Emission to air	low. pop.	ng	345,10	77,55	170,25	60,05
Uranium	Emission to air	low. pop.	µg	3,30	0,23	0,16	1,79
Uranium-234	Emission to air	low. pop.	Bq	11,32	10,24	0,70	0,23
Uranium-235	Emission to air	low. pop.	mBq	65,19	14,65	32,16	11,34
Uranium-238	Emission to air	low. pop.	Bq	12,18	10,47	1,11	0,37
Uranium alpha	Emission to air	low. pop.	Bq	6,28	1,41	3,10	1,09
Vanadium	Emission to air	low. pop.	mg	12,56	11,37	0,77	0,26
Water	Emission to air	low. pop.	mg	35,24	0,52	34,69	0,02
Xenon-131m	Emission to air	low. pop.	Bq	35,02	10,02	16,64	5,16
Xenon-133	Emission to air	low. pop.	Bq	1148,66	337,77	545,23	163,94
Xenon-133m	Emission to air	low. pop.	Bq	4,06	0,97	1,94	0,71
Xenon-135	Emission to air	low. pop.	Bq	468,33	137,04	222,33	67,24
Xenon-135m	Emission to air	low. pop.	Bq	280,45	83,17	133,09	39,61
Xenon-137	Emission to air	low. pop.	Bq	6,23	2,05	2,95	0,76
Xenon-138	Emission to air	low. pop.	Bq	52,11	16,54	24,68	6,72
Xylene	Emission to air	low. pop.	mg	194,00	42,19	95,87	34,52
Zinc	Emission to air	low. pop.	g	1,85	1,16	0,05	0,40
Zinc-65	Emission to air	low. pop.	µBq	44,60	15,30	21,07	5,07
Zirconium	Emission to air	low. pop.	µg	79,88	5,65	3,79	43,47
Zirconium-95	Emission to air	low. pop.	µBq	43,59	14,96	20,60	4,96
Aluminium	Emission to air	low. pop., long-term	mg	389,84	87,60	192,32	67,83
Antimony	Emission to air	low. pop., long-term	µg	35,15	7,90	17,34	6,12
Arsenic	Emission to air	low. pop., long-term	mg	2,07	0,46	1,02	0,36
Barium	Emission to air	low. pop., long-term	mg	2,26	0,51	1,11	0,39
Beryllium	Emission to air	low. pop., long-term	µg	49,21	11,06	24,28	8,56
Boron	Emission to air	low. pop., long-term	µg	655,06	147,20	323,16	113,97
Cadmium	Emission to air	low. pop., long-term	µg	53,26	11,97	26,27	9,27
Calcium	Emission to air	low. pop., long-term	mg	126,75	28,48	62,53	22,05
Chlorine	Emission to air	low. pop., long-term	mg	4,84	1,09	2,39	0,84
Chromium VI	Emission to air	low. pop., long-term	µg	251,37	56,49	124,01	43,74
Cobalt	Emission to air	low. pop., long-term	µg	313,15	70,37	154,49	54,49
Copper	Emission to air	low. pop., long-term	mg	3,30	0,74	1,63	0,57

Fluorine	Emission to air	low. pop., long-term	mg	23,75	5,34	11,72	4,13
Iron	Emission to air	low. pop., long-term	mg	423,92	95,26	209,13	73,76
Lead	Emission to air	low. pop., long-term	mg	3,49	0,79	1,72	0,61
Magnesium	Emission to air	low. pop., long-term	mg	38,88	8,74	19,18	6,76
Manganese	Emission to air	low. pop., long-term	mg	8,77	1,97	4,32	1,53
Mercury	Emission to air	low. pop., long-term	µg	26,84	6,03	13,24	4,67
Molybdenum	Emission to air	low. pop., long-term	µg	678,49	152,46	334,72	118,05
Nickel	Emission to air	low. pop., long-term	µg	715,77	160,84	353,11	124,54
Nitrate	Emission to air	low. pop., long-term	mg	3,34	0,75	1,65	0,58
Particulates, < 2.5 um	Emission to air	low. pop., long-term	mg	311,02	69,89	153,44	54,11
Particulates, > 10 um	Emission to air	low. pop., long-term	mg	777,55	174,72	383,59	135,29
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop., long-term	mg	466,53	104,83	230,15	81,17
Phosphorus	Emission to air	low. pop., long-term	µg	655,06	147,20	323,16	113,97
Potassium	Emission to air	low. pop., long-term	mg	66,68	14,98	32,89	11,60
Radon-222	Emission to air	low. pop., long-term	kBq	14911,88	3350,87	7356,47	2594,55
Scandium	Emission to air	low. pop., long-term	mg	1,40	0,31	0,69	0,24
Selenium	Emission to air	low. pop., long-term	µg	194,92	43,80	96,16	33,91
Silicon	Emission to air	low. pop., long-term	mg	86,81	19,51	42,83	15,10
Silver	Emission to air	low. pop., long-term	µg	58,37	13,12	28,80	10,16
Sodium	Emission to air	low. pop., long-term	mg	22,90	5,15	11,30	3,98
Strontium	Emission to air	low. pop., long-term	mg	1,42	0,32	0,70	0,25
Sulfate	Emission to air	low. pop., long-term	mg	358,95	80,66	177,08	62,45
Tin	Emission to air	low. pop., long-term	µg	81,27	18,26	40,09	14,14
Titanium	Emission to air	low. pop., long-term	mg	25,46	5,72	12,56	4,43
Tungsten	Emission to air	low. pop., long-term	µg	157,64	35,42	77,77	27,43
Vanadium	Emission to air	low. pop., long-term	mg	2,42	0,54	1,19	0,42
Zinc	Emission to air	low. pop., long-term	mg	2,50	0,56	1,23	0,44
Benzene	Emission to air	stratosphere + troposphere	µg	3,45	0,05	3,39	0,00
Butadiene	Emission to air	stratosphere + troposphere	µg	3,26	0,05	3,21	0,00
Cadmium	Emission to air	stratosphere + troposphere	ng	1,73	0,03	1,70	0,00
Carbon dioxide, fossil	Emission to air	stratosphere + troposphere	mg	544,10	8,06	535,60	0,27
Carbon monoxide, fossil	Emission to air	stratosphere + troposphere	µg	639,10	9,47	629,12	0,31
Chromium	Emission to air	stratosphere + troposphere	ng	8,64	0,13	8,50	0,00
Copper	Emission to air	stratosphere + troposphere	ng	293,63	4,35	289,05	0,14
Dinitrogen monoxide	Emission to air	stratosphere + troposphere	µg	5,18	0,08	5,10	0,00

Ethylene oxide	Emission to air	stratosphere + troposphere	µg	31,56	0,47	31,06	0,02
Formaldehyde	Emission to air	stratosphere + troposphere	µg	27,21	0,40	26,78	0,01
Heat, waste	Emission to air	stratosphere + troposphere	kJ	7,88	0,12	7,75	0,00
Hydrogen chloride	Emission to air	stratosphere + troposphere	ng	148,55	2,20	146,23	0,07
Lead	Emission to air	stratosphere + troposphere	ng	3,45	0,05	3,40	0,00
Mercury	Emission to air	stratosphere + troposphere	pg	12,09	0,18	11,90	0,01
Methane, fossil	Emission to air	stratosphere + troposphere	µg	8,64	0,13	8,50	0,00
Nickel	Emission to air	stratosphere + troposphere	ng	12,09	0,18	11,90	0,01
Nitrogen oxides	Emission to air	stratosphere + troposphere	mg	2,42	0,04	2,38	0,00
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	stratosphere + troposphere	µg	115,89	1,72	114,08	0,06
Particulates, < 2.5 um	Emission to air	stratosphere + troposphere	µg	6,56	0,10	6,46	0,00
Selenium	Emission to air	stratosphere + troposphere	ng	1,73	0,03	1,70	0,00
Sulfur dioxide	Emission to air	stratosphere + troposphere	µg	172,73	2,56	170,03	0,08
Water	Emission to air	stratosphere + troposphere	mg	214,18	3,17	210,84	0,10
Zinc	Emission to air	stratosphere + troposphere	ng	172,73	2,56	170,03	0,08
4-Methyl-2-pentanone	Emission to water		ng	286,61	5,97	278,90	1,07
Acetone	Emission to water		ng	683,13	14,24	664,75	2,55
Acidity, unspecified	Emission to water		µg	14,37	0,30	13,99	0,05
Aluminium	Emission to water		mg	2,76	0,16	1,48	0,69
Ammonium, ion	Emission to water		µg	842,59	17,56	819,93	3,15
Antimony	Emission to water		ng	769,32	16,03	748,63	2,88
AOX, Adsorbable Organic Halogen as Cl	Emission to water		µg	41,20	12,91	26,53	1,08
Arsenic, ion	Emission to water		µg	361,59	24,07	30,85	189,24
Barium	Emission to water		mg	19,46	0,41	18,94	0,07
Benzene	Emission to water		µg	114,64	2,39	111,56	0,43
Benzene, ethyl-	Emission to water		µg	6,44	0,13	6,27	0,02
Beryllium	Emission to water		ng	685,28	14,28	666,85	2,56
BOD5, Biological Oxygen Demand	Emission to water		mg	907,16	65,44	70,81	475,72
Boron	Emission to water		µg	214,63	4,47	208,86	0,80
Bromine	Emission to water		mg	14,65	0,31	14,26	0,05
Cadmium, ion	Emission to water		mg	1,59	0,09	0,08	0,88
Calcium, ion	Emission to water		mg	219,81	4,58	213,89	0,82
Chloride	Emission to water		g	2,61	0,10	2,44	0,04
Chromium VI	Emission to water		µg	595,51	37,55	28,26	326,87
Chromium, ion	Emission to water		mg	4,53	0,26	0,26	2,48

Cobalt	Emission to water	µg	1,51	0,03	1,47	0,01
COD, Chemical Oxygen Demand	Emission to water	mg	925,98	69,53	86,56	475,09
Copper, ion	Emission to water	mg	4,34	0,34	0,26	2,30
Cyanide	Emission to water	mg	3,46	0,24	0,16	1,89
DOC, Dissolved Organic Carbon	Emission to water	mg	144,68	13,40	16,20	71,01
Fluoride	Emission to water	g	3,36	3,35	0,01	0,00
Formaldehyde	Emission to water	mg	4,12	1,29	2,65	0,11
Heat, waste	Emission to water	kJ	53,38	30,30	16,67	3,96
Hydrocarbons, unspecified	Emission to water	mg	15,66	0,86	0,76	8,66
Iron, ion	Emission to water	g	69,88	69,80	0,02	0,04
Lead	Emission to water	mg	3,32	0,24	0,21	1,77
Lead-210	Emission to water	mBq	19,78	0,41	19,25	0,07
Lithium, ion	Emission to water	g	367,27	367,20	0,07	0,00
m-Xylene	Emission to water	µg	2,07	0,04	2,02	0,01
Magnesium	Emission to water	mg	42,88	0,89	41,73	0,16
Manganese	Emission to water	mg	5,14	0,28	0,31	2,81
Mercury	Emission to water	µg	283,44	16,07	13,70	156,53
Methanol	Emission to water	mg	1,24	0,39	0,80	0,03
Molybdenum	Emission to water	µg	1,57	0,03	1,53	0,01
Nickel, ion	Emission to water	mg	8,82	0,52	0,45	4,84
o-Xylene	Emission to water	µg	1,51	0,03	1,47	0,01
Oils, unspecified	Emission to water	mg	51,08	7,18	5,57	23,66
Phenol	Emission to water	µg	442,58	129,77	295,05	10,96
Phosphate	Emission to water	g	117,50	117,50	x	x
Phosphorus	Emission to water	µg	412,95	129,79	265,36	10,98
Radium-226	Emission to water	mBq	90,51	1,89	88,07	0,34
Radium-228	Emission to water	mBq	127,36	2,65	123,93	0,48
Selenium	Emission to water	ng	151,93	3,17	147,84	0,57
Silver, ion	Emission to water	µg	143,31	2,99	139,45	0,54
Sodium, ion	Emission to water	g	7,09	5,26	1,36	0,29
Solved solids	Emission to water	g	3,04	0,06	2,96	0,01
Strontium	Emission to water	mg	3,73	0,08	3,63	0,01
Sulfate	Emission to water	mg	5,83	0,42	5,11	0,19
Sulfur	Emission to water	µg	181,23	3,78	176,36	0,68
Suspended solids, unspecified	Emission to water	g	1,36	0,10	0,07	0,73

Thallium	Emission to water		ng	162,48	3,39	158,11	0,61
Tin, ion	Emission to water		µg	7,52	0,16	7,32	0,03
Titanium, ion	Emission to water		µg	11,81	0,25	11,49	0,04
TOC, Total Organic Carbon	Emission to water		mg	144,68	13,40	16,20	71,01
Toluene	Emission to water		µg	108,39	2,26	105,48	0,41
Vanadium, ion	Emission to water		µg	1,86	0,04	1,81	0,01
Xylene	Emission to water		µg	54,74	1,14	53,26	0,20
Zinc, ion	Emission to water		mg	16,74	4,47	2,83	5,83
Aluminium	Emission to water	groundwater	g	1,31	0,89	0,39	0,02
Ammonium, ion	Emission to water	groundwater	mg	15,08	4,47	2,86	4,78
Antimony	Emission to water	groundwater	mg	8,80	4,29	3,45	0,65
Arsenic, ion	Emission to water	groundwater	mg	34,35	14,79	14,24	3,28
Barium	Emission to water	groundwater	mg	5,18	3,01	1,56	0,38
Beryllium	Emission to water	groundwater	mg	3,48	2,41	1,00	0,04
BOD5, Biological Oxygen Demand	Emission to water	groundwater	mg	2,97	0,89	0,53	0,96
Boron	Emission to water	groundwater	g	22,09	15,70	6,35	0,03
Bromine	Emission to water	groundwater	mg	9,04	2,05	4,55	1,50
Cadmium, ion	Emission to water	groundwater	mg	12,79	9,03	3,67	0,05
Calcium, ion	Emission to water	groundwater	g	132,51	89,40	38,99	2,54
Chloride	Emission to water	groundwater	g	201,42	59,35	38,79	63,74
Chromium VI	Emission to water	groundwater	mg	14,56	4,52	6,84	1,97
Chromium, ion	Emission to water	groundwater	µg	16,09	8,30	3,25	2,80
Cobalt	Emission to water	groundwater	mg	29,31	20,16	8,53	0,38
COD, Chemical Oxygen Demand	Emission to water	groundwater	mg	2,97	0,89	0,53	0,96
Copper, ion	Emission to water	groundwater	mg	76,16	53,77	21,93	0,29
Fluoride	Emission to water	groundwater	g	1,39	0,95	0,40	0,02
Iodide	Emission to water	groundwater	mg	1,05	0,22	0,54	0,18
Iron, ion	Emission to water	groundwater	g	22,42	6,42	10,67	3,29
Lead	Emission to water	groundwater	mg	7,45	5,28	2,14	0,02
Lead-210	Emission to water	groundwater	Bq	1,74	1,74	0,00	0,00
Magnesium	Emission to water	groundwater	g	38,20	25,22	11,35	1,00
Manganese	Emission to water	groundwater	g	1,36	0,86	0,40	0,06
Mercury	Emission to water	groundwater	µg	46,45	22,01	15,20	5,70
Molybdenum	Emission to water	groundwater	mg	156,75	98,29	51,13	4,53
Nickel, ion	Emission to water	groundwater	mg	21,48	10,99	6,67	2,36

Nitrate	Emission to water	groundwater	g	11,54	7,98	3,29	0,16
Phosphate	Emission to water	groundwater	g	496,17	346,18	143,88	3,76
Phosphorus	Emission to water	groundwater	µg	109,77	103,95	5,06	0,47
Polonium-210	Emission to water	groundwater	Bq	2,65	2,64	0,01	0,00
Potassium-40	Emission to water	groundwater	mBq	210,66	210,04	0,59	0,02
Potassium, ion	Emission to water	groundwater	g	9,71	5,72	3,26	0,45
Radium-226	Emission to water	groundwater	Bq	1,96	1,95	0,01	0,00
Scandium	Emission to water	groundwater	mg	7,90	4,93	2,57	0,25
Selenium	Emission to water	groundwater	mg	17,05	10,62	5,55	0,55
Silicon	Emission to water	groundwater	g	3,07	1,23	1,25	0,36
Silver, ion	Emission to water	groundwater	µg	633,11	404,27	189,52	24,26
Sodium, ion	Emission to water	groundwater	g	13,68	6,93	4,92	1,13
Solids, inorganic	Emission to water	groundwater	g	41,70	8,69	21,15	7,32
Solved solids	Emission to water	groundwater	g	3,20	0,96	0,58	1,03
Strontium	Emission to water	groundwater	mg	658,63	386,86	192,08	49,17
Sulfate	Emission to water	groundwater	kg	4,67	3,25	1,36	0,03
Thallium	Emission to water	groundwater	µg	903,67	639,81	259,97	2,40
Thorium-228	Emission to water	groundwater	mBq	21,37	21,31	0,06	0,00
Tin, ion	Emission to water	groundwater	mg	8,71	6,19	2,50	0,02
Titanium, ion	Emission to water	groundwater	mg	7,97	5,10	2,48	0,24
Tungsten	Emission to water	groundwater	mg	115,35	80,94	33,59	0,51
Uranium-238	Emission to water	groundwater	mBq	894,15	891,53	2,51	0,07
Vanadium, ion	Emission to water	groundwater	mg	5,47	3,33	1,80	0,21
Zinc, ion	Emission to water	groundwater	mg	518,65	364,62	149,21	2,98
Aluminium	Emission to water	groundwater, long-term	g	923,22	555,40	334,35	20,65
Ammonium, ion	Emission to water	groundwater, long-term	mg	9,47	6,31	2,03	0,69
Antimony	Emission to water	groundwater, long-term	g	2,93	2,07	0,84	0,01
Arsenic, ion	Emission to water	groundwater, long-term	g	9,16	6,44	2,64	0,04
Barium	Emission to water	groundwater, long-term	g	3,72	1,93	1,24	0,33
Beryllium	Emission to water	groundwater, long-term	g	1,23	0,85	0,36	0,01
BOD5, Biological Oxygen Demand	Emission to water	groundwater, long-term	g	471,47	7,42	400,73	39,07
Boron	Emission to water	groundwater, long-term	g	230,27	163,33	66,26	0,42
Bromine	Emission to water	groundwater, long-term	mg	141,34	95,65	39,22	4,00
Cadmium, ion	Emission to water	groundwater, long-term	g	5,82	4,12	1,67	0,01
Calcium, ion	Emission to water	groundwater, long-term	kg	10,94	7,09	3,52	0,20

Chloride	Emission to water	groundwater, long-term	g	90,94	23,27	34,91	20,21
Chromium VI	Emission to water	groundwater, long-term	g	3,61	1,69	0,76	0,72
Cobalt	Emission to water	groundwater, long-term	g	22,52	11,32	4,78	3,96
COD, Chemical Oxygen Demand	Emission to water	groundwater, long-term	kg	1,44	0,02	1,22	0,12
Copper, ion	Emission to water	groundwater, long-term	g	46,85	32,30	13,25	0,80
DOC, Dissolved Organic Carbon	Emission to water	groundwater, long-term	g	570,65	9,26	484,81	47,26
Fluoride	Emission to water	groundwater, long-term	kg	1,43	0,37	1,06	0,00
Heat, waste	Emission to water	groundwater, long-term	kJ	176,23	115,17	38,94	13,65
Hydrogen sulfide	Emission to water	groundwater, long-term	mg	30,89	17,87	7,95	3,13
Iodide	Emission to water	groundwater, long-term	ng	43,93	31,55	8,84	2,18
Iron, ion	Emission to water	groundwater, long-term	kg	2,26	1,52	0,64	0,06
Lead	Emission to water	groundwater, long-term	g	4,53	3,18	1,31	0,02
Magnesium	Emission to water	groundwater, long-term	kg	6,34	4,33	1,86	0,09
Manganese	Emission to water	groundwater, long-term	g	705,47	487,83	205,82	7,29
Mercury	Emission to water	groundwater, long-term	mg	25,20	12,27	8,11	2,97
Molybdenum	Emission to water	groundwater, long-term	g	5,72	3,99	1,66	0,04
Nickel, ion	Emission to water	groundwater, long-term	g	35,69	7,71	4,13	14,72
Nitrate	Emission to water	groundwater, long-term	g	124,91	76,15	35,47	8,20
Nitrite	Emission to water	groundwater, long-term	µg	515,81	344,01	110,63	37,75
Nitrogen, organic bound	Emission to water	groundwater, long-term	mg	15,46	10,31	3,32	1,13
Phosphate	Emission to water	groundwater, long-term	g	873,96	566,67	261,75	28,11
Potassium, ion	Emission to water	groundwater, long-term	kg	3,58	2,44	1,05	0,06
Scandium	Emission to water	groundwater, long-term	g	2,14	1,48	0,62	0,02
Selenium	Emission to water	groundwater, long-term	g	4,43	3,10	1,28	0,03
Silicon	Emission to water	groundwater, long-term	kg	21,96	1,16	15,30	3,40
Silver, ion	Emission to water	groundwater, long-term	mg	321,15	227,68	92,42	0,65
Sodium, ion	Emission to water	groundwater, long-term	kg	1,59	0,91	0,54	0,09
Strontium	Emission to water	groundwater, long-term	g	103,12	67,23	31,08	2,97
Sulfate	Emission to water	groundwater, long-term	kg	34,75	23,24	10,40	0,68
Thallium	Emission to water	groundwater, long-term	mg	544,36	383,82	157,72	1,75
Tin, ion	Emission to water	groundwater, long-term	g	5,24	3,71	1,51	0,01
Titanium, ion	Emission to water	groundwater, long-term	g	7,71	4,40	2,05	0,78
TOC, Total Organic Carbon	Emission to water	groundwater, long-term	g	570,65	9,26	484,81	47,26
Tungsten	Emission to water	groundwater, long-term	g	7,81	5,54	2,24	0,01
Vanadium, ion	Emission to water	groundwater, long-term	g	4,14	2,51	1,27	0,22

Zinc, ion	Emission to water	groundwater, long-term	g	309,35	218,05	89,18	1,30
Arsenic, ion	Emission to water	lake	ng	18,79	0,68	18,07	0,02
Cadmium, ion	Emission to water	lake	ng	15,96	0,58	15,35	0,02
Calcium, ion	Emission to water	lake	g	1,25	1,24	0,01	0,00
Copper, ion	Emission to water	lake	ng	724,24	26,37	696,58	0,79
DOC, Dissolved Organic Carbon	Emission to water	lake	µg	446,87	215,87	198,74	19,91
Lead	Emission to water	lake	ng	47,28	1,72	45,47	0,05
Mercury	Emission to water	lake	pg	408,97	14,89	393,35	0,45
Nickel, ion	Emission to water	lake	ng	64,22	2,34	61,77	0,07
Zinc, ion	Emission to water	lake	ng	46,59	1,70	44,81	0,05
Acenaphthene	Emission to water	ocean	ng	699,64	318,94	237,58	88,32
Acenaphthylene	Emission to water	ocean	ng	43,76	19,95	14,86	5,52
Actinides, radioactive, unspecified	Emission to water	ocean	Bq	1,36	0,30	0,67	0,24
Aluminium	Emission to water	ocean	mg	50,37	20,32	14,47	9,62
Ammonium, ion	Emission to water	ocean	mg	12,35	6,46	3,77	1,30
AOX, Adsorbable Organic Halogen as Cl	Emission to water	ocean	µg	50,26	27,15	14,23	5,48
Arsenic, ion	Emission to water	ocean	mg	45,63	44,61	0,99	0,02
Barite	Emission to water	ocean	g	2,58	1,06	0,73	0,48
Barium	Emission to water	ocean	mg	98,16	44,78	33,31	12,38
Benzene	Emission to water	ocean	mg	9,32	4,25	3,16	1,18
Benzene, ethyl-	Emission to water	ocean	mg	2,70	1,23	0,92	0,34
BOD5, Biological Oxygen Demand	Emission to water	ocean	g	17,51	7,83	4,47	3,22
Boron	Emission to water	ocean	mg	1,17	0,67	0,31	0,12
Bromine	Emission to water	ocean	mg	78,74	35,89	26,74	9,94
Cadmium, ion	Emission to water	ocean	mg	19,31	16,89	2,41	0,01
Calcium, ion	Emission to water	ocean	g	789,51	785,30	3,40	0,50
Carboxylic acids, unspecified	Emission to water	ocean	mg	649,84	294,87	218,96	83,93
Cesium	Emission to water	ocean	µg	112,48	51,28	38,20	14,20
Cesium-137	Emission to water	ocean	Bq	155,28	34,36	76,31	27,53
Chloride	Emission to water	ocean	g	56,50	25,78	19,17	7,13
Chlorinated solvents, unspecified	Emission to water	ocean	pg	21,03	9,35	6,50	3,20
Chromium, ion	Emission to water	ocean	mg	5,69	5,36	0,21	0,07
Cobalt	Emission to water	ocean	µg	4,68	1,04	2,30	0,83
COD, Chemical Oxygen Demand	Emission to water	ocean	g	17,65	7,89	4,52	3,23
Copper, ion	Emission to water	ocean	mg	367,65	6,55	361,01	0,06

Cyanide	Emission to water	ocean	mg	617,64	1,92	615,55	0,10
DOC, Dissolved Organic Carbon	Emission to water	ocean	g	5,47	2,45	1,45	0,97
Fluoride	Emission to water	ocean	g	8,11	8,08	0,03	0,00
Glutaraldehyde	Emission to water	ocean	µg	318,91	131,47	90,65	59,73
Heat, waste	Emission to water	ocean	kJ	62,41	1,29	59,76	0,84
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	ocean	mg	14,62	6,67	4,97	1,85
Hydrocarbons, aliphatic, unsaturated	Emission to water	ocean	mg	1,35	0,62	0,46	0,17
Hydrocarbons, aromatic	Emission to water	ocean	mg	64,29	29,39	21,47	8,28
Hydrocarbons, unspecified	Emission to water	ocean	mg	48,43	19,99	13,79	9,04
Hydrogen-3, Tritium	Emission to water	ocean	kBq	322,62	71,39	158,55	57,19
Hypochlorite	Emission to water	ocean	mg	9,60	2,14	4,63	1,75
Iodide	Emission to water	ocean	mg	11,25	5,13	3,82	1,42
Iron, ion	Emission to water	ocean	mg	6,41	3,11	2,06	0,77
Lead	Emission to water	ocean	mg	4,66	2,93	1,51	0,14
Lead-210	Emission to water	ocean	Bq	2047,30	2041,28	5,76	0,16
Magnesium	Emission to water	ocean	mg	635,67	298,23	210,62	78,26
Manganese	Emission to water	ocean	mg	33,66	30,88	1,77	0,63
Mercury	Emission to water	ocean	µg	17,09	2,06	13,62	0,87
Methanol	Emission to water	ocean	mg	6,51	2,41	1,59	1,55
Molybdenum	Emission to water	ocean	µg	29,37	16,78	7,87	2,91
Nickel, ion	Emission to water	ocean	mg	60,23	30,29	29,92	0,01
Nitrate	Emission to water	ocean	mg	125,36	36,17	56,23	20,34
Nitrite	Emission to water	ocean	mg	2,10	0,47	1,03	0,37
Nitrogen	Emission to water	ocean	µg	609,97	271,19	186,62	93,90
Nitrogen, organic bound	Emission to water	ocean	mg	28,51	12,83	9,53	3,79
Oils, unspecified	Emission to water	ocean	g	5,56	2,49	1,42	1,02
PAH, polycyclic aromatic hydrocarbons	Emission to water	ocean	µg	901,36	414,89	303,14	113,13
Phenol	Emission to water	ocean	mg	14,42	6,64	4,84	1,81
Phosphate	Emission to water	ocean	g	34,54	34,44	0,10	0,00
Phosphorus	Emission to water	ocean	mg	1,18	0,66	0,32	0,12
Polonium-210	Emission to water	ocean	Bq	3124,35	3115,18	8,79	0,24
Potassium-40	Emission to water	ocean	Bq	247,46	246,73	0,70	0,02
Potassium, ion	Emission to water	ocean	mg	481,78	222,90	161,36	60,18
Radioactive species, Nuclides, unspecified	Emission to water	ocean	Bq	810,18	179,27	398,15	143,63
Radium-224	Emission to water	ocean	Bq	5,62	2,56	1,91	0,71

Radium-226	Emission to water	ocean	Bq	2314,43	2302,77	9,54	1,31
Radium-228	Emission to water	ocean	Bq	11,25	5,13	3,82	1,42
Rubidium	Emission to water	ocean	mg	1,12	0,51	0,38	0,14
Selenium	Emission to water	ocean	µg	44,02	25,14	11,80	4,37
Silicon	Emission to water	ocean	µg	78,64	31,75	22,65	14,96
Silver, ion	Emission to water	ocean	µg	67,49	30,77	22,92	8,52
Sodium, ion	Emission to water	ocean	g	34,62	15,88	11,69	4,35
Strontium	Emission to water	ocean	mg	204,52	93,47	69,30	25,76
Strontium-90	Emission to water	ocean	Bq	17,26	3,82	8,48	3,06
Sulfate	Emission to water	ocean	kg	1,56	1,55	0,00	0,00
Sulfide	Emission to water	ocean	µg	445,42	189,10	161,43	58,55
Sulfur	Emission to water	ocean	mg	1,93	0,86	0,60	0,29
Suspended solids, unspecified	Emission to water	ocean	g	9,22	3,81	2,63	1,72
t-Butyl methyl ether	Emission to water	ocean	µg	930,53	531,53	249,44	92,29
Thorium-228	Emission to water	ocean	Bq	47,60	35,28	7,71	2,84
Titanium, ion	Emission to water	ocean	µg	12,46	5,00	3,58	2,39
TOC, Total Organic Carbon	Emission to water	ocean	g	5,47	2,45	1,45	0,97
Toluene	Emission to water	ocean	mg	16,63	7,68	5,60	2,07
Tributyltin compounds	Emission to water	ocean	mg	1,39	0,47	0,26	0,41
Triethylene glycol	Emission to water	ocean	mg	5,41	1,99	1,33	1,29
Uranium-238	Emission to water	ocean	Bq	1050,35	1047,27	2,96	0,08
Vanadium, ion	Emission to water	ocean	µg	87,77	50,14	23,53	8,70
VOC, volatile organic compounds, unspecified origin	Emission to water	ocean	mg	39,37	17,95	13,37	4,97
Xylene	Emission to water	ocean	mg	13,38	6,13	4,52	1,68
Zinc, ion	Emission to water	ocean	mg	920,10	103,17	777,65	24,24
1-Butanol	Emission to water	river	µg	107,01	96,27	6,14	2,84
1-Pentanol	Emission to water	river	ng	112,99	76,28	28,49	5,07
1-Pentene	Emission to water	river	ng	85,38	57,64	21,53	3,83
1,4-Butanediol	Emission to water	river	ng	187,77	167,71	13,60	3,98
2-Aminopropanol	Emission to water	river	ng	5,85	1,03	4,47	0,22
2-Methyl-1-propanol	Emission to water	river	ng	236,46	166,36	55,42	9,06
2-Methyl-2-butene	Emission to water	river	mg	4,24	4,24	0,00	0,00
2-Propanol	Emission to water	river	ng	85,72	19,05	63,60	1,90
Acenaphthene	Emission to water	river	µg	1,74	0,80	0,59	0,21
Acenaphthylene	Emission to water	river	ng	108,52	49,73	37,03	13,43

Acetaldehyde	Emission to water	river	µg	202,99	182,18	11,90	5,49
Acetic acid	Emission to water	river	mg	27,61	8,51	18,79	0,19
Acetone	Emission to water	river	ng	434,09	228,06	96,82	67,39
Acetonitrile	Emission to water	river	ng	6,59	1,53	4,04	0,63
Acetyl chloride	Emission to water	river	ng	88,76	59,92	22,38	3,98
Acidity, unspecified	Emission to water	river	mg	4,44	1,49	2,81	0,08
Acrylate, ion	Emission to water	river	mg	14,42	0,03	14,38	0,00
Aluminium	Emission to water	river	mg	703,26	336,59	289,32	47,73
Ammonium, ion	Emission to water	river	mg	614,84	251,59	316,87	28,62
Aniline	Emission to water	river	µg	1,38	1,22	0,12	0,02
Antimony	Emission to water	river	mg	24,70	20,66	2,20	1,14
Antimony-122	Emission to water	river	µBq	666,82	228,83	315,09	75,85
Antimony-124	Emission to water	river	mBq	232,13	54,32	114,32	39,18
Antimony-125	Emission to water	river	mBq	216,88	50,87	108,03	35,77
AOX, Adsorbable Organic Halogen as Cl	Emission to water	river	mg	1,99	0,47	1,28	0,15
Arsenic, ion	Emission to water	river	mg	216,44	76,46	105,40	21,34
Barium	Emission to water	river	mg	244,27	111,76	83,44	30,28
Barium-140	Emission to water	river	mBq	2,92	1,00	1,38	0,33
Benzene	Emission to water	river	mg	42,94	27,75	8,64	4,04
Benzene, 1,2-dichloro-	Emission to water	river	µg	46,47	41,49	2,91	1,27
Benzene, chloro-	Emission to water	river	µg	954,46	853,87	58,44	26,01
Benzene, ethyl-	Emission to water	river	mg	6,70	3,07	2,28	0,83
Beryllium	Emission to water	river	µg	9,28	1,99	3,73	2,20
BOD5, Biological Oxygen Demand	Emission to water	river	g	70,06	33,83	23,28	7,99
Borate	Emission to water	river	µg	8,86	5,82	2,41	0,39
Boron	Emission to water	river	mg	16,61	4,16	7,86	2,83
Bromate	Emission to water	river	mg	119,20	105,89	11,74	0,97
Bromide	Emission to water	river	µg	699,49	533,43	131,37	21,41
Bromine	Emission to water	river	mg	295,74	153,03	77,14	40,46
Butene	Emission to water	river	mg	1,25	1,13	0,12	0,00
Butyl acetate	Emission to water	river	µg	139,04	125,10	7,97	3,69
Butyrolactone	Emission to water	river	ng	236,44	212,22	13,88	6,39
Cadmium, ion	Emission to water	river	mg	19,20	0,41	17,99	0,49
Calcium, ion	Emission to water	river	g	294,03	266,42	10,68	10,45
Carbon disulfide	Emission to water	river	µg	5,27	3,68	1,20	0,24

Carbonate	Emission to water	river	g	36,16	36,07	0,09	0,00
Carboxylic acids, unspecified	Emission to water	river	g	1,03	0,47	0,35	0,13
Cerium-141	Emission to water	river	mBq	1,17	0,40	0,55	0,13
Cerium-144	Emission to water	river	µBq	355,54	122,01	168,00	40,44
Cesium	Emission to water	river	µg	278,98	127,85	95,19	34,53
Cesium-134	Emission to water	river	mBq	192,21	42,36	96,42	32,97
Cesium-136	Emission to water	river	µBq	207,28	71,13	97,94	23,58
Cesium-137	Emission to water	river	mBq	745,69	205,17	364,75	108,46
Chloramine	Emission to water	river	µg	1,52	1,00	0,41	0,07
Chlorate	Emission to water	river	mg	921,26	818,26	90,63	7,63
Chloride	Emission to water	river	g	538,63	439,15	63,70	22,09
Chlorinated solvents, unspecified	Emission to water	river	µg	731,55	291,96	425,16	8,91
Chlorine	Emission to water	river	mg	23,59	19,51	3,67	0,24
Chloroacetic acid	Emission to water	river	µg	72,55	35,95	14,84	13,43
Chloroacetyl chloride	Emission to water	river	ng	7,81	1,37	5,96	0,29
Chloroform	Emission to water	river	mg	5,68	4,88	0,80	0,00
Chlorosulfonic acid	Emission to water	river	ng	23,96	5,56	14,69	2,29
Chromium-51	Emission to water	river	mBq	317,55	95,67	153,88	41,96
Chromium VI	Emission to water	river	mg	494,96	108,11	49,86	207,95
Chromium, ion	Emission to water	river	mg	2,26	0,78	0,65	0,51
Cobalt	Emission to water	river	mg	12,52	1,86	0,37	6,35
Cobalt-57	Emission to water	river	mBq	6,58	2,26	3,11	0,75
Cobalt-58	Emission to water	river	Bq	2,10	0,57	1,03	0,31
Cobalt-60	Emission to water	river	Bq	1,68	0,47	0,82	0,24
COD, Chemical Oxygen Demand	Emission to water	river	g	74,34	34,49	25,48	8,87
Copper, ion	Emission to water	river	mg	410,09	5,59	397,96	4,04
Cumene	Emission to water	river	mg	25,17	18,61	2,92	2,25
Cyanide	Emission to water	river	g	1,48	0,73	0,74	0,01
Dichromate	Emission to water	river	µg	297,36	91,08	158,44	29,52
Diethylamine	Emission to water	river	ng	612,79	541,98	54,27	10,20
Dimethylamine	Emission to water	river	ng	347,46	235,83	95,39	10,02
Dipropylamine	Emission to water	river	ng	388,28	345,78	32,13	6,40
DOC, Dissolved Organic Carbon	Emission to water	river	g	30,45	18,70	7,73	2,48
Ethane, 1,2-dichloro-	Emission to water	river	mg	32,75	32,62	0,12	0,01
Ethanol	Emission to water	river	µg	251,60	225,14	15,55	6,73

Ethene	Emission to water	river	mg	30,18	28,07	1,01	0,67
Ethene, chloro-	Emission to water	river	µg	12,89	6,01	3,91	1,83
Ethyl acetate	Emission to water	river	ng	665,13	592,24	54,68	11,24
Ethylamine	Emission to water	river	ng	204,69	92,41	101,37	6,73
Ethylene diamine	Emission to water	river	µg	2,67	1,87	0,61	0,12
Ethylene oxide	Emission to water	river	mg	6,83	0,41	6,41	0,00
Fluoride	Emission to water	river	g	55,33	2,45	52,86	0,01
Fluosilicic acid	Emission to water	river	mg	4,44	3,19	0,51	0,46
Formaldehyde	Emission to water	river	µg	190,31	130,24	24,62	21,88
Formamide	Emission to water	river	ng	206,65	139,51	52,11	9,28
Formate	Emission to water	river	µg	6,60	1,57	4,60	0,27
Formic acid	Emission to water	river	ng	59,99	40,50	15,13	2,69
Heat, waste	Emission to water	river	MJ	47,52	12,46	22,50	7,75
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	river	mg	36,27	16,62	12,37	4,49
Hydrocarbons, aliphatic, unsaturated	Emission to water	river	mg	3,35	1,53	1,14	0,41
Hydrocarbons, aromatic	Emission to water	river	mg	146,97	67,42	50,10	18,17
Hydrocarbons, unspecified	Emission to water	river	mg	54,91	10,42	42,27	1,37
Hydrogen-3, Tritium	Emission to water	river	kBq	34,90	7,74	17,25	6,11
Hydrogen peroxide	Emission to water	river	mg	2,97	0,48	2,47	0,01
Hydrogen sulfide	Emission to water	river	mg	9,14	5,28	0,28	2,21
Hydroxide	Emission to water	river	g	20,43	20,42	0,00	0,00
Hypochlorite	Emission to water	river	mg	9,16	2,05	4,41	1,67
Iodide	Emission to water	river	mg	32,24	15,00	10,05	4,44
Iodine-131	Emission to water	river	mBq	43,46	10,54	21,38	7,11
Iodine-133	Emission to water	river	mBq	1,83	0,63	0,87	0,21
Iron-59	Emission to water	river	µBq	504,14	173,00	238,22	57,34
Iron, ion	Emission to water	river	mg	365,23	136,19	62,74	102,62
Isopropylamine	Emission to water	river	ng	37,16	8,26	27,57	0,82
Lactic acid	Emission to water	river	ng	304,16	270,87	25,17	5,01
Lanthanum-140	Emission to water	river	mBq	3,11	1,07	1,47	0,35
Lead	Emission to water	river	mg	146,65	20,03	122,50	2,55
Lead-210	Emission to water	river	Bq	2,02	0,44	1,01	0,35
Lithium, ion	Emission to water	river	g	8,41	8,41	0,00	0,00
m-Xylene	Emission to water	river	ng	220,74	150,34	54,24	9,98
Magnesium	Emission to water	river	g	2,43	0,86	1,14	0,27

Manganese	Emission to water	river	mg	38,91	15,22	14,63	5,59
Manganese-54	Emission to water	river	mBq	129,40	34,78	63,44	19,25
Mercury	Emission to water	river	mg	2,39	0,10	2,20	0,05
Methane, dichloro-, HCC-30	Emission to water	river	mg	8,88	5,85	1,74	0,80
Methanol	Emission to water	river	mg	171,28	0,85	170,39	0,02
Methyl acetate	Emission to water	river	ng	2,73	0,22	2,39	0,07
Methyl acrylate	Emission to water	river	mg	135,01	0,33	134,67	0,01
Methyl amine	Emission to water	river	ng	249,95	232,37	11,73	3,61
Methyl formate	Emission to water	river	ng	37,90	32,11	3,91	1,16
Molybdenum	Emission to water	river	mg	14,86	3,07	5,08	4,14
Molybdenum-99	Emission to water	river	mBq	1,07	0,37	0,51	0,12
Nickel, ion	Emission to water	river	mg	280,44	10,23	227,70	26,23
Niobium-95	Emission to water	river	mBq	19,51	4,66	9,98	3,01
Nitrate	Emission to water	river	g	6,79	4,55	2,13	0,06
Nitrite	Emission to water	river	mg	13,99	7,32	6,49	0,11
Nitrobenzene	Emission to water	river	µg	3,09	2,73	0,28	0,05
Nitrogen	Emission to water	river	mg	544,74	343,60	130,31	43,71
Nitrogen, organic bound	Emission to water	river	g	4,84	4,20	0,16	0,30
Oils, unspecified	Emission to water	river	g	19,45	8,83	6,59	2,49
PAH, polycyclic aromatic hydrocarbons	Emission to water	river	mg	1,68	0,73	0,48	0,29
Phenol	Emission to water	river	mg	24,65	11,77	8,05	2,98
Phosphate	Emission to water	river	g	1,81	0,07	1,74	0,01
Phosphorus	Emission to water	river	mg	211,50	195,05	12,18	2,63
Polonium-210	Emission to water	river	Bq	2,02	0,44	1,01	0,35
Potassium-40	Emission to water	river	Bq	2,53	0,56	1,27	0,44
Potassium, ion	Emission to water	river	g	4,35	1,91	1,40	0,64
Propanal	Emission to water	river	ng	163,57	110,42	41,25	7,34
Propanol	Emission to water	river	ng	160,48	104,11	43,92	7,68
Propene	Emission to water	river	mg	113,18	87,88	23,82	0,91
Propionic acid	Emission to water	river	ng	182,07	151,39	28,28	1,48
Propylamine	Emission to water	river	ng	65,44	44,18	16,50	2,94
Propylene oxide	Emission to water	river	mg	1,21	0,54	0,53	0,08
Protactinium-234	Emission to water	river	Bq	2,13	0,48	1,05	0,37
Radioactive species, alpha emitters	Emission to water	river	Bq	6,14	6,12	0,02	0,00
Radioactive species, Nuclides, unspecified	Emission to water	river	Bq	2,85	0,53	1,60	0,44

Radium-224	Emission to water	river	Bq	13,95	6,39	4,76	1,73
Radium-226	Emission to water	river	Bq	1348,59	308,25	661,92	233,52
Radium-228	Emission to water	river	Bq	27,90	12,78	9,52	3,45
Rubidium	Emission to water	river	mg	2,79	1,28	0,95	0,35
Ruthenium-103	Emission to water	river	µBq	226,34	77,67	106,95	25,74
Scandium	Emission to water	river	mg	2,19	0,41	0,51	0,79
Selenium	Emission to water	river	mg	2,74	0,67	0,81	0,77
Silicon	Emission to water	river	g	47,57	1,51	34,02	7,43
Silver-110	Emission to water	river	Bq	1,57	0,44	0,76	0,23
Silver, ion	Emission to water	river	µg	282,46	134,65	93,46	33,54
Sodium-24	Emission to water	river	mBq	8,12	2,79	3,83	0,92
Sodium formate	Emission to water	river	µg	86,69	51,01	9,50	16,15
Sodium, ion	Emission to water	river	g	181,65	89,71	70,83	13,03
Solids, inorganic	Emission to water	river	g	114,53	113,08	0,30	0,70
Solved solids	Emission to water	river	g	9,67	8,11	0,41	0,71
Strontium	Emission to water	river	mg	505,78	231,70	172,47	62,70
Strontium-89	Emission to water	river	mBq	30,53	8,86	15,03	4,10
Strontium-90	Emission to water	river	Bq	1087,11	239,02	519,54	202,74
Sulfate	Emission to water	river	g	757,28	635,53	66,39	34,17
Sulfide	Emission to water	river	mg	1,85	0,60	0,78	0,29
Sulfite	Emission to water	river	mg	51,21	11,42	24,76	9,27
Sulfur	Emission to water	river	mg	68,10	33,41	21,37	8,22
Suspended solids, unspecified	Emission to water	river	g	10,00	7,67	1,16	0,72
t-Butyl methyl ether	Emission to water	river	µg	1,00	0,30	0,46	0,15
t-Butylamine	Emission to water	river	ng	51,38	12,23	35,80	2,07
Technetium-99m	Emission to water	river	mBq	24,77	8,48	11,70	2,83
Tellurium-123m	Emission to water	river	mBq	24,70	5,50	12,31	4,26
Tellurium-132	Emission to water	river	µBq	62,11	21,31	29,35	7,06
Thallium	Emission to water	river	µg	100,97	21,96	49,55	18,18
Thorium-228	Emission to water	river	Bq	55,80	25,57	19,04	6,91
Thorium-230	Emission to water	river	Bq	290,65	65,31	143,39	50,57
Thorium-232	Emission to water	river	mBq	472,62	103,84	237,28	81,15
Thorium-234	Emission to water	river	Bq	2,13	0,48	1,05	0,37
Tin, ion	Emission to water	river	µg	920,69	273,19	107,10	333,48
Titanium, ion	Emission to water	river	mg	4,79	2,21	0,88	1,05

TOC, Total Organic Carbon	Emission to water	river	g	30,84	19,00	7,81	2,49
Toluene	Emission to water	river	mg	33,15	15,72	10,99	3,98
Toluene, 2-chloro-	Emission to water	river	ng	480,02	420,40	46,51	8,09
Trimethylamine	Emission to water	river	ng	5,64	0,42	5,01	0,13
Tungsten	Emission to water	river	mg	1,73	0,33	0,46	0,58
Uranium-234	Emission to water	river	Bq	2,56	0,57	1,26	0,44
Uranium-235	Emission to water	river	Bq	4,22	0,95	2,08	0,73
Uranium-238	Emission to water	river	Bq	7,42	1,66	3,67	1,29
Uranium alpha	Emission to water	river	Bq	122,73	27,58	60,55	21,35
Urea	Emission to water	river	ng	190,94	127,11	50,04	8,51
Vanadium, ion	Emission to water	river	mg	8,09	2,96	3,22	1,18
VOC, volatile organic compounds, unspecified origin	Emission to water	river	mg	102,96	45,94	35,94	13,01
Xylene	Emission to water	river	mg	26,45	12,13	9,02	3,27
Zinc-65	Emission to water	river	mBq	110,03	37,76	51,99	12,52
Zinc, ion	Emission to water	river	g	3,96	0,04	3,90	0,01
Zirconium-95	Emission to water	river	mBq	1,27	0,44	0,60	0,14
Benzene, chloro-	Emission to water	river, long-term	ng	201,21	131,74	55,19	8,82
Chloride	Emission to water	river, long-term	mg	18,46	0,07	18,39	0,00
Boron	Emission to soil		mg	2,02	0,62	1,08	0,20
Cadmium	Emission to soil		µg	2,80	1,37	0,84	0,36
Chloride	Emission to soil		g	3,24	1,46	1,17	0,38
Chromium	Emission to soil		µg	13,34	6,54	4,02	1,71
Chromium VI	Emission to soil		mg	11,39	3,49	6,07	1,13
Copper	Emission to soil		mg	7,30	2,27	3,85	0,73
Fluoride	Emission to soil		mg	7,71	2,36	4,11	0,76
Heat, waste	Emission to soil		MJ	1,20	0,31	0,67	0,13
Iron	Emission to soil		g	1,24	0,59	0,21	0,27
Lead	Emission to soil		µg	115,11	56,47	34,71	14,77
Nickel	Emission to soil		µg	36,15	17,73	10,90	4,64
Oils, biogenic	Emission to soil		mg	6,97	3,32	1,21	1,50
Oils, unspecified	Emission to soil		mg	119,66	48,00	46,83	15,32
Sodium	Emission to soil		mg	162,48	13,11	147,58	1,11
Zinc	Emission to soil		mg	7,90	3,88	2,38	1,01
2,4-D	Emission to soil	agricultural	µg	229,22	216,63	10,99	0,98
Aclonifen	Emission to soil	agricultural	µg	5,22	2,38	1,02	1,13

Aldrin	Emission to soil	agricultural	µg	143,64	1,07	142,55	0,01
Aluminium	Emission to soil	agricultural	mg	55,33	16,04	33,09	3,83
Antimony	Emission to soil	agricultural	ng	101,66	55,27	26,89	12,03
Arsenic	Emission to soil	agricultural	µg	963,48	5,50	955,90	1,28
Atrazine	Emission to soil	agricultural	µg	37,68	0,28	37,40	0,00
Barium	Emission to soil	agricultural	µg	4,96	2,09	1,80	0,66
Benomyl	Emission to soil	agricultural	µg	1,40	1,38	0,01	0,01
Bentazone	Emission to soil	agricultural	µg	2,67	1,21	0,52	0,58
Boron	Emission to soil	agricultural	µg	1,02	0,39	0,41	0,14
Cadmium	Emission to soil	agricultural	mg	2,17	0,01	2,16	0,00
Calcium	Emission to soil	agricultural	mg	372,72	108,52	181,33	51,14
Carbetamide	Emission to soil	agricultural	µg	2,17	1,29	0,46	0,26
Carbofuran	Emission to soil	agricultural	µg	768,54	756,90	6,10	3,42
Carbon	Emission to soil	agricultural	mg	220,18	130,31	83,81	3,74
Chloride	Emission to soil	agricultural	mg	3,76	0,81	2,02	0,57
Chlorothalonil	Emission to soil	agricultural	mg	1,21	0,85	0,27	0,06
Chromium	Emission to soil	agricultural	mg	2,44	0,10	2,28	0,04
Cobalt	Emission to soil	agricultural	µg	27,36	10,35	11,70	3,27
Copper	Emission to soil	agricultural	mg	30,84	0,19	30,58	0,04
Cypermethrin	Emission to soil	agricultural	µg	108,60	106,93	0,88	0,49
Fenpiclonil	Emission to soil	agricultural	µg	47,90	33,49	10,81	2,22
Glyphosate	Emission to soil	agricultural	mg	1,61	1,54	0,05	0,02
Iron	Emission to soil	agricultural	mg	511,16	103,07	399,82	5,10
Lead	Emission to soil	agricultural	mg	4,04	0,09	3,93	0,02
Linuron	Emission to soil	agricultural	µg	71,66	18,54	39,04	8,69
Magnesium	Emission to soil	agricultural	mg	42,51	12,23	20,91	5,78
Mancozeb	Emission to soil	agricultural	mg	1,57	1,10	0,36	0,07
Manganese	Emission to soil	agricultural	mg	23,69	5,28	12,61	3,58
Mercury	Emission to soil	agricultural	µg	1,53	1,25	0,20	0,05
Metaldehyde	Emission to soil	agricultural	ng	719,73	460,28	157,10	63,16
Metolachlor	Emission to soil	agricultural	µg	291,36	132,50	57,00	62,85
Metribuzin	Emission to soil	agricultural	µg	55,45	38,82	12,51	2,54
Molybdenum	Emission to soil	agricultural	µg	8,03	4,36	2,54	0,69
Napropamide	Emission to soil	agricultural	µg	1,27	0,81	0,28	0,11
Nickel	Emission to soil	agricultural	mg	16,33	0,08	16,23	0,01

Orbencarb	Emission to soil	agricultural	µg	299,43	209,63	67,58	13,71
Phosphorus	Emission to soil	agricultural	mg	11,50	2,49	6,17	1,75
Pirimicarb	Emission to soil	agricultural	ng	252,24	114,71	49,35	54,41
Potassium	Emission to soil	agricultural	mg	63,97	13,86	34,33	9,74
Silicon	Emission to soil	agricultural	mg	158,86	42,45	92,11	15,00
Strontium	Emission to soil	agricultural	µg	11,08	3,81	4,71	1,58
Sulfur	Emission to soil	agricultural	mg	22,83	13,50	6,49	1,75
Sulfuric acid	Emission to soil	agricultural	µg	7,90	0,02	7,88	0,00
Tebutam	Emission to soil	agricultural	µg	3,02	1,93	0,66	0,26
Teflubenzuron	Emission to soil	agricultural	µg	3,70	2,59	0,83	0,17
Thiram	Emission to soil	agricultural	µg	2,49	2,45	0,02	0,01
Tin	Emission to soil	agricultural	µg	24,37	14,51	9,59	0,16
Titanium	Emission to soil	agricultural	mg	1,62	0,35	0,87	0,25
Vanadium	Emission to soil	agricultural	µg	46,36	10,05	24,88	7,06
Zinc	Emission to soil	agricultural	mg	2,69	1,00	1,15	0,34
Oils, biogenic	Emission to soil	forestry	mg	21,72	10,25	3,49	4,93
Oils, unspecified	Emission to soil	forestry	g	24,01	10,95	8,15	3,03
Aluminium	Emission to soil	industrial	mg	210,67	90,88	68,63	31,57
Arsenic	Emission to soil	industrial	µg	84,27	36,35	27,45	12,63
Barium	Emission to soil	industrial	mg	105,34	45,44	34,32	15,79
Boron	Emission to soil	industrial	mg	2,11	0,91	0,69	0,32
Calcium	Emission to soil	industrial	mg	842,69	363,52	274,52	126,28
Carbon	Emission to soil	industrial	mg	632,01	272,64	205,89	94,71
Chloride	Emission to soil	industrial	mg	737,35	318,08	240,21	110,50
Chromium	Emission to soil	industrial	mg	1,05	0,45	0,34	0,16
Copper	Emission to soil	industrial	µg	223,97	208,82	8,08	4,36
Fluoride	Emission to soil	industrial	mg	10,53	4,54	3,43	1,58
Glyphosate	Emission to soil	industrial	µg	647,75	308,17	112,91	139,88
Heat, waste	Emission to soil	industrial	kJ	13,51	9,37	2,84	0,80
Iron	Emission to soil	industrial	mg	421,34	181,76	137,26	63,14
Magnesium	Emission to soil	industrial	mg	168,54	72,70	54,90	25,26
Manganese	Emission to soil	industrial	mg	8,43	3,64	2,75	1,26
Oils, unspecified	Emission to soil	industrial	g	7,23	7,21	0,02	0,00
Phosphorus	Emission to soil	industrial	mg	10,53	4,54	3,43	1,58
Potassium	Emission to soil	industrial	mg	73,73	31,81	24,02	11,05

Silicon	Emission to soil	industrial	mg	21,07	9,09	6,86	3,16
Sodium	Emission to soil	industrial	mg	421,34	181,76	137,26	63,14
Strontium	Emission to soil	industrial	mg	2,11	0,91	0,69	0,32
Sulfur	Emission to soil	industrial	mg	126,40	54,53	41,18	18,94
Zinc	Emission to soil	industrial	mg	3,16	1,36	1,03	0,47

Analisi di inventario: fase di produzione batteria con celle da 100 Ah

Sostanza	Compartimento	Sottocompartimento	U.M.	Totale	Celle	BMS	Box batteria	r
Energy, gross calorific value, in biomass	Resource	biotic	MJ	27,50	9,99	10,94	4,06	
Energy, gross calorific value, in biomass, primary forest	Resource	biotic	kJ	112,00	110,47	0,89	0,39	
Peat, in ground	Resource	biotic	g	50,80	1,26	49,37	0,10	
Wood, hard, standing	Resource	biotic	cm3	705,78	176,25	338,21	118,08	
Wood, primary forest, standing	Resource	biotic	cm3	10,39	10,25	0,08	0,04	
Wood, soft, standing	Resource	biotic	l	1,87	0,71	0,71	0,28	
Wood, unspecified, standing/m3	Resource	biotic	mm3	44,67	7,56	36,15	0,59	
Carbon dioxide, in air	Resource	in air	kg	2,73	0,93	1,13	0,41	
Energy, kinetic (in wind), converted	Resource	in air	MJ	7,19	1,66	3,76	1,09	
Energy, solar, converted	Resource	in air	kJ	103,46	24,80	53,09	15,78	
Aluminium, 24% in bauxite, 11% in crude ore, in ground	Resource	in ground	g	310,67	111,96	22,26	108,90	
Anhydrite, in ground	Resource	in ground	mg	3,65	2,98	0,53	0,08	
Barite, 15% in crude ore, in ground	Resource	in ground	g	63,72	30,35	20,69	7,83	
Basalt, in ground	Resource	in ground	g	18,62	10,07	2,52	3,71	
Borax, in ground	Resource	in ground	mg	2,41	0,42	1,73	0,16	
Cadmium, 0.30% in sulfide, Cd 0.18%, Pb, Zn, Ag, In, in ground	Resource	in ground	mg	13,30	9,34	2,28	1,04	
Calcite, in ground	Resource	in ground	kg	29,62	8,62	16,93	2,52	
Carbon, in organic matter, in soil	Resource	in ground	g	1,62	1,59	0,01	0,01	
Chromium, 25.5% in chromite, 11.6% in crude ore, in ground	Resource	in ground	kg	2,67	0,08	0,06	1,56	
Chrysotile, in ground	Resource	in ground	mg	37,54	33,48	3,67	0,24	
Cinnabar, in ground	Resource	in ground	mg	3,46	3,08	0,35	0,02	
Clay, bentonite, in ground	Resource	in ground	g	103,67	30,11	7,14	40,99	
Clay, unspecified, in ground	Resource	in ground	kg	8,66	1,69	6,21	0,47	
Coal, brown, in ground	Resource	in ground	kg	18,35	4,05	9,97	2,67	
Coal, hard, unspecified, in ground	Resource	in ground	kg	30,88	10,28	6,65	8,62	
Cobalt, in ground	Resource	in ground	µg	98,09	43,16	39,71	9,39	
Colemanite, in ground	Resource	in ground	mg	259,14	132,22	110,84	9,92	
Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	kg	3,43	3,42	0,01	0,00	
Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	24,38	13,39	5,67	3,27	
Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	6,47	3,55	1,51	0,87	
Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	311,64	17,74	286,92	4,31	
Diatomite, in ground	Resource	in ground	µg	4,48	1,37	2,41	0,43	

Dolomite, in ground	Resource	in ground	g	25,78	2,81	2,45	12,67
Feldspar, in ground	Resource	in ground	µg	46,48	30,34	10,35	3,57
Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Resource	in ground	g	300,67	299,80	0,84	0,02
Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Resource	in ground	g	131,82	131,43	0,37	0,01
Fluorspar, 92%, in ground	Resource	in ground	g	910,17	903,20	6,39	0,36
Gallium, 0.014% in bauxite, in ground	Resource	in ground	ng	292,38	70,14	149,76	44,74
Gas, mine, off-gas, process, coal mining/m3	Resource	in ground	l	303,25	99,08	69,05	83,40
Gas, natural, in ground	Resource	in ground	m3	15,64	6,32	4,41	3,03
Gold, Au 1.1E-4%, Ag 4.2E-3%, in ore, in ground	Resource	in ground	mg	33,73	0,09	33,64	0,00
Gold, Au 1.3E-4%, Ag 4.6E-5%, in ore, in ground	Resource	in ground	mg	61,85	0,16	61,68	0,00
Gold, Au 1.4E-4%, in ore, in ground	Resource	in ground	mg	74,05	0,19	73,85	0,00
Gold, Au 2.1E-4%, Ag 2.1E-4%, in ore, in ground	Resource	in ground	mg	113,11	0,29	112,81	0,01
Gold, Au 4.3E-4%, in ore, in ground	Resource	in ground	mg	28,03	0,07	27,96	0,00
Gold, Au 4.9E-5%, in ore, in ground	Resource	in ground	mg	67,14	0,17	66,96	0,00
Gold, Au 6.7E-4%, in ore, in ground	Resource	in ground	mg	103,95	0,27	103,67	0,01
Gold, Au 7.1E-4%, in ore, in ground	Resource	in ground	mg	117,21	0,30	116,90	0,01
Gold, Au 9.7E-4%, Ag 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	7,02	0,02	7,00	0,00
Granite, in ground	Resource	in ground	µg	4,75	0,20	4,49	0,03
Gravel, in ground	Resource	in ground	kg	45,57	12,12	20,22	8,17
Gypsum, in ground	Resource	in ground	mg	62,27	3,41	57,02	1,13
Indium, 0.005% in sulfide, In 0.003%, Pb, Zn, Ag, Cd, in ground	Resource	in ground	µg	236,19	159,07	45,48	19,53
Iron, 46% in ore, 25% in crude ore, in ground	Resource	in ground	kg	6,20	0,52	0,36	3,29
Kaolinite, 24% in crude ore, in ground	Resource	in ground	g	4,31	3,02	1,07	0,14
Kieserite, 25% in crude ore, in ground	Resource	in ground	mg	11,28	7,55	3,00	0,45
Lead, 5.0% in sulfide, Pb 3.0%, Zn, Ag, Cd, In, in ground	Resource	in ground	g	1,26	0,32	0,81	0,08
Lithium, 0.15% in brine, in ground	Resource	in ground	g	930,08	930,08	0,00	0,00
Magnesite, 60% in crude ore, in ground	Resource	in ground	g	134,28	8,99	10,61	70,78
Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Resource	in ground	g	4,56	2,60	0,74	0,76
Metamorphous rock, graphite containing, in ground	Resource	in ground	kg	2,15	2,15	0,00	0,00
Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Resource	in ground	g	5,79	0,33	5,33	0,08
Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Resource	in ground	mg	84,93	46,67	19,77	11,41
Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Resource	in ground	g	43,03	42,93	0,08	0,01
Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Resource	in ground	mg	311,21	171,02	72,45	41,81
Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	101,39	57,67	16,80	16,62
Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Resource	in ground	g	34,58	34,34	0,24	0,00

Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Resource	in ground	kg	6,12	0,20	0,14	3,56
Oil, crude, in ground	Resource	in ground	kg	11,13	5,55	3,82	1,08
Olivine, in ground	Resource	in ground	mg	1,67	1,14	0,46	0,04
Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	30,91	23,47	4,94	1,54
Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	74,27	56,41	11,88	3,69
Phosphorus, 18% in apatite, 12% in crude ore, in ground	Resource	in ground	g	525,19	523,54	1,59	0,03
Phosphorus, 18% in apatite, 4% in crude ore, in ground	Resource	in ground	kg	1,20	1,20	0,00	0,00
Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	1,11	0,34	0,52	0,15
Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	3,97	1,24	1,88	0,53
Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	379,90	161,84	147,65	43,45
Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	1,19	0,51	0,46	0,14
Rhenium, in crude ore, in ground	Resource	in ground	ng	484,14	301,92	124,74	35,47
Sand, unspecified, in ground	Resource	in ground	g	4,00	0,20	3,76	0,02
Shale, in ground	Resource	in ground	mg	10,33	8,45	1,50	0,24
Silver, 0.007% in sulfide, Ag 0.004%, Pb, Zn, Cd, In, in ground	Resource	in ground	mg	137,33	1,94	135,31	0,05
Silver, 3.2ppm in sulfide, Ag 1.2ppm, Cu and Te, in crude ore, in ground	Resource	in ground	mg	98,47	1,38	97,03	0,04
Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, in ground	Resource	in ground	mg	9,09	0,13	8,96	0,00
Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, in ground	Resource	in ground	mg	20,76	0,29	20,46	0,01
Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, in ground	Resource	in ground	mg	20,35	0,29	20,05	0,01
Silver, Ag 9.7E-4%, Au 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	mg	13,43	0,19	13,23	0,00
Sodium chloride, in ground	Resource	in ground	kg	4,25	4,05	0,17	0,02
Sodium nitrate, in ground	Resource	in ground	µg	2,40	2,33	0,03	0,02
Sodium sulphate, various forms, in ground	Resource	in ground	g	8,44	7,88	0,46	0,06
Stibnite, in ground	Resource	in ground	ng	465,70	142,09	250,80	44,94
Sulfur, in ground	Resource	in ground	g	1,45	0,22	1,23	0,00
Sylvite, 25 % in sylvinite, in ground	Resource	in ground	g	1,64	1,30	0,32	0,01
Talc, in ground	Resource	in ground	mg	537,86	371,63	119,18	29,04
Tantalum, 81.9% in tantalite, 1.6E-4% in crude ore, in ground	Resource	in ground	mg	1,70	1,53	0,11	0,04
Tellurium, 0.5ppm in sulfide, Te 0.2ppm, Cu and Ag, in crude ore, in ground	Resource	in ground	mg	14,77	0,21	14,55	0,01
Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Resource	in ground	g	3,80	0,08	3,70	0,02
TiO2, 54% in ilmenite, 2.6% in crude ore, in ground	Resource	in ground	g	16,89	14,84	1,50	0,34
TiO2, 95% in rutile, 0.40% in crude ore, in ground	Resource	in ground	µg	673,90	666,15	6,47	0,79
Ulexite, in ground	Resource	in ground	mg	333,67	3,80	326,62	2,01
Uranium, in ground	Resource	in ground	mg	742,69	181,10	387,45	107,47
Vermiculite, in ground	Resource	in ground	mg	75,70	63,27	11,45	0,60

Volume occupied, final repository for low-active radioactive waste	Resource	in ground	cm3	1,52	0,36	0,79	0,22
Volume occupied, final repository for radioactive waste	Resource	in ground	mm3	379,97	90,10	199,22	55,94
Volume occupied, underground deposit	Resource	in ground	cm3	5,32	1,38	3,11	0,51
Zinc, 9.0% in sulfide, Zn 5.3%, Pb, Ag, Cd, In, in ground	Resource	in ground	g	14,59	8,94	3,43	1,37
Zirconium, 50% in zircon, 0.39% in crude ore, in ground	Resource	in ground	mg	2,31	2,10	0,13	0,05
Bromine, 0.0023% in water	Resource	in water	mg	1,25	0,94	0,26	0,03
Energy, potential (in hydropower reservoir), converted	Resource	in water	MJ	181,60	42,62	35,57	63,82
Iodine, 0.03% in water	Resource	in water	µg	340,44	273,73	54,68	7,42
Magnesium, 0.13% in water	Resource	in water	mg	1,01	0,47	0,33	0,13
Volume occupied, reservoir	Resource	in water	m3day	404,72	97,36	228,66	48,57
Water, cooling, unspecified natural origin/m3	Resource	in water	m3	2,05	0,69	0,95	0,26
Water, lake	Resource	in water	l	79,73	66,64	12,06	0,63
Water, river	Resource	in water	l	989,08	619,99	238,21	80,78
Water, salt, ocean	Resource	in water	l	59,46	16,12	28,19	9,35
Water, salt, sole	Resource	in water	l	8,11	4,02	2,80	0,79
Water, turbine use, unspecified natural origin	Resource	in water	m3	1903,21	441,61	279,25	729,71
Water, unspecified natural origin/m3	Resource	in water	m3	1,02	0,78	0,09	0,09
Water, well, in ground	Resource	in water	l	477,37	202,71	242,25	20,00
Occupation, arable, non-irrigated	Resource	land	cm2a	95,62	57,13	28,52	6,15
Occupation, construction site	Resource	land	m2a	1,33	1,28	0,03	0,01
Occupation, dump site	Resource	land	m2a	2,14	1,23	0,65	0,16
Occupation, dump site, benthos	Resource	land	cm2a	64,64	28,48	19,64	10,19
Occupation, forest, intensive	Resource	land	m2a	0,26	0,16	0,03	0,04
Occupation, forest, intensive, normal	Resource	land	m2a	3,20	1,44	0,64	0,69
Occupation, forest, intensive, short-cycle	Resource	land	cm2a	280,95	277,11	2,23	0,99
Occupation, industrial area	Resource	land	m2a	0,23	0,10	0,03	0,06
Occupation, industrial area, benthos	Resource	land	mm2a	58,10	25,00	17,71	9,50
Occupation, industrial area, built up	Resource	land	m2a	0,24	0,11	0,02	0,07
Occupation, industrial area, vegetation	Resource	land	cm2a	700,94	319,17	86,86	182,01
Occupation, mineral extraction site	Resource	land	m2a	1,05	0,15	0,86	0,02
Occupation, permanent crop, fruit, intensive	Resource	land	mm2a	806,57	368,73	211,18	139,89
Occupation, shrub land, sclerophyllous	Resource	land	cm2a	479,62	63,26	255,40	99,34
Occupation, traffic area, rail embankment	Resource	land	cm2a	148,48	76,31	27,96	27,29
Occupation, traffic area, rail network	Resource	land	cm2a	164,18	84,38	30,92	30,17
Occupation, traffic area, road embankment	Resource	land	cm2a	399,77	190,00	82,56	78,51

Occupation, traffic area, road network	Resource	land	m2a	0,44	0,07	0,24	0,08
Occupation, urban, discontinuously built	Resource	land	mm2a	52,42	45,51	5,22	1,04
Occupation, water bodies, artificial	Resource	land	m2a	0,11	0,02	0,07	0,02
Occupation, water courses, artificial	Resource	land	m2a	0,20	0,05	0,03	0,07
Transformation, from arable	Resource	land	mm2	153,76	51,44	27,66	46,09
Transformation, from arable, non-irrigated	Resource	land	cm2	169,02	104,92	45,74	11,34
Transformation, from arable, non-irrigated, fallow	Resource	land	mm2	37,70	13,59	2,70	13,22
Transformation, from dump site, inert material landfill	Resource	land	mm2	715,38	190,71	56,49	288,95
Transformation, from dump site, residual material landfill	Resource	land	cm2	88,55	10,68	50,42	16,94
Transformation, from dump site, sanitary landfill	Resource	land	mm2	6,60	4,38	1,50	0,44
Transformation, from dump site, slag compartment	Resource	land	mm2	1,20	0,51	0,40	0,18
Transformation, from forest	Resource	land	cm2	165,62	81,38	52,85	19,37
Transformation, from forest, extensive	Resource	land	cm2	261,01	123,94	49,64	53,96
Transformation, from forest, intensive, clear-cutting	Resource	land	cm2	10,03	9,90	0,08	0,04
Transformation, from industrial area	Resource	land	mm2	155,58	48,45	64,10	26,56
Transformation, from industrial area, benthos	Resource	land	mm2	0,45	0,18	0,12	0,09
Transformation, from industrial area, built up	Resource	land	mm2	429,38	428,13	1,21	0,03
Transformation, from industrial area, vegetation	Resource	land	mm2	732,47	730,35	2,06	0,04
Transformation, from mineral extraction site	Resource	land	cm2	358,81	56,22	297,45	3,18
Transformation, from pasture and meadow	Resource	land	cm2	211,81	68,61	83,97	36,55
Transformation, from pasture and meadow, intensive	Resource	land	mm2	12,98	8,56	2,92	0,93
Transformation, from sea and ocean	Resource	land	cm2	66,59	28,53	21,52	10,21
Transformation, from shrub land, sclerophyllous	Resource	land	cm2	107,61	15,36	52,75	24,38
Transformation, from tropical rain forest	Resource	land	cm2	10,03	9,90	0,08	0,04
Transformation, from unknown	Resource	land	cm2	599,24	159,65	361,27	48,33
Transformation, to arable	Resource	land	cm2	18,39	5,65	7,12	3,47
Transformation, to arable, non-irrigated	Resource	land	cm2	169,25	105,00	45,87	11,34
Transformation, to arable, non-irrigated, fallow	Resource	land	mm2	72,42	20,86	25,73	15,95
Transformation, to dump site	Resource	land	cm2	144,84	92,18	38,54	8,71
Transformation, to dump site, benthos	Resource	land	cm2	64,64	28,48	19,64	10,19
Transformation, to dump site, inert material landfill	Resource	land	mm2	715,38	190,71	56,49	288,95
Transformation, to dump site, residual material landfill	Resource	land	cm2	88,55	10,68	50,42	16,94
Transformation, to dump site, sanitary landfill	Resource	land	mm2	6,60	4,38	1,50	0,44
Transformation, to dump site, slag compartment	Resource	land	mm2	1,20	0,51	0,40	0,18
Transformation, to forest	Resource	land	cm2	108,37	20,75	53,94	20,78

Transformation, to forest, intensive	Resource	land	cm2	17,11	10,76	2,18	2,57
Transformation, to forest, intensive, clear-cutting	Resource	land	cm2	10,03	9,90	0,08	0,04
Transformation, to forest, intensive, normal	Resource	land	cm2	240,83	111,74	46,91	50,72
Transformation, to forest, intensive, short-cycle	Resource	land	cm2	10,03	9,90	0,08	0,04
Transformation, to heterogeneous, agricultural	Resource	land	cm2	42,94	3,23	38,19	0,93
Transformation, to industrial area	Resource	land	cm2	43,47	19,01	5,29	11,83
Transformation, to industrial area, benthos	Resource	land	mm2	194,37	4,97	187,68	1,06
Transformation, to industrial area, built up	Resource	land	cm2	59,82	31,85	5,81	13,67
Transformation, to industrial area, vegetation	Resource	land	cm2	18,28	10,26	2,07	3,68
Transformation, to mineral extraction site	Resource	land	cm2	523,47	129,84	351,40	26,07
Transformation, to pasture and meadow	Resource	land	cm2	45,30	44,74	0,32	0,14
Transformation, to permanent crop, fruit, intensive	Resource	land	mm2	11,35	5,19	2,97	1,97
Transformation, to sea and ocean	Resource	land	mm2	0,45	0,18	0,12	0,09
Transformation, to shrub land, sclerophyllous	Resource	land	cm2	95,78	12,64	51,00	19,84
Transformation, to traffic area, rail embankment	Resource	land	mm2	34,55	17,76	6,51	6,35
Transformation, to traffic area, rail network	Resource	land	mm2	37,98	19,52	7,15	6,98
Transformation, to traffic area, road embankment	Resource	land	mm2	276,72	133,70	53,33	55,36
Transformation, to traffic area, road network	Resource	land	cm2	60,51	8,40	32,15	12,32
Transformation, to unknown	Resource	land	cm2	265,99	10,34	255,05	0,38
Transformation, to urban, discontinuously built	Resource	land	mm2	1,04	0,91	0,10	0,02
Transformation, to water bodies, artificial	Resource	land	cm2	10,32	2,37	5,43	1,55
Transformation, to water courses, artificial	Resource	land	cm2	24,06	5,65	3,53	9,18
Acenaphthene	Emission to air		ng	1,09	0,02	1,07	0,00
Acetaldehyde	Emission to air		mg	16,64	2,63	10,45	2,19
Acetic acid	Emission to air		mg	107,91	98,32	5,53	2,50
Acrolein	Emission to air		ng	633,65	13,22	617,39	1,87
Aldehydes, unspecified	Emission to air		µg	4,66	0,10	4,54	0,01
Aluminium	Emission to air		g	81,14	58,16	18,83	2,56
Ammonia	Emission to air		g	32,70	23,01	7,80	1,16
Antimony	Emission to air		µg	29,36	1,83	26,80	0,45
Arsenic	Emission to air		µg	176,37	10,98	160,97	2,73
Barium	Emission to air		pg	116,93	2,36	113,04	0,94
Benzal chloride	Emission to air		pg	80,39	1,68	78,32	0,24
Benzene	Emission to air		mg	26,17	7,67	5,65	7,93
Benzene, hexachloro-	Emission to air		µg	87,80	5,89	3,45	48,42

Benzo(a)pyrene	Emission to air	mg	4,93	4,59	0,07	0,16
Beryllium	Emission to air	µg	44,05	2,74	40,20	0,68
Boron	Emission to air	pg	674,93	13,60	652,50	5,45
Bromine	Emission to air	pg	554,75	11,18	536,35	4,45
Butadiene	Emission to air	µg	12,69	0,19	12,50	0,00
Butane	Emission to air	mg	1,15	0,02	1,12	0,00
Cadmium	Emission to air	µg	381,10	31,71	117,06	143,38
Carbon dioxide, biogenic	Emission to air	g	294,74	30,88	240,29	14,55
Carbon dioxide, fossil	Emission to air	kg	26,02	3,76	15,01	4,47
Carbon disulfide	Emission to air	pg	14,91	0,31	14,53	0,04
Carbon monoxide, fossil	Emission to air	g	265,06	59,84	38,49	102,90
Chlorine	Emission to air	µg	9,16	6,75	1,17	0,77
Chloroform	Emission to air	pg	6,78	0,14	6,61	0,02
Chromium	Emission to air	mg	11,70	0,80	0,54	6,39
Chromium VI	Emission to air	µg	8,15	0,53	7,40	0,13
Cobalt	Emission to air	µg	58,81	3,66	53,68	0,91
Copper	Emission to air	mg	9,16	3,04	2,82	2,04
Cumene	Emission to air	pg	0,61	0,01	0,59	0,00
Cyanide	Emission to air	pg	287,00	5,99	279,64	0,85
Dinitrogen monoxide	Emission to air	mg	758,33	194,67	397,10	102,79
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	ng	69,36	5,20	15,91	29,78
Ethane	Emission to air	mg	1,70	0,04	1,66	0,01
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	pg	12,55	0,26	12,23	0,04
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	mg	5,53	2,86	1,74	0,58
Ethane, hexafluoro-, HFC-116	Emission to air	mg	3,38	2,52	0,40	0,29
Ethene, chloro-	Emission to air	pg	4,60	0,10	4,48	0,01
Ethene, tetrachloro-	Emission to air	ng	9,94	0,21	9,68	0,03
Ethylene oxide	Emission to air	mg	17,14	17,02	0,12	0,00
Ethyne	Emission to air	mg	12,11	11,95	0,14	0,02
Fluorine	Emission to air	µg	1,25	0,43	0,57	0,16
Formaldehyde	Emission to air	mg	56,12	20,32	22,09	8,46
Furan	Emission to air	pg	0,98	0,02	0,95	0,00
Heat, waste	Emission to air	MJ	308,52	79,79	114,13	70,73
Helium	Emission to air	pg	337,15	128,66	176,79	19,57
Hexane	Emission to air	µg	985,26	20,56	959,99	2,91

Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	mg	730,54	63,45	42,93	385,22
Hydrocarbons, aliphatic, unsaturated	Emission to air	pg	208,07	4,19	201,15	1,68
Hydrocarbons, aromatic	Emission to air	mg	346,95	22,85	21,95	186,48
Hydrocarbons, chlorinated	Emission to air	mg	1,79	1,13	0,25	0,25
Hydrogen	Emission to air	mg	6,38	5,82	0,32	0,15
Hydrogen chloride	Emission to air	mg	644,50	155,98	148,27	209,99
Hydrogen fluoride	Emission to air	mg	336,20	250,54	14,11	44,16
Hydrogen sulfide	Emission to air	mg	91,40	13,82	23,96	33,09
Iodine	Emission to air	pg	281,58	5,67	272,22	2,27
Iron	Emission to air	mg	71,42	4,49	2,75	39,61
Isoprene	Emission to air	pg	13,05	0,27	12,71	0,04
Lead	Emission to air	mg	30,26	2,41	2,65	15,55
Lead-210	Emission to air	nBq	116,93	2,36	113,04	0,94
Magnesium	Emission to air	µg	2,36	0,05	2,30	0,01
Manganese	Emission to air	mg	8,81	0,58	0,40	4,84
Mercury	Emission to air	mg	10,69	0,72	0,85	5,63
Methane, biogenic	Emission to air	g	1,60	0,37	0,83	0,24
Methane, bromo-, Halon 1001	Emission to air	pg	18,39	0,38	17,92	0,05
Methane, dichlorodifluoro-, CFC-12	Emission to air	pg	12,23	0,26	11,91	0,04
Methane, fossil	Emission to air	mg	998,40	243,51	681,16	45,50
Methane, tetrachloro-, CFC-10	Emission to air	ng	5,47	0,11	5,33	0,02
Methane, tetrafluoro-, CFC-14	Emission to air	mg	30,46	22,68	3,62	2,57
Methanol	Emission to air	mg	54,31	49,55	2,72	1,26
Molybdenum	Emission to air	ng	51,66	12,13	27,03	7,71
Nickel	Emission to air	mg	6,39	0,46	0,39	3,42
Nitrogen oxides	Emission to air	g	280,77	150,62	100,33	18,40
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	g	45,55	25,47	13,61	3,99
Ozone	Emission to air	mg	463,37	111,56	243,54	66,82
PAH, polycyclic aromatic hydrocarbons	Emission to air	mg	153,58	138,32	4,45	6,67
Particulates, < 2.5 um	Emission to air	g	12,02	3,87	4,46	2,28
Particulates, > 10 um	Emission to air	g	2,28	1,02	0,45	0,50
Particulates, > 2.5 um, and < 10um	Emission to air	g	2,60	1,09	0,36	0,72
Pentane	Emission to air	mg	1,43	0,03	1,39	0,00
Phenol	Emission to air	µg	201,47	122,84	22,18	34,84
Phosphorus	Emission to air	µg	9,62	7,16	1,14	0,81

Polonium-210	Emission to air		nBq	213,66	4,31	206,56	1,72
Polychlorinated biphenyls	Emission to air		µg	133,99	9,55	5,86	73,19
Potassium-40	Emission to air		nBq	28,76	0,58	27,80	0,23
Propanal	Emission to air		pg	43,61	0,91	42,49	0,13
Propane	Emission to air		µg	875,92	18,28	853,46	2,58
Propene	Emission to air		µg	1,03	0,02	1,01	0,00
Propionic acid	Emission to air		µg	19,88	0,41	19,37	0,06
Radium-226	Emission to air		nBq	30,18	0,61	29,18	0,24
Radium-228	Emission to air		nBq	8,94	0,18	8,64	0,07
Radon-220	Emission to air		nBq	627,64	12,65	606,79	5,07
Radon-222	Emission to air		nBq	352,51	7,10	340,80	2,85
Selenium	Emission to air		µg	49,78	7,52	37,64	2,85
Silicon	Emission to air		ng	1,33	0,51	0,70	0,08
Sodium	Emission to air		µg	2,39	1,00	0,41	0,60
Strontium	Emission to air		pg	106,61	2,15	103,07	0,86
Styrene	Emission to air		pg	2,87	0,06	2,80	0,01
Sulfate	Emission to air		µg	19,70	5,53	10,46	2,28
Sulfur dioxide	Emission to air		g	17,62	3,56	6,91	4,41
Sulfur hexafluoride	Emission to air		mg	5,91	1,44	3,73	0,45
Thallium	Emission to air		µg	190,81	11,88	174,16	2,95
Thorium-228	Emission to air		nBq	4,81	0,10	4,65	0,04
Thorium-232	Emission to air		nBq	7,57	0,15	7,31	0,06
Tin	Emission to air		µg	592,00	289,17	192,57	68,05
Titanium	Emission to air		µg	79,81	6,78	4,60	42,23
Toluene	Emission to air		mg	13,25	2,70	8,23	1,43
Uranium-238	Emission to air		nBq	25,15	0,51	24,31	0,20
Vanadium	Emission to air		µg	292,37	23,16	79,61	117,02
Water	Emission to air		g	125,50	89,37	29,75	3,94
Xylene	Emission to air		mg	8,69	2,23	4,80	1,03
Zinc	Emission to air		mg	113,92	12,91	6,59	58,27
1-Butanol	Emission to air	high. pop.	ng	36,67	29,74	6,53	0,25
1-Pentanol	Emission to air	high. pop.	ng	77,25	52,97	19,79	2,77
1-Pentene	Emission to air	high. pop.	ng	58,38	40,03	14,95	2,10
1-Propanol	Emission to air	high. pop.	µg	1,93	0,70	0,86	0,23
1,4-Butanediol	Emission to air	high. pop.	ng	776,65	698,80	56,66	13,08

2-Aminopropanol	Emission to air	high. pop.	ng	3,99	0,70	3,10	0,11
2-Butene, 2-methyl-	Emission to air	high. pop.	mg	2,95	2,95	0,00	0,00
2-Methyl-1-propanol	Emission to air	high. pop.	ng	162,04	115,52	38,49	4,96
2-Nitrobenzoic acid	Emission to air	high. pop.	ng	8,12	0,67	7,17	0,17
2-Propanol	Emission to air	high. pop.	mg	10,47	9,52	0,59	0,22
Acenaphthene	Emission to air	high. pop.	ng	120,16	29,18	61,51	18,19
Acetaldehyde	Emission to air	high. pop.	mg	22,18	6,40	10,92	3,00
Acetic acid	Emission to air	high. pop.	mg	183,39	81,84	60,29	25,46
Acetone	Emission to air	high. pop.	mg	33,61	17,58	11,06	3,07
Acrolein	Emission to air	high. pop.	µg	17,85	5,88	7,68	2,65
Acrylic acid	Emission to air	high. pop.	mg	10,15	0,02	10,13	0,00
Aldehydes, unspecified	Emission to air	high. pop.	mg	1,30	0,47	0,77	0,04
Aluminium	Emission to air	high. pop.	g	2,24	0,46	0,05	1,06
Ammonia	Emission to air	high. pop.	g	4,55	4,29	0,22	0,03
Ammonium carbonate	Emission to air	high. pop.	µg	30,00	9,50	17,28	1,98
Aniline	Emission to air	high. pop.	ng	950,99	847,59	83,26	12,43
Anthranilic acid	Emission to air	high. pop.	ng	6,28	0,50	5,57	0,13
Antimony	Emission to air	high. pop.	µg	347,96	78,02	15,25	157,19
Arsenic	Emission to air	high. pop.	mg	6,75	1,60	0,81	2,68
Arsine	Emission to air	high. pop.	ng	118,34	0,29	118,04	0,01
Barium	Emission to air	high. pop.	mg	26,33	5,46	0,63	12,49
Benzaldehyde	Emission to air	high. pop.	µg	9,31	3,07	4,01	1,38
Benzene	Emission to air	high. pop.	mg	333,06	131,09	58,83	88,34
Benzene, 1-methyl-2-nitro-	Emission to air	high. pop.	ng	7,01	0,58	6,19	0,15
Benzene, 1,2-dichloro-	Emission to air	high. pop.	ng	176,45	98,68	65,40	7,64
Benzene, ethyl-	Emission to air	high. pop.	mg	14,07	6,29	5,33	1,51
Benzene, hexachloro-	Emission to air	high. pop.	ng	441,32	246,21	70,68	76,80
Benzene, pentachloro-	Emission to air	high. pop.	µg	1,11	0,62	0,18	0,19
Benzo(a)pyrene	Emission to air	high. pop.	µg	16,28	5,42	5,98	3,01
Beryllium	Emission to air	high. pop.	µg	265,62	55,15	7,50	125,27
Boron	Emission to air	high. pop.	mg	99,29	20,67	2,43	47,02
Boron trifluoride	Emission to air	high. pop.	ng	1,62	0,00	1,62	0,00
Bromine	Emission to air	high. pop.	mg	3,02	0,72	0,55	1,08
Butadiene	Emission to air	high. pop.	ng	49,79	34,14	12,75	1,79
Butane	Emission to air	high. pop.	mg	951,79	406,73	328,20	133,84

Butene	Emission to air	high. pop.	mg	14,35	6,89	5,14	1,44
Butyrolactone	Emission to air	high. pop.	ng	162,67	147,37	9,64	3,49
Cadmium	Emission to air	high. pop.	mg	3,14	1,07	1,30	0,48
Calcium	Emission to air	high. pop.	mg	358,08	79,16	57,05	136,93
Carbon dioxide, biogenic	Emission to air	high. pop.	kg	2,07	0,75	0,86	0,28
Carbon dioxide, fossil	Emission to air	high. pop.	kg	64,60	23,18	14,72	16,48
Carbon disulfide	Emission to air	high. pop.	µg	8,52	2,88	5,35	0,18
Carbon monoxide, biogenic	Emission to air	high. pop.	mg	463,41	121,94	278,34	38,97
Carbon monoxide, fossil	Emission to air	high. pop.	g	30,26	9,09	3,23	11,08
Chloramine	Emission to air	high. pop.	ng	279,92	186,77	77,04	9,94
Chlorine	Emission to air	high. pop.	mg	243,40	188,88	41,25	8,19
Chloroacetic acid	Emission to air	high. pop.	µg	2,44	1,49	0,45	0,31
Chloroform	Emission to air	high. pop.	g	11,90	11,89	0,01	0,00
Chlorosilane, trimethyl-	Emission to air	high. pop.	µg	191,58	5,42	183,17	1,85
Chlorosulfonic acid	Emission to air	high. pop.	ng	15,49	3,72	9,82	1,20
Chromium	Emission to air	high. pop.	mg	6,83	1,71	1,09	2,49
Chromium VI	Emission to air	high. pop.	µg	607,18	128,34	26,68	279,05
Cobalt	Emission to air	high. pop.	mg	5,33	1,62	2,24	0,91
Copper	Emission to air	high. pop.	mg	36,21	26,52	4,88	2,97
Cumene	Emission to air	high. pop.	mg	16,93	12,91	2,02	1,23
Cyanide	Emission to air	high. pop.	mg	97,64	13,50	83,90	0,14
Cyanoacetic acid	Emission to air	high. pop.	ng	12,69	3,04	8,04	0,99
Diethylamine	Emission to air	high. pop.	ng	423,10	376,37	37,68	5,58
Dimethyl malonate	Emission to air	high. pop.	ng	15,91	3,82	10,09	1,24
Dinitrogen monoxide	Emission to air	high. pop.	g	2,85	1,75	0,72	0,24
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	high. pop.	ng	8,92	3,23	1,23	2,75
Dipropylamine	Emission to air	high. pop.	ng	268,11	240,12	22,31	3,50
Ethane	Emission to air	high. pop.	mg	660,32	178,43	165,99	194,96
Ethane, 1,1-difluoro-, HFC-152a	Emission to air	high. pop.	µg	37,96	9,10	19,45	5,81
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	high. pop.	g	2,86	2,86	0,00	0,00
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-, CFC-113	Emission to air	high. pop.	µg	481,81	1,17	480,60	0,03
Ethane, 1,2-dichloro-	Emission to air	high. pop.	mg	27,96	26,85	0,64	0,29
Ethane, hexafluoro-, HFC-116	Emission to air	high. pop.	mg	33,21	0,08	33,12	0,00
Ethanol	Emission to air	high. pop.	mg	42,01	12,07	20,80	5,64
Ethene	Emission to air	high. pop.	mg	687,10	171,07	28,38	300,96

Ethene, chloro-	Emission to air	high. pop.	mg	3,32	2,73	0,30	0,18
Ethene, tetrachloro-	Emission to air	high. pop.	µg	1,53	0,01	1,52	0,00
Ethyl acetate	Emission to air	high. pop.	mg	48,68	44,20	2,82	1,03
Ethyl cellulose	Emission to air	high. pop.	µg	98,33	89,44	5,58	2,04
Ethylamine	Emission to air	high. pop.	ng	140,53	64,16	70,39	3,68
Ethylene diamine	Emission to air	high. pop.	µg	1,82	1,29	0,42	0,07
Ethylene oxide	Emission to air	high. pop.	mg	13,64	1,59	12,03	0,01
Ethyne	Emission to air	high. pop.	mg	104,48	21,66	2,51	49,57
Fluorine	Emission to air	high. pop.	µg	776,48	180,17	443,47	94,33
Fluosilicic acid	Emission to air	high. pop.	mg	3,96	2,95	0,47	0,33
Formaldehyde	Emission to air	high. pop.	mg	151,96	67,87	42,88	25,43
Formamide	Emission to air	high. pop.	ng	141,28	96,87	36,19	5,07
Formic acid	Emission to air	high. pop.	µg	60,88	55,38	3,46	1,26
Heat, waste	Emission to air	high. pop.	MJ	975,02	393,06	210,62	229,18
Heptane	Emission to air	high. pop.	mg	134,93	61,10	50,54	14,37
Hexane	Emission to air	high. pop.	mg	450,39	201,19	169,72	49,06
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	high. pop.	µg	731,71	629,37	69,39	20,33
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	high. pop.	mg	254,51	91,58	58,32	64,56
Hydrocarbons, aliphatic, unsaturated	Emission to air	high. pop.	mg	154,16	33,98	29,47	55,98
Hydrocarbons, aromatic	Emission to air	high. pop.	mg	52,77	38,78	10,23	2,32
Hydrocarbons, chlorinated	Emission to air	high. pop.	mg	3,30	2,88	0,41	0,01
Hydrogen	Emission to air	high. pop.	g	1,25	1,08	0,14	0,01
Hydrogen chloride	Emission to air	high. pop.	g	12,77	5,97	0,27	4,03
Hydrogen fluoride	Emission to air	high. pop.	g	2,71	2,35	0,15	0,13
Hydrogen peroxide	Emission to air	high. pop.	µg	72,90	66,26	4,17	1,52
Hydrogen sulfide	Emission to air	high. pop.	µg	541,26	354,77	152,92	20,71
Iodine	Emission to air	high. pop.	mg	2,38	0,49	0,06	1,13
Iron	Emission to air	high. pop.	mg	942,29	198,88	30,19	440,18
Isocyanic acid	Emission to air	high. pop.	µg	655,64	184,83	301,64	104,41
Isopropylamine	Emission to air	high. pop.	ng	25,61	5,73	19,14	0,45
Lactic acid	Emission to air	high. pop.	ng	210,02	188,10	17,48	2,74
Lead	Emission to air	high. pop.	mg	23,16	5,89	3,70	8,37
Lead-210	Emission to air	high. pop.	Bq	9,71	2,01	0,23	4,61
m-Xylene	Emission to air	high. pop.	mg	1,75	0,43	0,96	0,23
Magnesium	Emission to air	high. pop.	mg	797,47	165,63	21,90	376,43

Manganese	Emission to air	high. pop.	mg	7,74	1,71	1,80	2,61
Mercury	Emission to air	high. pop.	mg	1,59	0,97	0,14	0,30
Methane, biogenic	Emission to air	high. pop.	mg	77,26	55,16	17,75	2,69
Methane, bromotrifluoro-, Halon 1301	Emission to air	high. pop.	pg	213,08	65,01	114,75	20,56
Methane, chlorodifluoro-, HCFC-22	Emission to air	high. pop.	g	40,53	40,51	0,02	0,00
Methane, dichloro-, HCC-30	Emission to air	high. pop.	mg	354,82	354,59	0,23	0,00
Methane, dichlorodifluoro-, CFC-12	Emission to air	high. pop.	mg	940,81	940,44	0,36	0,00
Methane, dichlorofluoro-, HCFC-21	Emission to air	high. pop.	mg	8,13	8,13	0,00	0,00
Methane, fossil	Emission to air	high. pop.	g	19,30	10,09	6,64	1,59
Methane, monochloro-, R-40	Emission to air	high. pop.	µg	3,40	0,08	3,27	0,03
Methane, tetrachloro-, CFC-10	Emission to air	high. pop.	g	1,19	1,18	0,00	0,00
Methane, tetrafluoro-, CFC-14	Emission to air	high. pop.	µg	1,95	0,47	1,00	0,30
Methane, trichlorofluoro-, CFC-11	Emission to air	high. pop.	mg	13,20	13,19	0,00	0,00
Methane, trifluoro-, HFC-23	Emission to air	high. pop.	g	2,59	2,59	0,00	0,00
Methanesulfonic acid	Emission to air	high. pop.	ng	12,82	3,08	8,13	1,00
Methanol	Emission to air	high. pop.	g	3,79	3,67	0,12	0,01
Methyl acetate	Emission to air	high. pop.	ng	1,88	0,16	1,66	0,04
Methyl acrylate	Emission to air	high. pop.	mg	11,52	0,03	11,49	0,00
Methyl amine	Emission to air	high. pop.	ng	172,72	161,37	8,15	1,97
Methyl borate	Emission to air	high. pop.	ng	36,05	19,66	14,71	1,03
Methyl ethyl ketone	Emission to air	high. pop.	mg	48,68	44,20	2,82	1,03
Methyl formate	Emission to air	high. pop.	ng	156,53	134,03	16,32	3,81
Methyl lactate	Emission to air	high. pop.	ng	230,57	206,50	19,19	3,01
Molybdenum	Emission to air	high. pop.	mg	2,71	0,79	0,83	0,68
Monoethanolamine	Emission to air	high. pop.	mg	535,10	447,65	87,29	0,09
Nickel	Emission to air	high. pop.	mg	68,77	21,95	30,92	9,81
Nitrate	Emission to air	high. pop.	mg	3,65	2,62	0,85	0,12
Nitrobenzene	Emission to air	high. pop.	µg	1,28	1,13	0,12	0,02
Nitrogen oxides	Emission to air	high. pop.	g	96,75	33,36	20,06	26,74
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	high. pop.	g	5,86	2,77	2,09	0,61
Ozone	Emission to air	high. pop.	mg	2,59	2,17	0,39	0,02
PAH, polycyclic aromatic hydrocarbons	Emission to air	high. pop.	mg	4,96	2,09	1,33	0,95
Particulates, < 2.5 um	Emission to air	high. pop.	g	9,81	2,90	2,66	2,63
Particulates, > 10 um	Emission to air	high. pop.	g	4,34	1,31	0,84	1,35
Particulates, > 2.5 um, and < 10um	Emission to air	high. pop.	g	5,84	1,54	0,65	2,25

Pentane	Emission to air	high. pop.	g	1,37	0,59	0,44	0,21
Phenol	Emission to air	high. pop.	mg	1,93	1,35	0,26	0,20
Phenol, 2,4-dichloro-	Emission to air	high. pop.	ng	117,74	104,05	12,82	0,54
Phenol, pentachloro-	Emission to air	high. pop.	ng	239,50	96,52	84,12	36,33
Phosphine	Emission to air	high. pop.	µg	8,78	0,02	8,75	0,00
Phosphorus	Emission to air	high. pop.	mg	17,90	3,89	2,92	6,84
Platinum	Emission to air	high. pop.	ng	1,05	0,31	0,61	0,08
Polonium-210	Emission to air	high. pop.	Bq	17,76	3,68	0,42	8,43
Polychlorinated biphenyls	Emission to air	high. pop.	ng	2,67	0,90	1,74	0,02
Potassium	Emission to air	high. pop.	mg	605,70	138,35	193,62	168,94
Potassium-40	Emission to air	high. pop.	Bq	2,82	0,58	0,07	1,34
Propanal	Emission to air	high. pop.	µg	10,72	3,78	4,50	1,51
Propane	Emission to air	high. pop.	mg	952,64	357,14	286,07	190,98
Propene	Emission to air	high. pop.	mg	201,46	86,46	29,14	52,99
Propionic acid	Emission to air	high. pop.	mg	8,78	3,47	2,36	1,82
Propylamine	Emission to air	high. pop.	ng	44,74	30,68	11,46	1,61
Propylene oxide	Emission to air	high. pop.	µg	817,75	377,23	371,02	42,89
Radioactive species, other beta emitters	Emission to air	high. pop.	Bq	7,19	2,19	3,87	0,69
Radium-226	Emission to air	high. pop.	Bq	2,51	0,52	0,06	1,19
Radium-228	Emission to air	high. pop.	Bq	13,58	2,81	0,32	6,44
Radon-220	Emission to air	high. pop.	mBq	209,09	43,30	5,17	99,13
Radon-222	Emission to air	high. pop.	mBq	209,01	43,30	5,09	99,13
Scandium	Emission to air	high. pop.	µg	263,21	54,55	6,29	124,90
Selenium	Emission to air	high. pop.	mg	3,26	0,86	0,63	1,09
Silicon	Emission to air	high. pop.	g	3,31	0,69	0,08	1,57
Silver	Emission to air	high. pop.	µg	6,10	1,47	3,12	0,93
Sodium	Emission to air	high. pop.	mg	226,09	58,89	47,52	73,86
Sodium chlorate	Emission to air	high. pop.	µg	350,59	315,29	27,42	4,86
Sodium dichromate	Emission to air	high. pop.	µg	146,84	42,53	87,34	10,48
Sodium formate	Emission to air	high. pop.	µg	56,28	35,39	6,59	8,83
Sodium hydroxide	Emission to air	high. pop.	µg	271,76	247,11	15,48	5,66
Strontium	Emission to air	high. pop.	mg	39,69	8,23	0,95	18,83
Styrene	Emission to air	high. pop.	µg	326,83	158,17	59,46	67,39
Sulfate	Emission to air	high. pop.	g	48,85	48,24	0,52	0,06
Sulfur dioxide	Emission to air	high. pop.	g	311,35	187,75	31,33	56,95

Sulfur trioxide	Emission to air	high. pop.	µg	10,20	9,10	0,88	0,14
Sulfuric acid	Emission to air	high. pop.	µg	56,92	51,72	3,27	1,19
t-Butyl methyl ether	Emission to air	high. pop.	µg	87,75	29,20	40,14	11,36
t-Butylamine	Emission to air	high. pop.	ng	35,19	8,49	24,86	1,13
Thallium	Emission to air	high. pop.	µg	330,19	68,47	7,92	156,64
Thorium	Emission to air	high. pop.	µg	396,91	82,26	9,49	188,34
Thorium-228	Emission to air	high. pop.	Bq	1,15	0,24	0,03	0,55
Thorium-232	Emission to air	high. pop.	mBq	731,16	151,53	17,48	346,94
Tin	Emission to air	high. pop.	µg	151,29	37,37	9,28	64,58
Titanium	Emission to air	high. pop.	mg	79,29	16,47	1,92	37,58
Toluene	Emission to air	high. pop.	mg	177,62	74,92	47,05	34,35
Toluene, 2-chloro-	Emission to air	high. pop.	ng	384,78	335,04	41,37	5,16
Trimethylamine	Emission to air	high. pop.	ng	3,89	0,29	3,48	0,07
Uranium	Emission to air	high. pop.	µg	528,52	109,54	12,64	250,79
Uranium-238	Emission to air	high. pop.	Bq	2,09	0,43	0,05	0,99
Vanadium	Emission to air	high. pop.	mg	249,92	77,02	117,98	33,89
Water	Emission to air	high. pop.	mg	22,88	0,17	22,59	0,07
Xylene	Emission to air	high. pop.	mg	77,06	30,38	21,15	15,75
Zinc	Emission to air	high. pop.	mg	34,73	25,66	6,04	1,87
Acenaphthene	Emission to air	low. pop.	ng	39,41	0,94	37,73	0,46
Acetaldehyde	Emission to air	low. pop.	mg	3,97	3,91	0,03	0,01
Acetic acid	Emission to air	low. pop.	mg	26,07	25,71	0,21	0,09
Acetone	Emission to air	low. pop.	mg	128,20	124,87	2,25	0,66
Acetonitrile	Emission to air	low. pop.	mg	1,09	1,08	0,01	0,00
Acrolein	Emission to air	low. pop.	µg	175,44	149,52	24,20	1,06
Actinides, radioactive, unspecified	Emission to air	low. pop.	mBq	159,95	3,83	153,12	1,85
Aerosols, radioactive, unspecified	Emission to air	low. pop.	mBq	320,02	72,92	170,89	47,03
Aldehydes, unspecified	Emission to air	low. pop.	µg	660,93	142,16	378,60	86,51
Aluminium	Emission to air	low. pop.	mg	78,10	43,24	2,49	19,98
Ammonia	Emission to air	low. pop.	mg	371,66	159,46	92,41	73,93
Antimony	Emission to air	low. pop.	mg	350,74	308,16	42,02	0,35
Antimony-124	Emission to air	low. pop.	µBq	2,65	0,95	1,30	0,25
Antimony-125	Emission to air	low. pop.	µBq	27,64	9,87	13,59	2,58
Argon-41	Emission to air	low. pop.	Bq	157,78	37,20	80,56	24,71
Arsenic	Emission to air	low. pop.	g	2,55	2,47	0,03	0,03

Barium	Emission to air	low. pop.	mg	7,18	1,59	3,65	1,20
Barium-140	Emission to air	low. pop.	mBq	1,80	0,64	0,88	0,17
Benzene	Emission to air	low. pop.	g	3,27	3,11	0,10	0,04
Benzene, ethyl-	Emission to air	low. pop.	µg	7,27	0,17	6,96	0,08
Benzo(a)pyrene	Emission to air	low. pop.	mg	23,01	22,30	0,42	0,18
Beryllium	Emission to air	low. pop.	mg	1,28	0,37	0,82	0,06
Boron	Emission to air	low. pop.	mg	477,29	106,12	259,89	68,68
Bromine	Emission to air	low. pop.	mg	52,24	11,51	28,60	7,49
Butadiene	Emission to air	low. pop.	ng	895,14	13,27	881,32	0,34
Butane	Emission to air	low. pop.	mg	136,51	53,67	40,20	26,32
Cadmium	Emission to air	low. pop.	mg	869,65	863,74	4,61	0,80
Calcium	Emission to air	low. pop.	mg	32,95	28,52	0,56	2,39
Carbon-14	Emission to air	low. pop.	Bq	1311,83	315,77	684,86	192,07
Carbon dioxide, biogenic	Emission to air	low. pop.	g	249,64	58,22	138,41	32,72
Carbon dioxide, fossil	Emission to air	low. pop.	kg	41,03	12,00	19,40	5,94
Carbon dioxide, land transformation	Emission to air	low. pop.	g	34,68	16,19	17,55	0,58
Carbon disulfide	Emission to air	low. pop.	g	31,88	30,40	1,39	0,05
Carbon monoxide, biogenic	Emission to air	low. pop.	g	2,29	0,34	1,91	0,03
Carbon monoxide, fossil	Emission to air	low. pop.	g	88,37	65,22	10,94	7,53
Cerium-141	Emission to air	low. pop.	µBq	435,89	155,67	214,36	40,65
Cesium-134	Emission to air	low. pop.	µBq	20,88	7,46	10,27	1,95
Cesium-137	Emission to air	low. pop.	µBq	370,07	132,16	181,99	34,51
Chlorine	Emission to air	low. pop.	µg	202,92	42,30	119,57	25,34
Chloroform	Emission to air	low. pop.	µg	7,58	0,18	7,25	0,09
Chromium	Emission to air	low. pop.	g	9,22	0,31	0,22	5,36
Chromium-51	Emission to air	low. pop.	µBq	27,93	9,98	13,74	2,60
Chromium VI	Emission to air	low. pop.	mg	229,93	7,31	5,43	134,05
Cobalt	Emission to air	low. pop.	mg	141,15	36,53	4,26	61,94
Cobalt-58	Emission to air	low. pop.	µBq	38,90	13,89	19,13	3,63
Cobalt-60	Emission to air	low. pop.	µBq	343,61	122,71	168,98	32,04
Copper	Emission to air	low. pop.	g	7,25	6,82	0,10	0,21
Cumene	Emission to air	low. pop.	ng	420,87	10,06	402,92	4,87
Cyanide	Emission to air	low. pop.	mg	113,21	14,39	2,75	59,29
Dinitrogen monoxide	Emission to air	low. pop.	mg	691,63	178,51	354,99	97,59
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	low. pop.	ng	49,19	8,09	4,10	22,84

Ethane	Emission to air	low. pop.	g	3,45	1,80	0,79	0,52
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	low. pop.	µg	1,55	0,04	1,48	0,02
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	low. pop.	µg	32,28	7,75	17,21	4,52
Ethane, 1,2-dichloro-	Emission to air	low. pop.	µg	3,09	0,07	2,96	0,04
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Emission to air	low. pop.	µg	555,64	135,41	293,64	78,12
Ethanol	Emission to air	low. pop.	µg	389,73	262,37	89,10	23,61
Ethene	Emission to air	low. pop.	mg	142,49	24,45	28,82	55,07
Ethene, tetrachloro-	Emission to air	low. pop.	µg	3,32	0,08	3,18	0,04
Ethylene oxide	Emission to air	low. pop.	µg	8,65	0,13	8,52	0,00
Ethyne	Emission to air	low. pop.	mg	5,81	2,70	0,22	1,79
Fluorine	Emission to air	low. pop.	mg	172,17	133,06	6,86	19,90
Formaldehyde	Emission to air	low. pop.	mg	27,89	12,14	10,42	3,29
Formic acid	Emission to air	low. pop.	mg	7,30	7,20	0,06	0,03
Furan	Emission to air	low. pop.	mg	2,07	2,04	0,02	0,01
Heat, waste	Emission to air	low. pop.	MJ	725,08	171,15	290,39	162,65
Helium	Emission to air	low. pop.	mg	37,89	16,01	15,15	4,16
Hexane	Emission to air	low. pop.	mg	12,69	3,03	6,66	1,85
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	low. pop.	µg	44,77	1,07	42,86	0,52
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	low. pop.	mg	213,06	73,70	75,72	39,28
Hydrocarbons, aliphatic, unsaturated	Emission to air	low. pop.	mg	72,61	16,09	37,30	11,86
Hydrocarbons, aromatic	Emission to air	low. pop.	mg	74,51	30,09	19,86	15,16
Hydrocarbons, chlorinated	Emission to air	low. pop.	µg	15,69	0,38	15,02	0,18
Hydrogen-3, Tritium	Emission to air	low. pop.	Bq	7501,14	1748,64	3953,69	1110,18
Hydrogen chloride	Emission to air	low. pop.	g	3,17	0,69	1,75	0,45
Hydrogen fluoride	Emission to air	low. pop.	mg	900,89	372,83	370,27	97,39
Hydrogen sulfide	Emission to air	low. pop.	mg	435,81	143,44	97,46	120,30
Iodine	Emission to air	low. pop.	mg	28,19	6,18	15,48	4,03
Iodine-129	Emission to air	low. pop.	Bq	1,31	0,31	0,68	0,19
Iodine-131	Emission to air	low. pop.	Bq	62,30	14,64	31,82	9,78
Iodine-133	Emission to air	low. pop.	mBq	23,17	1,21	21,28	0,42
Iodine-135	Emission to air	low. pop.	mBq	45,60	0,95	43,86	0,49
Iron	Emission to air	low. pop.	mg	72,95	3,20	2,26	41,65
Isoprene	Emission to air	low. pop.	µg	96,14	94,83	0,76	0,34
Krypton-85	Emission to air	low. pop.	Bq	494,47	116,72	252,43	77,34
Krypton-85m	Emission to air	low. pop.	Bq	33,78	11,10	16,76	3,65

Krypton-87	Emission to air	low. pop.	Bq	11,74	3,46	5,89	1,48
Krypton-88	Emission to air	low. pop.	Bq	12,29	3,82	6,13	1,45
Krypton-89	Emission to air	low. pop.	Bq	3,63	1,25	1,79	0,36
Lanthanum-140	Emission to air	low. pop.	µBq	153,67	54,88	75,57	14,33
Lead	Emission to air	low. pop.	g	6,51	6,17	0,07	0,16
Lead-210	Emission to air	low. pop.	Bq	15,97	10,41	3,89	1,03
Magnesium	Emission to air	low. pop.	mg	38,61	25,13	1,78	7,22
Manganese	Emission to air	low. pop.	mg	960,33	874,97	51,29	21,02
Manganese-54	Emission to air	low. pop.	µBq	14,30	5,11	7,03	1,33
Mercury	Emission to air	low. pop.	mg	17,53	5,37	11,77	0,24
Methane, biogenic	Emission to air	low. pop.	g	1,87	0,49	1,22	0,10
Methane, bromochlorodifluoro-, Halon 1211	Emission to air	low. pop.	µg	740,64	290,17	204,35	151,89
Methane, bromotrifluoro-, Halon 1301	Emission to air	low. pop.	µg	411,00	197,24	146,81	41,32
Methane, chlorodifluoro-, HCFC-22	Emission to air	low. pop.	mg	12,12	10,33	0,87	0,57
Methane, dichloro-, HCC-30	Emission to air	low. pop.	µg	22,42	0,54	21,46	0,26
Methane, dichlorodifluoro-, CFC-12	Emission to air	low. pop.	µg	2,55	1,03	0,68	0,52
Methane, fossil	Emission to air	low. pop.	g	277,46	102,38	69,62	65,09
Methane, monochloro-, R-40	Emission to air	low. pop.	µg	40,94	0,98	39,19	0,47
Methanol	Emission to air	low. pop.	mg	81,16	37,10	42,55	0,93
Molybdenum	Emission to air	low. pop.	µg	438,40	91,68	244,05	63,37
Nickel	Emission to air	low. pop.	g	5,01	4,85	0,04	0,07
Niobium-95	Emission to air	low. pop.	µBq	1,70	0,61	0,84	0,16
Nitrate	Emission to air	low. pop.	mg	1,80	0,43	0,95	0,26
Nitrogen oxides	Emission to air	low. pop.	g	114,11	27,49	44,86	25,77
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	low. pop.	g	59,17	39,60	8,99	6,53
Noble gases, radioactive, unspecified	Emission to air	low. pop.	kBq	12547,10	2956,41	6566,88	1866,20
Ozone	Emission to air	low. pop.	mg	2,94	0,01	2,93	0,00
PAH, polycyclic aromatic hydrocarbons	Emission to air	low. pop.	mg	7,99	6,93	0,54	0,33
Particulates, < 2.5 um	Emission to air	low. pop.	g	190,06	85,91	13,06	56,22
Particulates, > 10 um	Emission to air	low. pop.	g	133,87	51,05	21,99	37,54
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop.	g	147,23	74,33	7,58	40,32
Pentane	Emission to air	low. pop.	mg	47,12	10,75	25,25	6,86
Phenol	Emission to air	low. pop.	mg	2,82	1,54	0,38	0,56
Phenol, pentachloro-	Emission to air	low. pop.	mg	10,08	9,82	0,18	0,05
Phosphorus	Emission to air	low. pop.	µg	414,59	164,35	45,50	126,36

Platinum	Emission to air	low. pop.	ng	17,74	4,15	9,22	2,70
Plutonium-238	Emission to air	low. pop.	nBq	178,11	41,97	93,22	26,49
Plutonium-alpha	Emission to air	low. pop.	nBq	408,30	96,21	213,69	60,73
Polonium-210	Emission to air	low. pop.	Bq	22,24	12,48	6,82	1,82
Potassium	Emission to air	low. pop.	mg	4,66	0,49	0,34	2,37
Potassium-40	Emission to air	low. pop.	Bq	1,75	0,47	0,90	0,23
Propane	Emission to air	low. pop.	mg	773,03	306,49	210,57	157,97
Propene	Emission to air	low. pop.	mg	20,13	9,88	3,21	4,34
Protactinium-234	Emission to air	low. pop.	mBq	189,92	43,31	103,85	26,39
Radioactive species, other beta emitters	Emission to air	low. pop.	mBq	7,29	1,73	3,72	1,14
Radium-226	Emission to air	low. pop.	Bq	25,87	19,98	4,09	1,11
Radium-228	Emission to air	low. pop.	mBq	610,96	135,65	333,57	87,47
Radon-220	Emission to air	low. pop.	Bq	73,38	16,67	39,60	10,56
Radon-222	Emission to air	low. pop.	kBq	569,57	145,04	292,67	81,38
Ruthenium-103	Emission to air	low. pop.	nBq	373,07	133,23	183,46	34,79
Scandium	Emission to air	low. pop.	µg	12,82	1,73	2,63	5,22
Selenium	Emission to air	low. pop.	mg	274,93	247,86	25,77	0,81
Silicon	Emission to air	low. pop.	mg	76,69	15,96	11,28	30,52
Silicon tetrafluoride	Emission to air	low. pop.	mg	9,09	9,07	0,03	0,00
Silver	Emission to air	low. pop.	µg	3,85	3,81	0,03	0,00
Silver-110	Emission to air	low. pop.	µBq	3,70	1,32	1,82	0,34
Sodium	Emission to air	low. pop.	mg	2,51	0,26	0,28	1,21
Strontium	Emission to air	low. pop.	mg	7,01	1,50	3,59	1,18
Styrene	Emission to air	low. pop.	µg	130,32	125,06	4,13	0,69
Sulfate	Emission to air	low. pop.	mg	13,62	3,25	7,15	1,99
Sulfur dioxide	Emission to air	low. pop.	kg	1,38	1,22	0,11	0,03
Sulfur hexafluoride	Emission to air	low. pop.	µg	86,47	2,13	83,47	0,53
Sulfuric acid	Emission to air	low. pop.	ng	37,69	9,04	19,30	5,77
Terpenes	Emission to air	low. pop.	µg	909,06	896,66	7,23	3,19
Thallium	Emission to air	low. pop.	µg	6,68	4,53	0,21	1,20
Thorium	Emission to air	low. pop.	µg	8,78	0,76	0,51	4,63
Thorium-228	Emission to air	low. pop.	mBq	358,23	101,19	180,72	47,10
Thorium-230	Emission to air	low. pop.	Bq	17,30	16,73	0,41	0,10
Thorium-232	Emission to air	low. pop.	mBq	770,57	369,55	281,20	73,95
Thorium-234	Emission to air	low. pop.	mBq	189,96	43,32	103,87	26,40

Tin	Emission to air	low. pop.	mg	367,61	309,92	3,93	33,17
Titanium	Emission to air	low. pop.	mg	1,35	0,12	0,08	0,71
Toluene	Emission to air	low. pop.	mg	57,40	21,95	20,54	9,20
Tungsten	Emission to air	low. pop.	ng	540,73	129,24	283,75	78,84
Uranium	Emission to air	low. pop.	µg	4,47	0,39	0,26	2,36
Uranium-234	Emission to air	low. pop.	Bq	18,74	17,07	1,17	0,31
Uranium-235	Emission to air	low. pop.	mBq	102,14	24,41	53,60	14,89
Uranium-238	Emission to air	low. pop.	Bq	20,09	17,45	1,85	0,49
Uranium alpha	Emission to air	low. pop.	Bq	9,84	2,35	5,16	1,43
Vanadium	Emission to air	low. pop.	mg	20,78	18,94	1,28	0,34
Water	Emission to air	low. pop.	mg	58,73	0,87	57,82	0,02
Xenon-131m	Emission to air	low. pop.	Bq	55,41	16,70	27,73	6,78
Xenon-133	Emission to air	low. pop.	Bq	1820,43	562,93	908,72	215,26
Xenon-133m	Emission to air	low. pop.	Bq	6,36	1,62	3,23	0,93
Xenon-135	Emission to air	low. pop.	Bq	741,99	228,40	370,55	88,28
Xenon-135m	Emission to air	low. pop.	Bq	444,69	138,60	221,81	52,01
Xenon-137	Emission to air	low. pop.	Bq	9,94	3,42	4,91	1,00
Xenon-138	Emission to air	low. pop.	Bq	83,00	27,56	41,14	8,82
Xylene	Emission to air	low. pop.	mg	303,54	70,31	159,78	45,33
Zinc	Emission to air	low. pop.	g	2,85	1,93	0,08	0,52
Zinc-65	Emission to air	low. pop.	µBq	71,42	25,51	35,12	6,66
Zirconium	Emission to air	low. pop.	µg	108,21	9,42	6,31	57,08
Zirconium-95	Emission to air	low. pop.	µBq	69,81	24,93	34,33	6,51
Aluminium	Emission to air	low. pop., long-term	mg	610,83	145,99	320,53	89,06
Antimony	Emission to air	low. pop., long-term	µg	55,07	13,16	28,90	8,03
Arsenic	Emission to air	low. pop., long-term	mg	3,24	0,77	1,70	0,47
Barium	Emission to air	low. pop., long-term	mg	3,54	0,85	1,86	0,52
Beryllium	Emission to air	low. pop., long-term	µg	77,10	18,43	40,46	11,24
Boron	Emission to air	low. pop., long-term	mg	1,03	0,25	0,54	0,15
Cadmium	Emission to air	low. pop., long-term	µg	83,45	19,94	43,79	12,17
Calcium	Emission to air	low. pop., long-term	mg	198,60	47,47	104,22	28,96
Chlorine	Emission to air	low. pop., long-term	mg	7,58	1,81	3,98	1,10
Chromium VI	Emission to air	low. pop., long-term	µg	393,87	94,14	206,68	57,43
Cobalt	Emission to air	low. pop., long-term	µg	490,67	117,27	257,48	71,54
Copper	Emission to air	low. pop., long-term	mg	5,17	1,24	2,71	0,75

Fluorine	Emission to air	low. pop., long-term	mg	37,22	8,90	19,53	5,43
Iron	Emission to air	low. pop., long-term	mg	664,24	158,75	348,56	96,85
Lead	Emission to air	low. pop., long-term	mg	5,47	1,31	2,87	0,80
Magnesium	Emission to air	low. pop., long-term	mg	60,92	14,56	31,97	8,88
Manganese	Emission to air	low. pop., long-term	mg	13,74	3,28	7,21	2,00
Mercury	Emission to air	low. pop., long-term	µg	42,06	10,05	22,07	6,13
Molybdenum	Emission to air	low. pop., long-term	mg	1,06	0,25	0,56	0,16
Nickel	Emission to air	low. pop., long-term	mg	1,12	0,27	0,59	0,16
Nitrate	Emission to air	low. pop., long-term	mg	5,24	1,25	2,75	0,76
Particulates, < 2.5 um	Emission to air	low. pop., long-term	mg	487,33	116,47	255,73	71,06
Particulates, > 10 um	Emission to air	low. pop., long-term	g	1,22	0,29	0,64	0,18
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop., long-term	mg	730,99	174,71	383,59	106,58
Phosphorus	Emission to air	low. pop., long-term	mg	1,03	0,25	0,54	0,15
Potassium	Emission to air	low. pop., long-term	mg	104,48	24,97	54,82	15,23
Radon-222	Emission to air	low. pop., long-term	kBq	23365,08	5584,34	12260,79	3406,75
Scandium	Emission to air	low. pop., long-term	mg	2,19	0,52	1,15	0,32
Selenium	Emission to air	low. pop., long-term	µg	305,41	73,00	160,27	44,53
Silicon	Emission to air	low. pop., long-term	mg	136,02	32,51	71,38	19,83
Silver	Emission to air	low. pop., long-term	µg	91,46	21,86	47,99	13,33
Sodium	Emission to air	low. pop., long-term	mg	35,88	8,58	18,83	5,23
Strontium	Emission to air	low. pop., long-term	mg	2,22	0,53	1,16	0,32
Sulfate	Emission to air	low. pop., long-term	mg	562,43	134,42	295,13	82,01
Tin	Emission to air	low. pop., long-term	µg	127,34	30,43	66,82	18,57
Titanium	Emission to air	low. pop., long-term	mg	39,89	9,53	20,93	5,82
Tungsten	Emission to air	low. pop., long-term	µg	247,00	59,03	129,61	36,01
Vanadium	Emission to air	low. pop., long-term	mg	3,79	0,91	1,99	0,55
Zinc	Emission to air	low. pop., long-term	mg	3,92	0,94	2,06	0,57
Benzene	Emission to air	stratosphere + troposphere	µg	5,74	0,09	5,65	0,00
Butadiene	Emission to air	stratosphere + troposphere	µg	5,44	0,08	5,36	0,00
Cadmium	Emission to air	stratosphere + troposphere	ng	2,88	0,04	2,83	0,00
Carbon dioxide, fossil	Emission to air	stratosphere + troposphere	mg	906,68	13,44	892,67	0,35
Carbon monoxide, fossil	Emission to air	stratosphere + troposphere	mg	1,06	0,02	1,05	0,00
Chromium	Emission to air	stratosphere + troposphere	ng	14,39	0,21	14,17	0,01
Copper	Emission to air	stratosphere + troposphere	ng	489,30	7,25	481,75	0,19
Dinitrogen monoxide	Emission to air	stratosphere + troposphere	µg	8,64	0,13	8,50	0,00

Ethylene oxide	Emission to air	stratosphere + troposphere	µg	52,59	0,78	51,77	0,02
Formaldehyde	Emission to air	stratosphere + troposphere	µg	45,34	0,67	44,64	0,02
Heat, waste	Emission to air	stratosphere + troposphere	kJ	13,13	0,19	12,92	0,01
Hydrogen chloride	Emission to air	stratosphere + troposphere	ng	247,54	3,67	243,71	0,10
Lead	Emission to air	stratosphere + troposphere	ng	5,76	0,09	5,67	0,00
Mercury	Emission to air	stratosphere + troposphere	pg	20,15	0,30	19,84	0,01
Methane, fossil	Emission to air	stratosphere + troposphere	µg	14,39	0,21	14,17	0,01
Nickel	Emission to air	stratosphere + troposphere	ng	20,15	0,30	19,84	0,01
Nitrogen oxides	Emission to air	stratosphere + troposphere	mg	4,03	0,06	3,97	0,00
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	stratosphere + troposphere	µg	193,12	2,86	190,14	0,07
Particulates, < 2.5 um	Emission to air	stratosphere + troposphere	µg	10,94	0,16	10,77	0,00
Selenium	Emission to air	stratosphere + troposphere	ng	2,88	0,04	2,83	0,00
Sulfur dioxide	Emission to air	stratosphere + troposphere	µg	287,83	4,27	283,39	0,11
Water	Emission to air	stratosphere + troposphere	mg	356,90	5,29	351,39	0,14
Zinc	Emission to air	stratosphere + troposphere	ng	287,83	4,27	283,39	0,11
4-Methyl-2-pentanone	Emission to water		ng	477,07	9,96	464,83	1,41
Acetone	Emission to water		µg	1,14	0,02	1,11	0,00
Acidity, unspecified	Emission to water		µg	23,93	0,50	23,31	0,07
Aluminium	Emission to water		mg	4,21	0,27	2,47	0,91
Ammonium, ion	Emission to water		mg	1,40	0,03	1,37	0,00
Antimony	Emission to water		µg	1,28	0,03	1,25	0,00
AOX, Adsorbable Organic Halogen as Cl	Emission to water		µg	68,04	21,52	44,21	1,42
Arsenic, ion	Emission to water		µg	494,15	40,12	51,42	248,48
Barium	Emission to water		mg	32,39	0,68	31,56	0,10
Benzene	Emission to water		µg	190,83	3,98	185,93	0,56
Benzene, ethyl-	Emission to water		µg	10,73	0,22	10,45	0,03
Beryllium	Emission to water		µg	1,14	0,02	1,11	0,00
BOD5, Biological Oxygen Demand	Emission to water		g	1,24	0,11	0,12	0,62
Boron	Emission to water		µg	357,27	7,46	348,10	1,05
Bromine	Emission to water		mg	24,39	0,51	23,77	0,07
Cadmium, ion	Emission to water		mg	2,15	0,16	0,13	1,15
Calcium, ion	Emission to water		mg	365,87	7,64	356,49	1,08
Chloride	Emission to water		g	4,33	0,17	4,07	0,05
Chromium VI	Emission to water		µg	805,10	62,58	47,10	429,19
Chromium, ion	Emission to water		mg	6,13	0,43	0,43	3,26

Cobalt	Emission to water	µg	2,52	0,05	2,46	0,01
COD, Chemical Oxygen Demand	Emission to water	g	1,27	0,12	0,14	0,62
Copper, ion	Emission to water	mg	5,91	0,57	0,44	3,02
Cyanide	Emission to water	mg	4,69	0,40	0,27	2,48
DOC, Dissolved Organic Carbon	Emission to water	mg	200,40	22,33	27,00	93,24
Fluoride	Emission to water	g	5,60	5,59	0,02	0,00
Formaldehyde	Emission to water	mg	6,80	2,15	4,42	0,14
Heat, waste	Emission to water	kJ	87,18	50,98	27,78	5,20
Hydrocarbons, unspecified	Emission to water	mg	21,13	1,44	1,27	11,37
Iron, ion	Emission to water	g	116,45	116,33	0,03	0,05
Lead	Emission to water	mg	4,52	0,40	0,35	2,32
Lead-210	Emission to water	mBq	32,93	0,69	32,08	0,10
Lithium, ion	Emission to water	g	612,12	612,00	0,12	0,00
m-Xylene	Emission to water	µg	3,45	0,07	3,36	0,01
Magnesium	Emission to water	mg	71,38	1,49	69,55	0,21
Manganese	Emission to water	mg	6,96	0,47	0,52	3,69
Mercury	Emission to water	µg	382,66	26,79	22,84	205,54
Methanol	Emission to water	mg	2,04	0,65	1,33	0,04
Molybdenum	Emission to water	µg	2,61	0,05	2,55	0,01
Nickel, ion	Emission to water	mg	11,92	0,87	0,74	6,36
o-Xylene	Emission to water	µg	2,51	0,05	2,45	0,01
Oils, unspecified	Emission to water	mg	71,56	11,96	9,28	31,06
Phenol	Emission to water	µg	731,37	216,30	491,76	14,39
Phosphate	Emission to water	g	195,84	195,84	x	x
Phosphorus	Emission to water	µg	681,97	216,34	442,27	14,42
Radium-226	Emission to water	mBq	150,65	3,14	146,79	0,44
Radium-228	Emission to water	mBq	211,99	4,42	206,55	0,63
Selenium	Emission to water	ng	252,88	5,28	246,40	0,75
Silver, ion	Emission to water	µg	238,54	4,98	232,42	0,70
Sodium, ion	Emission to water	g	11,65	8,77	2,27	0,38
Solved solids	Emission to water	g	5,06	0,11	4,93	0,01
Strontium	Emission to water	mg	6,21	0,13	6,05	0,02
Sulfate	Emission to water	mg	9,62	0,70	8,52	0,25
Sulfur	Emission to water	µg	301,67	6,30	293,93	0,89
Suspended solids, unspecified	Emission to water	g	1,85	0,17	0,12	0,96

Thallium	Emission to water		ng	270,46	5,64	263,52	0,80
Tin, ion	Emission to water		µg	12,52	0,26	12,20	0,04
Titanium, ion	Emission to water		µg	19,66	0,41	19,15	0,06
TOC, Total Organic Carbon	Emission to water		mg	200,40	22,33	27,00	93,24
Toluene	Emission to water		µg	180,43	3,77	175,80	0,53
Vanadium, ion	Emission to water		µg	3,09	0,06	3,01	0,01
Xylene	Emission to water		µg	91,11	1,90	88,77	0,27
Zinc, ion	Emission to water		mg	24,56	7,44	4,72	7,66
Aluminium	Emission to water	groundwater	g	2,17	1,49	0,64	0,03
Ammonium, ion	Emission to water	groundwater	mg	22,39	7,45	4,77	6,28
Antimony	Emission to water	groundwater	mg	14,30	7,14	5,76	0,86
Arsenic, ion	Emission to water	groundwater	mg	55,36	24,64	23,73	4,31
Barium	Emission to water	groundwater	mg	8,41	5,01	2,60	0,49
Beryllium	Emission to water	groundwater	mg	5,78	4,01	1,67	0,06
BOD5, Biological Oxygen Demand	Emission to water	groundwater	mg	4,41	1,49	0,89	1,25
Boron	Emission to water	groundwater	g	36,80	26,16	10,58	0,04
Bromine	Emission to water	groundwater	mg	14,20	3,42	7,58	1,98
Cadmium, ion	Emission to water	groundwater	mg	21,28	15,06	6,11	0,07
Calcium, ion	Emission to water	groundwater	g	219,39	149,00	64,99	3,33
Chloride	Emission to water	groundwater	g	299,15	98,91	64,65	83,69
Chromium VI	Emission to water	groundwater	mg	23,13	7,54	11,39	2,59
Chromium, ion	Emission to water	groundwater	µg	25,21	13,83	5,41	3,68
Cobalt	Emission to water	groundwater	mg	48,63	33,61	14,22	0,50
COD, Chemical Oxygen Demand	Emission to water	groundwater	mg	4,41	1,49	0,89	1,25
Copper, ion	Emission to water	groundwater	mg	126,76	89,61	36,54	0,38
Fluoride	Emission to water	groundwater	g	2,30	1,59	0,66	0,03
Iodide	Emission to water	groundwater	mg	1,65	0,36	0,90	0,24
Iron, ion	Emission to water	groundwater	g	35,49	10,70	17,78	4,32
Lead	Emission to water	groundwater	mg	12,40	8,80	3,57	0,02
Lead-210	Emission to water	groundwater	Bq	2,90	2,90	0,01	0,00
Magnesium	Emission to water	groundwater	g	63,08	42,04	18,91	1,32
Manganese	Emission to water	groundwater	g	2,23	1,43	0,67	0,07
Mercury	Emission to water	groundwater	µg	74,15	36,69	25,34	7,49
Molybdenum	Emission to water	groundwater	mg	258,65	163,81	85,21	5,95
Nickel, ion	Emission to water	groundwater	mg	34,45	18,32	11,11	3,10

Nitrate	Emission to water	groundwater	g	19,14	13,30	5,49	0,22
Phosphate	Emission to water	groundwater	g	824,78	576,97	239,81	4,94
Phosphorus	Emission to water	groundwater	µg	182,69	173,25	8,43	0,62
Polonium-210	Emission to water	groundwater	Bq	4,42	4,41	0,01	0,00
Potassium-40	Emission to water	groundwater	mBq	351,09	350,07	0,99	0,02
Potassium, ion	Emission to water	groundwater	g	15,93	9,54	5,43	0,59
Radium-226	Emission to water	groundwater	Bq	3,26	3,25	0,01	0,00
Scandium	Emission to water	groundwater	mg	13,03	8,21	4,28	0,33
Selenium	Emission to water	groundwater	mg	28,11	17,71	9,25	0,72
Silicon	Emission to water	groundwater	g	4,90	2,05	2,08	0,48
Silver, ion	Emission to water	groundwater	mg	1,04	0,67	0,32	0,03
Sodium, ion	Emission to water	groundwater	g	22,15	11,56	8,20	1,48
Solids, inorganic	Emission to water	groundwater	g	65,31	14,49	35,26	9,61
Solved solids	Emission to water	groundwater	g	4,74	1,60	0,96	1,35
Strontium	Emission to water	groundwater	g	1,07	0,64	0,32	0,06
Sulfate	Emission to water	groundwater	kg	7,76	5,42	2,27	0,04
Thallium	Emission to water	groundwater	mg	1,50	1,07	0,43	0,00
Thorium-228	Emission to water	groundwater	mBq	35,61	35,51	0,10	0,00
Tin, ion	Emission to water	groundwater	mg	14,52	10,31	4,17	0,02
Titanium, ion	Emission to water	groundwater	mg	13,15	8,51	4,13	0,31
Tungsten	Emission to water	groundwater	mg	191,96	134,90	55,98	0,66
Uranium-238	Emission to water	groundwater	Bq	1,49	1,49	0,00	0,00
Vanadium, ion	Emission to water	groundwater	mg	9,00	5,54	3,00	0,28
Zinc, ion	Emission to water	groundwater	mg	862,71	607,69	248,68	3,91
Aluminium	Emission to water	groundwater, long-term	kg	1,53	0,93	0,56	0,03
Ammonium, ion	Emission to water	groundwater, long-term	mg	15,38	10,52	3,39	0,91
Antimony	Emission to water	groundwater, long-term	g	4,87	3,45	1,40	0,01
Arsenic, ion	Emission to water	groundwater, long-term	g	15,24	10,74	4,41	0,06
Barium	Emission to water	groundwater, long-term	g	6,00	3,22	2,07	0,44
Beryllium	Emission to water	groundwater, long-term	g	2,04	1,41	0,60	0,02
BOD5, Biological Oxygen Demand	Emission to water	groundwater, long-term	g	763,37	12,36	667,89	51,30
Boron	Emission to water	groundwater, long-term	g	383,54	272,21	110,44	0,55
Bromine	Emission to water	groundwater, long-term	mg	233,28	159,42	65,36	5,25
Cadmium, ion	Emission to water	groundwater, long-term	g	9,69	6,87	2,79	0,02
Calcium, ion	Emission to water	groundwater, long-term	kg	18,11	11,81	5,87	0,27

Chloride	Emission to water	groundwater, long-term	g	139,98	38,78	58,19	26,54
Chromium VI	Emission to water	groundwater, long-term	g	5,61	2,82	1,26	0,95
Cobalt	Emission to water	groundwater, long-term	g	35,26	18,87	7,96	5,20
COD, Chemical Oxygen Demand	Emission to water	groundwater, long-term	kg	2,33	0,04	2,04	0,16
Copper, ion	Emission to water	groundwater, long-term	g	77,62	53,83	22,08	1,05
DOC, Dissolved Organic Carbon	Emission to water	groundwater, long-term	g	923,98	15,42	808,01	62,05
Fluoride	Emission to water	groundwater, long-term	kg	2,38	0,62	1,76	0,00
Heat, waste	Emission to water	groundwater, long-term	kJ	285,88	191,94	64,90	17,92
Hydrogen sulfide	Emission to water	groundwater, long-term	mg	49,69	29,79	13,24	4,11
Iodide	Emission to water	groundwater, long-term	ng	71,96	52,59	14,73	2,86
Iron, ion	Emission to water	groundwater, long-term	kg	3,73	2,54	1,07	0,08
Lead	Emission to water	groundwater, long-term	g	7,53	5,30	2,19	0,03
Magnesium	Emission to water	groundwater, long-term	kg	10,51	7,22	3,10	0,12
Manganese	Emission to water	groundwater, long-term	kg	1,17	0,81	0,34	0,01
Mercury	Emission to water	groundwater, long-term	mg	40,29	20,44	13,52	3,91
Molybdenum	Emission to water	groundwater, long-term	g	9,52	6,66	2,77	0,06
Nickel, ion	Emission to water	groundwater, long-term	g	51,05	12,85	6,89	19,32
Nitrate	Emission to water	groundwater, long-term	g	203,48	126,92	59,11	10,77
Nitrite	Emission to water	groundwater, long-term	µg	838,00	573,31	184,38	49,57
Nitrogen, organic bound	Emission to water	groundwater, long-term	mg	25,12	17,18	5,53	1,49
Phosphate	Emission to water	groundwater, long-term	kg	1,44	0,94	0,44	0,04
Potassium, ion	Emission to water	groundwater, long-term	kg	5,94	4,07	1,75	0,07
Scandium	Emission to water	groundwater, long-term	g	3,55	2,46	1,04	0,03
Selenium	Emission to water	groundwater, long-term	g	7,37	5,16	2,14	0,04
Silicon	Emission to water	groundwater, long-term	kg	34,66	1,94	25,49	4,46
Silver, ion	Emission to water	groundwater, long-term	mg	534,88	379,47	154,03	0,85
Sodium, ion	Emission to water	groundwater, long-term	kg	2,60	1,52	0,89	0,11
Strontium	Emission to water	groundwater, long-term	g	170,16	112,04	51,79	3,90
Sulfate	Emission to water	groundwater, long-term	kg	57,52	38,73	17,34	0,89
Thallium	Emission to water	groundwater, long-term	mg	906,27	639,69	262,86	2,29
Tin, ion	Emission to water	groundwater, long-term	g	8,72	6,19	2,51	0,01
Titanium, ion	Emission to water	groundwater, long-term	g	12,41	7,33	3,41	1,03
TOC, Total Organic Carbon	Emission to water	groundwater, long-term	g	923,98	15,42	808,01	62,05
Tungsten	Emission to water	groundwater, long-term	g	13,01	9,24	3,74	0,02
Vanadium, ion	Emission to water	groundwater, long-term	g	6,77	4,18	2,12	0,29

Zinc, ion	Emission to water	groundwater, long-term	g	514,83	363,42	148,64	1,71
Arsenic, ion	Emission to water	lake	ng	31,30	1,14	30,11	0,03
Cadmium, ion	Emission to water	lake	ng	26,58	0,97	25,58	0,02
Calcium, ion	Emission to water	lake	g	2,07	2,06	0,01	0,00
Copper, ion	Emission to water	lake	µg	1,21	0,04	1,16	0,00
DOC, Dissolved Organic Carbon	Emission to water	lake	µg	733,42	359,83	331,24	26,14
Lead	Emission to water	lake	ng	78,77	2,87	75,79	0,07
Mercury	Emission to water	lake	pg	681,36	24,82	655,59	0,59
Nickel, ion	Emission to water	lake	ng	106,99	3,90	102,94	0,09
Zinc, ion	Emission to water	lake	ng	77,62	2,83	74,68	0,07
Acenaphthene	Emission to water	ocean	µg	1,12	0,53	0,40	0,12
Acenaphthylene	Emission to water	ocean	ng	69,76	33,24	24,76	7,25
Actinides, radioactive, unspecified	Emission to water	ocean	Bq	2,12	0,50	1,11	0,32
Aluminium	Emission to water	ocean	mg	78,44	33,87	24,11	12,63
Ammonium, ion	Emission to water	ocean	mg	19,83	10,77	6,29	1,71
AOX, Adsorbable Organic Halogen as Cl	Emission to water	ocean	µg	80,62	45,24	23,72	7,20
Arsenic, ion	Emission to water	ocean	mg	76,04	74,34	1,65	0,03
Barite	Emission to water	ocean	g	4,03	1,77	1,22	0,64
Barium	Emission to water	ocean	mg	156,49	74,63	55,52	16,26
Benzene	Emission to water	ocean	mg	14,86	7,09	5,26	1,55
Benzene, ethyl-	Emission to water	ocean	mg	4,30	2,05	1,53	0,45
BOD5, Biological Oxygen Demand	Emission to water	ocean	g	27,34	13,04	7,45	4,23
Boron	Emission to water	ocean	mg	1,89	1,12	0,52	0,15
Bromine	Emission to water	ocean	mg	125,53	59,82	44,56	13,05
Cadmium, ion	Emission to water	ocean	mg	32,18	28,15	4,02	0,01
Calcium, ion	Emission to water	ocean	kg	1,32	1,31	0,01	0,00
Carboxylic acids, unspecified	Emission to water	ocean	g	1,03	0,49	0,36	0,11
Cesium	Emission to water	ocean	µg	179,32	85,46	63,66	18,64
Cesium-137	Emission to water	ocean	Bq	243,02	57,26	127,19	36,15
Chloride	Emission to water	ocean	g	90,07	42,96	31,94	9,36
Chlorinated solvents, unspecified	Emission to water	ocean	pg	33,22	15,58	10,84	4,20
Chromium, ion	Emission to water	ocean	mg	9,44	8,94	0,35	0,10
Cobalt	Emission to water	ocean	µg	7,32	1,72	3,83	1,09
COD, Chemical Oxygen Demand	Emission to water	ocean	g	27,56	13,15	7,53	4,25
Copper, ion	Emission to water	ocean	mg	612,72	10,91	601,68	0,08

Cyanide	Emission to water	ocean	g	1,03	0,00	1,03	0,00
DOC, Dissolved Organic Carbon	Emission to water	ocean	g	8,57	4,09	2,42	1,27
Fluoride	Emission to water	ocean	g	13,52	13,47	0,04	0,00
Glutaraldehyde	Emission to water	ocean	µg	497,26	219,11	151,08	78,42
Heat, waste	Emission to water	ocean	kJ	103,54	2,16	99,60	1,10
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	ocean	mg	23,31	11,11	8,28	2,42
Hydrocarbons, aliphatic, unsaturated	Emission to water	ocean	mg	2,15	1,03	0,76	0,22
Hydrocarbons, aromatic	Emission to water	ocean	mg	102,39	48,98	35,79	10,88
Hydrocarbons, unspecified	Emission to water	ocean	mg	75,53	33,31	22,99	11,87
Hydrogen-3, Tritium	Emission to water	ocean	kBq	504,90	118,97	264,25	75,10
Hypochlorite	Emission to water	ocean	mg	14,99	3,56	7,72	2,29
Iodide	Emission to water	ocean	mg	17,93	8,55	6,37	1,86
Iron, ion	Emission to water	ocean	mg	10,25	5,18	3,43	1,01
Lead	Emission to water	ocean	mg	7,69	4,89	2,51	0,18
Lead-210	Emission to water	ocean	Bq	3412,07	3402,14	9,60	0,21
Magnesium	Emission to water	ocean	g	1,01	0,50	0,35	0,10
Manganese	Emission to water	ocean	mg	55,74	51,46	2,94	0,83
Mercury	Emission to water	ocean	µg	27,98	3,43	22,70	1,14
Methanol	Emission to water	ocean	mg	9,97	4,01	2,65	2,04
Molybdenum	Emission to water	ocean	µg	47,27	27,96	13,12	3,82
Nickel, ion	Emission to water	ocean	mg	100,37	50,48	49,87	0,02
Nitrate	Emission to water	ocean	mg	197,27	60,28	93,71	26,71
Nitrite	Emission to water	ocean	mg	3,29	0,78	1,72	0,49
Nitrogen	Emission to water	ocean	µg	962,75	451,95	311,03	123,29
Nitrogen, organic bound	Emission to water	ocean	mg	45,34	21,39	15,89	4,98
Oils, unspecified	Emission to water	ocean	g	8,69	4,15	2,37	1,34
PAH, polycyclic aromatic hydrocarbons	Emission to water	ocean	mg	1,44	0,69	0,51	0,15
Phenol	Emission to water	ocean	mg	22,99	11,07	8,07	2,38
Phosphate	Emission to water	ocean	g	57,56	57,39	0,16	0,00
Phosphorus	Emission to water	ocean	mg	1,89	1,10	0,54	0,16
Polonium-210	Emission to water	ocean	Bq	5207,12	5191,96	14,65	0,31
Potassium-40	Emission to water	ocean	Bq	412,42	411,22	1,16	0,02
Potassium, ion	Emission to water	ocean	mg	768,45	371,47	268,94	79,02
Radioactive species, Nuclides, unspecified	Emission to water	ocean	Bq	1267,92	298,76	663,59	188,59
Radium-224	Emission to water	ocean	Bq	8,97	4,27	3,18	0,93

Radium-226	Emission to water	ocean	Bq	3856,64	3837,94	15,90	1,72
Radium-228	Emission to water	ocean	Bq	17,93	8,55	6,37	1,86
Rubidium	Emission to water	ocean	mg	1,79	0,85	0,64	0,19
Selenium	Emission to water	ocean	µg	70,86	41,90	19,67	5,73
Silicon	Emission to water	ocean	µg	122,49	52,91	37,75	19,65
Silver, ion	Emission to water	ocean	µg	107,59	51,27	38,20	11,19
Sodium, ion	Emission to water	ocean	g	55,21	26,47	19,49	5,71
Strontium	Emission to water	ocean	mg	326,09	155,78	115,50	33,83
Strontium-90	Emission to water	ocean	Bq	27,02	6,37	14,14	4,02
Sulfate	Emission to water	ocean	kg	2,60	2,59	0,01	0,00
Sulfide	Emission to water	ocean	µg	708,78	315,16	269,05	76,88
Sulfur	Emission to water	ocean	mg	3,05	1,44	0,99	0,38
Suspended solids, unspecified	Emission to water	ocean	g	14,38	6,35	4,38	2,26
t-Butyl methyl ether	Emission to water	ocean	mg	1,50	0,89	0,42	0,12
Thorium-228	Emission to water	ocean	Bq	77,70	58,80	12,85	3,73
Titanium, ion	Emission to water	ocean	µg	19,39	8,34	5,96	3,14
TOC, Total Organic Carbon	Emission to water	ocean	g	8,57	4,09	2,42	1,27
Toluene	Emission to water	ocean	mg	26,53	12,80	9,34	2,72
Tributyltin compounds	Emission to water	ocean	mg	2,08	0,78	0,43	0,53
Triethylene glycol	Emission to water	ocean	mg	8,28	3,32	2,22	1,69
Uranium-238	Emission to water	ocean	Bq	1750,54	1745,45	4,93	0,11
Vanadium, ion	Emission to water	ocean	µg	141,29	83,56	39,22	11,43
VOC, volatile organic compounds, unspecified origin	Emission to water	ocean	mg	62,76	29,91	22,28	6,53
Xylene	Emission to water	ocean	mg	21,34	10,22	7,54	2,21
Zinc, ion	Emission to water	ocean	g	1,52	0,17	1,30	0,03
1-Butanol	Emission to water	river	µg	176,72	160,45	10,23	3,72
1-Pentanol	Emission to water	river	ng	185,40	127,12	47,49	6,66
1-Pentene	Emission to water	river	ng	140,10	96,06	35,88	5,03
1,4-Butanediol	Emission to water	river	ng	310,66	279,52	22,67	5,23
2-Aminopropanol	Emission to water	river	ng	9,63	1,72	7,45	0,28
2-Methyl-1-propanol	Emission to water	river	ng	388,90	277,25	92,36	11,90
2-Methyl-2-butene	Emission to water	river	mg	7,07	7,07	0,00	0,00
2-Propanol	Emission to water	river	ng	141,77	31,74	106,00	2,49
Acenaphthene	Emission to water	river	µg	2,77	1,33	0,99	0,28
Acenaphthylene	Emission to water	river	ng	173,16	82,88	61,71	17,63

Acetaldehyde	Emission to water	river	µg	335,17	303,64	19,84	7,21
Acetic acid	Emission to water	river	mg	45,90	14,18	31,32	0,25
Acetone	Emission to water	river	ng	684,83	380,09	161,37	88,49
Acetonitrile	Emission to water	river	ng	10,62	2,55	6,73	0,83
Acetyl chloride	Emission to water	river	ng	145,64	99,86	37,30	5,23
Acidity, unspecified	Emission to water	river	mg	7,35	2,49	4,69	0,11
Acrylate, ion	Emission to water	river	mg	24,02	0,06	23,96	0,00
Aluminium	Emission to water	river	g	1,14	0,56	0,48	0,06
Ammonium, ion	Emission to water	river	g	1,01	0,42	0,53	0,04
Aniline	Emission to water	river	µg	2,28	2,03	0,20	0,03
Antimony	Emission to water	river	mg	40,51	34,43	3,66	1,50
Antimony-122	Emission to water	river	mBq	1,07	0,38	0,53	0,10
Antimony-124	Emission to water	river	mBq	364,41	90,53	190,53	51,44
Antimony-125	Emission to water	river	mBq	340,94	84,78	180,06	46,97
AOX, Adsorbable Organic Halogen as Cl	Emission to water	river	mg	3,24	0,79	2,13	0,20
Arsenic, ion	Emission to water	river	mg	348,50	127,43	175,66	28,02
Barium	Emission to water	river	mg	389,73	186,24	139,07	39,76
Barium-140	Emission to water	river	mBq	4,68	1,67	2,30	0,44
Benzene	Emission to water	river	mg	69,26	46,26	14,40	5,30
Benzene, 1,2-dichloro-	Emission to water	river	µg	76,71	69,15	4,85	1,67
Benzene, chloro-	Emission to water	river	mg	1,58	1,42	0,10	0,03
Benzene, ethyl-	Emission to water	river	mg	10,68	5,11	3,81	1,09
Beryllium	Emission to water	river	µg	14,21	3,32	6,22	2,88
BOD5, Biological Oxygen Demand	Emission to water	river	g	112,18	56,38	38,79	10,49
Borate	Emission to water	river	µg	14,54	9,69	4,01	0,52
Boron	Emission to water	river	mg	26,06	6,94	13,09	3,72
Bromate	Emission to water	river	mg	198,10	176,49	19,56	1,27
Bromide	Emission to water	river	mg	1,15	0,89	0,22	0,03
Bromine	Emission to water	river	mg	469,68	255,03	128,57	53,13
Butene	Emission to water	river	mg	2,08	1,88	0,19	0,00
Butyl acetate	Emission to water	river	µg	229,62	208,50	13,28	4,84
Butyrolactone	Emission to water	river	ng	390,41	353,69	23,13	8,39
Cadmium, ion	Emission to water	river	mg	31,72	0,69	29,98	0,65
Calcium, ion	Emission to water	river	g	484,06	444,03	17,80	13,72
Carbon disulfide	Emission to water	river	µg	8,65	6,14	2,00	0,32

Carbonate	Emission to water	river	g	60,27	60,11	0,15	0,01
Carboxylic acids, unspecified	Emission to water	river	g	1,64	0,78	0,58	0,17
Cerium-141	Emission to water	river	mBq	1,87	0,67	0,92	0,17
Cerium-144	Emission to water	river	µBq	569,37	203,34	280,00	53,10
Cesium	Emission to water	river	µg	445,14	213,05	158,64	45,33
Cesium-134	Emission to water	river	mBq	301,43	70,58	160,70	43,29
Cesium-136	Emission to water	river	µBq	331,94	118,54	163,24	30,96
Cesium-137	Emission to water	river	Bq	1,18	0,34	0,61	0,14
Chloramine	Emission to water	river	µg	2,50	1,67	0,69	0,09
Chlorate	Emission to water	river	g	1,53	1,36	0,15	0,01
Chloride	Emission to water	river	g	885,04	731,89	106,16	29,00
Chlorinated solvents, unspecified	Emission to water	river	mg	1,21	0,49	0,71	0,01
Chlorine	Emission to water	river	mg	39,17	32,52	6,12	0,32
Chloroacetic acid	Emission to water	river	µg	113,22	59,92	24,74	17,63
Chloroacetyl chloride	Emission to water	river	ng	12,85	2,29	9,94	0,38
Chloroform	Emission to water	river	mg	9,47	8,13	1,34	0,00
Chlorosulfonic acid	Emission to water	river	ng	38,63	9,27	24,49	3,00
Chromium-51	Emission to water	river	mBq	505,18	159,44	256,47	55,09
Chromium VI	Emission to water	river	mg	705,68	180,17	83,10	273,05
Chromium, ion	Emission to water	river	mg	3,48	1,31	1,09	0,67
Cobalt	Emission to water	river	mg	17,22	3,10	0,61	8,34
Cobalt-57	Emission to water	river	mBq	10,54	3,76	5,18	0,98
Cobalt-58	Emission to water	river	Bq	3,32	0,95	1,71	0,41
Cobalt-60	Emission to water	river	Bq	2,67	0,78	1,37	0,32
COD, Chemical Oxygen Demand	Emission to water	river	g	118,81	57,48	42,46	11,65
Copper, ion	Emission to water	river	mg	681,17	9,32	663,26	5,30
Cumene	Emission to water	river	mg	40,67	31,03	4,86	2,95
Cyanide	Emission to water	river	g	2,46	1,21	1,23	0,01
Dichromate	Emission to water	river	µg	478,58	151,71	264,07	38,76
Diethylamine	Emission to water	river	µg	1,02	0,90	0,09	0,01
Dimethylamine	Emission to water	river	ng	573,34	393,04	158,99	13,16
Dipropylamine	Emission to water	river	ng	643,47	576,30	53,55	8,40
DOC, Dissolved Organic Carbon	Emission to water	river	g	49,33	31,17	12,88	3,25
Ethane, 1,2-dichloro-	Emission to water	river	mg	54,58	54,36	0,20	0,01
Ethanol	Emission to water	river	µg	415,47	375,23	25,92	8,84

Ethene	Emission to water	river	mg	49,92	46,79	1,69	0,89
Ethene, chloro-	Emission to water	river	µg	20,43	10,02	6,52	2,40
Ethyl acetate	Emission to water	river	µg	1,10	0,99	0,09	0,01
Ethylamine	Emission to water	river	ng	337,27	153,99	168,95	8,84
Ethylene diamine	Emission to water	river	µg	4,39	3,11	1,02	0,16
Ethylene oxide	Emission to water	river	mg	11,38	0,68	10,69	0,00
Fluoride	Emission to water	river	g	92,21	4,08	88,09	0,02
Fluosilicic acid	Emission to water	river	mg	7,12	5,30	0,85	0,60
Formaldehyde	Emission to water	river	µg	304,69	217,11	41,04	28,72
Formamide	Emission to water	river	ng	339,09	232,50	86,85	12,18
Formate	Emission to water	river	µg	10,85	2,62	7,66	0,35
Formic acid	Emission to water	river	ng	98,43	67,49	25,21	3,54
Heat, waste	Emission to water	river	MJ	74,76	20,77	37,49	10,18
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	river	mg	57,87	27,70	20,62	5,89
Hydrocarbons, aliphatic, unsaturated	Emission to water	river	mg	5,34	2,56	1,90	0,54
Hydrocarbons, aromatic	Emission to water	river	mg	234,51	112,36	83,49	23,86
Hydrocarbons, unspecified	Emission to water	river	mg	90,74	17,37	70,45	1,80
Hydrogen-3, Tritium	Emission to water	river	kBq	54,65	12,90	28,75	8,03
Hydrogen peroxide	Emission to water	river	mg	4,95	0,79	4,12	0,02
Hydrogen sulfide	Emission to water	river	mg	13,97	8,80	0,47	2,90
Hydroxide	Emission to water	river	g	34,04	34,04	0,00	0,00
Hypochlorite	Emission to water	river	mg	14,31	3,41	7,35	2,19
Iodide	Emission to water	river	mg	51,19	24,99	16,76	5,83
Iodine-131	Emission to water	river	mBq	68,35	17,57	35,64	9,34
Iodine-133	Emission to water	river	mBq	2,94	1,05	1,44	0,27
Iron-59	Emission to water	river	µBq	807,35	288,32	397,03	75,29
Iron, ion	Emission to water	river	mg	549,86	226,97	104,57	134,74
Isopropylamine	Emission to water	river	ng	61,46	13,76	45,95	1,08
Lactic acid	Emission to water	river	ng	504,05	451,44	41,95	6,58
Lanthanum-140	Emission to water	river	mBq	4,98	1,78	2,45	0,46
Lead	Emission to water	river	mg	242,95	33,38	204,16	3,34
Lead-210	Emission to water	river	Bq	3,17	0,74	1,69	0,46
Lithium, ion	Emission to water	river	g	14,02	14,02	0,00	0,00
m-Xylene	Emission to water	river	ng	362,17	250,55	90,40	13,10
Magnesium	Emission to water	river	g	3,90	1,43	1,90	0,35

Manganese	Emission to water	river	mg	61,64	25,36	24,39	7,34
Manganese-54	Emission to water	river	mBq	204,63	57,96	105,73	25,27
Mercury	Emission to water	river	mg	3,95	0,16	3,67	0,07
Methane, dichloro-, HCC-30	Emission to water	river	mg	14,34	9,74	2,90	1,05
Methanol	Emission to water	river	mg	285,45	1,42	283,99	0,03
Methyl acetate	Emission to water	river	ng	4,51	0,37	3,98	0,10
Methyl acrylate	Emission to water	river	mg	225,02	0,55	224,45	0,01
Methyl amine	Emission to water	river	ng	414,51	387,28	19,56	4,74
Methyl formate	Emission to water	river	ng	62,49	53,51	6,52	1,52
Molybdenum	Emission to water	river	mg	22,40	5,12	8,46	5,44
Molybdenum-99	Emission to water	river	mBq	1,72	0,61	0,84	0,16
Nickel, ion	Emission to water	river	mg	452,36	17,05	379,50	34,45
Niobium-95	Emission to water	river	mBq	30,78	7,76	16,63	3,95
Nitrate	Emission to water	river	g	11,27	7,59	3,55	0,08
Nitrite	Emission to water	river	mg	23,25	12,19	10,82	0,15
Nitrobenzene	Emission to water	river	µg	5,12	4,54	0,46	0,07
Nitrogen	Emission to water	river	mg	882,83	572,66	217,19	57,39
Nitrogen, organic bound	Emission to water	river	g	7,90	7,00	0,27	0,39
Oils, unspecified	Emission to water	river	g	30,99	14,71	10,98	3,27
PAH, polycyclic aromatic hydrocarbons	Emission to water	river	mg	2,64	1,21	0,80	0,38
Phenol	Emission to water	river	mg	39,38	19,62	13,42	3,91
Phosphate	Emission to water	river	g	3,01	0,11	2,89	0,01
Phosphorus	Emission to water	river	mg	350,99	325,09	20,30	3,45
Polonium-210	Emission to water	river	Bq	3,17	0,74	1,69	0,46
Potassium-40	Emission to water	river	Bq	3,98	0,93	2,12	0,57
Potassium, ion	Emission to water	river	g	6,88	3,19	2,34	0,83
Propanal	Emission to water	river	ng	268,40	184,03	68,74	9,64
Propanol	Emission to water	river	ng	263,06	173,51	73,21	10,08
Propene	Emission to water	river	mg	188,11	146,46	39,70	1,20
Propionic acid	Emission to water	river	ng	302,60	252,32	47,13	1,95
Propylamine	Emission to water	river	ng	107,38	73,62	27,50	3,86
Propylene oxide	Emission to water	river	mg	1,97	0,91	0,89	0,10
Protactinium-234	Emission to water	river	Bq	3,34	0,80	1,75	0,49
Radioactive species, alpha emitters	Emission to water	river	Bq	10,23	10,20	0,03	0,00
Radioactive species, Nuclides, unspecified	Emission to water	river	Bq	4,49	0,89	2,67	0,58

Radium-224	Emission to water	river	Bq	22,26	10,65	7,93	2,27
Radium-226	Emission to water	river	Bq	2113,72	513,71	1103,19	306,62
Radium-228	Emission to water	river	Bq	44,51	21,30	15,86	4,53
Rubidium	Emission to water	river	mg	4,45	2,13	1,59	0,45
Ruthenium-103	Emission to water	river	µBq	362,47	129,45	178,25	33,80
Scandium	Emission to water	river	mg	3,21	0,68	0,85	1,04
Selenium	Emission to water	river	mg	4,12	1,12	1,35	1,02
Silicon	Emission to water	river	g	75,03	2,51	56,71	9,76
Silver-110	Emission to water	river	Bq	2,48	0,73	1,27	0,30
Silver, ion	Emission to water	river	µg	451,51	224,40	155,77	44,03
Sodium-24	Emission to water	river	mBq	13,00	4,64	6,39	1,21
Sodium formate	Emission to water	river	µg	135,21	85,02	15,83	21,21
Sodium, ion	Emission to water	river	g	295,27	149,50	118,05	17,11
Solids, inorganic	Emission to water	river	g	190,47	188,47	0,50	0,93
Solved solids	Emission to water	river	g	15,71	13,51	0,68	0,94
Strontium	Emission to water	river	mg	806,97	386,13	287,45	82,33
Strontium-89	Emission to water	river	mBq	48,53	14,76	25,05	5,38
Strontium-90	Emission to water	river	Bq	1695,59	398,36	865,90	266,21
Sulfate	Emission to water	river	kg	1,24	1,06	0,11	0,04
Sulfide	Emission to water	river	mg	2,91	1,01	1,30	0,37
Sulfite	Emission to water	river	mg	80,03	19,04	41,27	12,18
Sulfur	Emission to water	river	mg	108,78	55,68	35,62	10,79
Suspended solids, unspecified	Emission to water	river	g	16,25	12,78	1,94	0,95
t-Butyl methyl ether	Emission to water	river	µg	1,59	0,50	0,76	0,20
t-Butylamine	Emission to water	river	ng	84,45	20,37	59,67	2,72
Technetium-99m	Emission to water	river	mBq	39,66	14,14	19,51	3,71
Tellurium-123m	Emission to water	river	mBq	38,73	9,16	20,51	5,59
Tellurium-132	Emission to water	river	µBq	99,46	35,52	48,91	9,28
Thallium	Emission to water	river	µg	157,85	36,59	82,59	23,87
Thorium-228	Emission to water	river	Bq	89,03	42,61	31,73	9,07
Thorium-230	Emission to water	river	Bq	455,42	108,85	238,98	66,40
Thorium-232	Emission to water	river	mBq	741,15	173,03	395,46	106,56
Thorium-234	Emission to water	river	Bq	3,34	0,80	1,75	0,49
Tin, ion	Emission to water	river	mg	1,34	0,46	0,18	0,44
Titanium, ion	Emission to water	river	mg	7,37	3,67	1,47	1,38

TOC, Total Organic Carbon	Emission to water	river	g	49,97	31,67	13,01	3,27
Toluene	Emission to water	river	mg	52,97	26,19	18,32	5,22
Toluene, 2-chloro-	Emission to water	river	ng	795,39	700,65	77,52	10,62
Trimethylamine	Emission to water	river	ng	9,32	0,70	8,35	0,17
Tungsten	Emission to water	river	mg	2,55	0,55	0,76	0,77
Uranium-234	Emission to water	river	Bq	4,01	0,96	2,10	0,58
Uranium-235	Emission to water	river	Bq	6,61	1,58	3,47	0,96
Uranium-238	Emission to water	river	Bq	11,63	2,77	6,12	1,69
Uranium alpha	Emission to water	river	Bq	192,30	45,96	100,91	28,04
Urea	Emission to water	river	ng	313,34	211,84	83,41	11,17
Vanadium, ion	Emission to water	river	mg	12,81	4,94	5,36	1,55
VOC, volatile organic compounds, unspecified origin	Emission to water	river	mg	164,13	76,55	59,90	17,08
Xylene	Emission to water	river	mg	42,21	20,22	15,03	4,29
Zinc-65	Emission to water	river	mBq	176,21	62,93	86,66	16,43
Zinc, ion	Emission to water	river	g	6,60	0,06	6,50	0,02
Zirconium-95	Emission to water	river	mBq	2,04	0,73	1,00	0,19
Benzene, chloro-	Emission to water	river, long-term	ng	330,29	219,55	91,99	11,58
Chloride	Emission to water	river, long-term	mg	30,77	0,12	30,65	0,00
Boron	Emission to soil		mg	3,25	1,03	1,79	0,26
Cadmium	Emission to soil		µg	4,46	2,29	1,41	0,47
Chloride	Emission to soil		g	5,19	2,43	1,96	0,49
Chromium	Emission to soil		µg	21,25	10,91	6,70	2,25
Chromium VI	Emission to soil		mg	18,34	5,81	10,12	1,48
Copper	Emission to soil		mg	11,75	3,78	6,41	0,96
Fluoride	Emission to soil		mg	12,41	3,93	6,85	1,00
Heat, waste	Emission to soil		MJ	1,92	0,52	1,12	0,18
Iron	Emission to soil		g	1,91	0,98	0,35	0,36
Lead	Emission to soil		µg	183,38	94,11	57,85	19,39
Nickel	Emission to soil		µg	57,59	29,55	18,17	6,09
Oils, biogenic	Emission to soil		mg	10,75	5,52	2,02	1,98
Oils, unspecified	Emission to soil		mg	190,64	80,00	78,05	20,12
Sodium	Emission to soil		mg	270,17	21,84	245,96	1,46
Zinc	Emission to soil		mg	12,58	6,46	3,97	1,33
2,4-D	Emission to soil	agricultural	µg	381,46	361,06	18,32	1,29
Aclonifen	Emission to soil	agricultural	µg	8,06	3,96	1,70	1,48

Aldrin	Emission to soil	agricultural	µg	239,39	1,78	237,59	0,01
Aluminium	Emission to soil	agricultural	mg	90,03	26,73	55,15	5,03
Antimony	Emission to soil	agricultural	ng	162,53	92,11	44,82	15,80
Arsenic	Emission to soil	agricultural	mg	1,61	0,01	1,59	0,00
Atrazine	Emission to soil	agricultural	µg	62,80	0,47	62,33	0,00
Barium	Emission to soil	agricultural	µg	7,89	3,49	3,00	0,87
Benomyl	Emission to soil	agricultural	µg	2,33	2,30	0,02	0,01
Bentazone	Emission to soil	agricultural	µg	4,11	2,02	0,87	0,76
Boron	Emission to soil	agricultural	µg	1,62	0,65	0,68	0,19
Cadmium	Emission to soil	agricultural	mg	3,62	0,02	3,60	0,00
Calcium	Emission to soil	agricultural	mg	591,87	180,86	302,22	67,14
Carbetamide	Emission to soil	agricultural	µg	3,47	2,15	0,77	0,34
Carbofuran	Emission to soil	agricultural	mg	1,28	1,26	0,01	0,00
Carbon	Emission to soil	agricultural	mg	364,82	217,18	139,69	4,90
Chloride	Emission to soil	agricultural	mg	5,93	1,36	3,36	0,75
Chlorothalonil	Emission to soil	agricultural	mg	1,99	1,41	0,46	0,07
Chromium	Emission to soil	agricultural	mg	4,04	0,17	3,79	0,05
Cobalt	Emission to soil	agricultural	µg	43,72	17,26	19,50	4,30
Copper	Emission to soil	agricultural	mg	51,38	0,32	50,97	0,05
Cypermethrin	Emission to soil	agricultural	µg	180,72	178,21	1,47	0,64
Fenpiclonil	Emission to soil	agricultural	µg	78,56	55,82	18,01	2,92
Glyphosate	Emission to soil	agricultural	mg	2,67	2,56	0,08	0,02
Iron	Emission to soil	agricultural	mg	849,00	171,78	666,37	6,69
Lead	Emission to soil	agricultural	mg	6,73	0,15	6,55	0,02
Linuron	Emission to soil	agricultural	µg	114,45	30,90	65,07	11,41
Magnesium	Emission to soil	agricultural	mg	67,53	20,39	34,86	7,59
Mancozeb	Emission to soil	agricultural	mg	2,58	1,84	0,59	0,09
Manganese	Emission to soil	agricultural	mg	37,43	8,80	21,02	4,69
Mercury	Emission to soil	agricultural	µg	2,52	2,08	0,33	0,06
Metaldehyde	Emission to soil	agricultural	µg	1,16	0,77	0,26	0,08
Metolachlor	Emission to soil	agricultural	µg	449,55	220,83	95,01	82,53
Metribuzin	Emission to soil	agricultural	µg	90,96	64,70	20,86	3,33
Molybdenum	Emission to soil	agricultural	µg	12,98	7,27	4,24	0,91
Napropamide	Emission to soil	agricultural	µg	2,06	1,36	0,46	0,15
Nickel	Emission to soil	agricultural	mg	27,21	0,13	27,05	0,02

Orbencarb	Emission to soil	agricultural	µg	491,17	349,36	112,63	18,01
Phosphorus	Emission to soil	agricultural	mg	18,17	4,15	10,29	2,30
Pirimicarb	Emission to soil	agricultural	ng	389,20	191,18	82,25	71,45
Potassium	Emission to soil	agricultural	mg	101,03	23,10	57,22	12,78
Silicon	Emission to soil	agricultural	mg	256,17	70,74	153,52	19,69
Strontium	Emission to soil	agricultural	µg	17,56	6,35	7,86	2,07
Sulfur	Emission to soil	agricultural	mg	37,05	22,50	10,82	2,30
Sulfuric acid	Emission to soil	agricultural	µg	13,16	0,03	13,13	0,00
Tebutam	Emission to soil	agricultural	µg	4,88	3,22	1,10	0,35
Teflubenzuron	Emission to soil	agricultural	µg	6,06	4,31	1,39	0,22
Thiram	Emission to soil	agricultural	µg	4,14	4,08	0,03	0,01
Tin	Emission to soil	agricultural	µg	40,52	24,19	15,98	0,22
Titanium	Emission to soil	agricultural	mg	2,56	0,58	1,45	0,32
Vanadium	Emission to soil	agricultural	µg	73,23	16,74	41,47	9,26
Zinc	Emission to soil	agricultural	mg	4,30	1,67	1,91	0,44
Oils, biogenic	Emission to soil	forestry	mg	33,38	17,09	5,82	6,47
Oils, unspecified	Emission to soil	forestry	g	38,28	18,24	13,59	3,98
Aluminium	Emission to soil	industrial	mg	333,01	151,46	114,38	41,45
Arsenic	Emission to soil	industrial	µg	133,20	60,58	45,75	16,58
Barium	Emission to soil	industrial	mg	166,50	75,73	57,19	20,73
Boron	Emission to soil	industrial	mg	3,33	1,51	1,14	0,41
Calcium	Emission to soil	industrial	g	1,33	0,61	0,46	0,17
Carbon	Emission to soil	industrial	mg	999,02	454,37	343,15	124,36
Chloride	Emission to soil	industrial	g	1,17	0,53	0,40	0,15
Chromium	Emission to soil	industrial	mg	1,67	0,76	0,57	0,21
Copper	Emission to soil	industrial	µg	370,79	348,05	13,47	5,72
Fluoride	Emission to soil	industrial	mg	16,65	7,57	5,72	2,07
Glyphosate	Emission to soil	industrial	µg	999,38	513,61	188,18	183,66
Heat, waste	Emission to soil	industrial	kJ	22,06	15,62	4,74	1,05
Iron	Emission to soil	industrial	mg	666,01	302,91	228,77	82,91
Magnesium	Emission to soil	industrial	mg	266,41	121,16	91,51	33,16
Manganese	Emission to soil	industrial	mg	13,32	6,06	4,58	1,66
Oils, unspecified	Emission to soil	industrial	g	12,05	12,01	0,03	0,00
Phosphorus	Emission to soil	industrial	mg	16,65	7,57	5,72	2,07
Potassium	Emission to soil	industrial	mg	116,55	53,01	40,03	14,51

	Silicon	Emission to soil	industrial	mg	33,30	15,15	11,44	4,15
	Sodium	Emission to soil	industrial	mg	666,01	302,91	228,77	82,91
	Strontium	Emission to soil	industrial	mg	3,33	1,51	1,14	0,41
	Sulfur	Emission to soil	industrial	mg	199,80	90,87	68,63	24,87
	Zinc	Emission to soil	industrial	mg	5,00	2,27	1,72	0,62

Analisi di inventario: fase d'uso delle batterie

Sostanza	Compartimento	Sottocompartimento	U.M.	UF_1	UF_2	UF_3
Energy, gross calorific value, in biomass	Resource	biotic	MJ	33,52	67,70	114,67
Energy, gross calorific value, in biomass, primary forest	Resource	biotic	kJ	0,33	0,67	1,13
Peat, in ground	Resource	biotic	kg	0,40	0,82	1,38
Wood, hard, standing	Resource	biotic	l	0,96	1,93	3,28
Wood, primary forest, standing	Resource	biotic	mm3	30,75	62,11	105,21
Wood, soft, standing	Resource	biotic	l	2,32	4,69	7,94
Wood, unspecified, standing/m3	Resource	biotic	mm3	0,59	1,19	2,01
Carbon dioxide, in air	Resource	in air	kg	3,36	6,79	11,50
Energy, kinetic (in wind), converted	Resource	in air	MJ	9,60	19,39	32,85
Energy, solar, converted	Resource	in air	kJ	113,42	229,08	388,04
Aluminium, 24% in bauxite, 11% in crude ore, in ground	Resource	in ground	g	8,35	16,86	28,55
Anhydrite, in ground	Resource	in ground	µg	58,18	117,51	199,05
Barite, 15% in crude ore, in ground	Resource	in ground	g	15,74	31,80	53,86
Basalt, in ground	Resource	in ground	g	0,71	1,44	2,45
Borax, in ground	Resource	in ground	mg	0,31	0,63	1,08
Cadmium, 0.30% in sulfide, Cd 0.18%, Pb, Zn, Ag, In, in ground	Resource	in ground	mg	0,48	0,96	1,63
Calcite, in ground	Resource	in ground	kg	0,81	1,63	2,76
Carbon, in organic matter, in soil	Resource	in ground	mg	4,78	9,66	16,36
Chromium, 25.5% in chromite, 11.6% in crude ore, in ground	Resource	in ground	g	3,81	7,70	13,04
Chrysotile, in ground	Resource	in ground	mg	0,58	1,17	1,99
Cinnabar, in ground	Resource	in ground	µg	57,37	115,87	196,28
Clay, bentonite, in ground	Resource	in ground	g	7,80	15,76	26,70
Clay, unspecified, in ground	Resource	in ground	g	107,74	217,61	368,62
Coal, brown, in ground	Resource	in ground	kg	19,31	39,00	66,06
Coal, hard, unspecified, in ground	Resource	in ground	kg	14,72	29,73	50,36
Cobalt, in ground	Resource	in ground	µg	4,46	9,02	15,27
Colemanite, in ground	Resource	in ground	mg	215,45	435,18	737,15
Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	3,50	7,07	11,97
Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	19,41	39,20	66,40
Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	5,15	10,40	17,61
Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	25,52	51,55	87,31
Diatomite, in ground	Resource	in ground	µg	2,07	4,18	7,09
Dolomite, in ground	Resource	in ground	g	0,72	1,45	2,45

Feldspar, in ground	Resource	in ground	µg	53,83	108,73	184,18
Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Resource	in ground	mg	23,12	46,70	79,10
Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Resource	in ground	mg	10,33	20,87	35,35
Fluorspar, 92%, in ground	Resource	in ground	g	1,75	3,54	6,00
Gallium, 0.014% in bauxite, in ground	Resource	in ground	µg	0,32	0,65	1,10
Gas, mine, off-gas, process, coal mining/m3	Resource	in ground	l	146,46	295,83	501,10
Gas, natural, in ground	Resource	in ground	m3	6,62	13,37	22,65
Gold, Au 1.1E-4%, Ag 4.2E-3%, in ore, in ground	Resource	in ground	µg	0,44	0,90	1,52
Gold, Au 1.3E-4%, Ag 4.6E-5%, in ore, in ground	Resource	in ground	µg	0,81	1,64	2,78
Gold, Au 1.4E-4%, in ore, in ground	Resource	in ground	µg	0,97	1,97	3,33
Gold, Au 2.1E-4%, Ag 2.1E-4%, in ore, in ground	Resource	in ground	µg	1,49	3,01	5,09
Gold, Au 4.3E-4%, in ore, in ground	Resource	in ground	µg	0,37	0,75	1,26
Gold, Au 4.9E-5%, in ore, in ground	Resource	in ground	µg	0,88	1,78	3,02
Gold, Au 6.7E-4%, in ore, in ground	Resource	in ground	µg	1,37	2,76	4,68
Gold, Au 7.1E-4%, in ore, in ground	Resource	in ground	µg	1,54	3,12	5,28
Gold, Au 9.7E-4%, Ag 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	ng	92,41	186,66	316,18
Granite, in ground	Resource	in ground	ng	20,23	40,87	69,23
Gravel, in ground	Resource	in ground	kg	2,13	4,30	7,28
Gypsum, in ground	Resource	in ground	mg	2,08	4,20	7,11
Indium, 0.005% in sulfide, In 0.003%, Pb, Zn, Ag, Cd, in ground	Resource	in ground	µg	23,92	48,32	81,85
Iron, 46% in ore, 25% in crude ore, in ground	Resource	in ground	g	240,99	486,76	824,53
Kaolinite, 24% in crude ore, in ground	Resource	in ground	mg	159,34	321,84	545,17
Kieserite, 25% in crude ore, in ground	Resource	in ground	mg	0,86	1,74	2,94
Lead, 5.0% in sulfide, Pb 3.0%, Zn, Ag, Cd, In, in ground	Resource	in ground	g	2,57	5,19	8,79
Lithium, 0.15% in brine, in ground	Resource	in ground	ng	116,43	235,17	398,35
Magnesite, 60% in crude ore, in ground	Resource	in ground	g	1,79	3,61	6,12
Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Resource	in ground	g	0,41	0,83	1,40
Metamorphous rock, graphite containing, in ground	Resource	in ground	mg	13,27	26,80	45,39
Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Resource	in ground	g	0,47	0,96	1,62
Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Resource	in ground	mg	67,61	136,57	231,34
Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	4,42	8,93	15,12
Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Resource	in ground	mg	247,76	500,44	847,70
Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	8,91	18,00	30,49
Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Resource	in ground	mg	17,77	35,88	60,78
Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Resource	in ground	g	9,65	19,49	33,01

Oil, crude, in ground	Resource	in ground	kg	1,71	3,45	5,85
Olivine, in ground	Resource	in ground	µg	27,05	54,63	92,54
Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	2,27	4,59	7,78
Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	5,46	11,04	18,70
Phosphorus, 18% in apatite, 12% in crude ore, in ground	Resource	in ground	mg	42,02	84,87	143,75
Phosphorus, 18% in apatite, 4% in crude ore, in ground	Resource	in ground	mg	92,48	186,79	316,41
Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	1,13	2,29	3,88
Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	4,07	8,21	13,91
Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	184,12	371,88	629,94
Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	0,58	1,16	1,97
Rhenium, in crude ore, in ground	Resource	in ground	ng	52,98	107,01	181,26
Sand, unspecified, in ground	Resource	in ground	mg	177,34	358,19	606,75
Shale, in ground	Resource	in ground	µg	164,72	332,70	563,57
Silver, 0.007% in sulfide, Ag 0.004%, Pb, Zn, Cd, In, in ground	Resource	in ground	µg	45,03	90,94	154,05
Silver, 3.2ppm in sulfide, Ag 1.2ppm, Cu and Te, in crude ore, in ground	Resource	in ground	µg	32,58	65,80	111,46
Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, in ground	Resource	in ground	µg	2,97	6,00	10,16
Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, in ground	Resource	in ground	µg	6,78	13,70	23,21
Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, in ground	Resource	in ground	µg	6,65	13,43	22,75
Silver, Ag 9.7E-4%, Au 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	µg	4,39	8,86	15,01
Sodium chloride, in ground	Resource	in ground	g	40,75	82,31	139,42
Sodium nitrate, in ground	Resource	in ground	ng	35,56	71,82	121,66
Sodium sulphate, various forms, in ground	Resource	in ground	mg	178,04	359,62	609,15
Stibnite, in ground	Resource	in ground	ng	215,26	434,80	736,51
Sulfur, in ground	Resource	in ground	mg	18,93	38,24	64,77
Sylvite, 25 % in sylvinite, in ground	Resource	in ground	mg	11,01	22,25	37,68
Talc, in ground	Resource	in ground	mg	13,39	27,05	45,82
Tantalum, 81.9% in tantalite, 1.6E-4% in crude ore, in ground	Resource	in ground	µg	30,13	60,87	103,10
Tellurium, 0.5ppm in sulfide, Te 0.2ppm, Cu and Ag, in crude ore, in ground	Resource	in ground	µg	4,89	9,87	16,72
Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Resource	in ground	mg	2,82	5,70	9,65
TiO2, 54% in ilmenite, 2.6% in crude ore, in ground	Resource	in ground	g	1,76	3,55	6,01
TiO2, 95% in rutile, 0.40% in crude ore, in ground	Resource	in ground	ng	257,65	520,42	881,54
Ulexite, in ground	Resource	in ground	mg	17,46	35,26	59,73
Uranium, in ground	Resource	in ground	g	0,92	1,86	3,15
Vermiculite, in ground	Resource	in ground	mg	0,88	1,78	3,02
Volume occupied, final repository for low-active radioactive waste	Resource	in ground	cm3	1,89	3,81	6,46

Volume occupied, final repository for radioactive waste	Resource	in ground	cm3	0,48	0,97	1,64
Volume occupied, underground deposit	Resource	in ground	cm3	0,98	1,98	3,36
Zinc, 9.0% in sulfide, Zn 5.3%, Pb, Ag, Cd, In, in ground	Resource	in ground	mg	196,60	397,09	672,64
Zirconium, 50% in zircon, 0.39% in crude ore, in ground	Resource	in ground	µg	13,79	27,85	47,17
Bromine, 0.0023% in water	Resource	in water	µg	26,71	53,96	91,40
Energy, potential (in hydropower reservoir), converted	Resource	in water	MJ	77,52	156,59	265,24
Iodine, 0.03% in water	Resource	in water	µg	6,03	12,18	20,64
Magnesium, 0.13% in water	Resource	in water	mg	0,66	1,34	2,27
Volume occupied, reservoir	Resource	in water	m3y	1,71	3,46	5,86
Water, cooling, unspecified natural origin/m3	Resource	in water	m3	1,99	4,03	6,82
Water, lake	Resource	in water	l	0,94	1,89	3,21
Water, river	Resource	in water	m3	0,42	0,85	1,44
Water, salt, ocean	Resource	in water	l	62,84	126,93	215,00
Water, salt, sole	Resource	in water	l	1,36	2,74	4,64
Water, turbine use, unspecified natural origin	Resource	in water	m3	510,89	1031,92	1747,98
Water, unspecified natural origin/m3	Resource	in water	l	16,94	34,22	57,97
Water, well, in ground	Resource	in water	l	85,50	172,69	292,52
Occupation, arable, non-irrigated	Resource	land	cm2a	7,10	14,33	24,28
Occupation, construction site	Resource	land	cm2a	17,67	35,70	60,47
Occupation, dump site	Resource	land	m2a	0,09	0,19	0,31
Occupation, dump site, benthos	Resource	land	cm2a	29,84	60,26	102,08
Occupation, forest, intensive	Resource	land	cm2a	34,70	70,10	118,74
Occupation, forest, intensive, normal	Resource	land	m2a	1,23	2,48	4,19
Occupation, forest, intensive, short-cycle	Resource	land	mm2a	83,15	167,96	284,51
Occupation, industrial area	Resource	land	m2a	0,05	0,10	0,17
Occupation, industrial area, benthos	Resource	land	mm2a	32,26	65,16	110,37
Occupation, industrial area, built up	Resource	land	cm2a	60,67	122,55	207,58
Occupation, industrial area, vegetation	Resource	land	cm2a	30,40	61,40	104,00
Occupation, mineral extraction site	Resource	land	m2a	0,05	0,11	0,19
Occupation, permanent crop, fruit, intensive	Resource	land	mm2a	117,49	237,32	401,99
Occupation, shrub land, sclerophyllous	Resource	land	cm2a	4,94	9,98	16,91
Occupation, traffic area, rail embankment	Resource	land	cm2a	28,12	56,79	96,19
Occupation, traffic area, rail network	Resource	land	cm2a	31,09	62,80	106,37
Occupation, traffic area, road embankment	Resource	land	cm2a	122,19	246,80	418,06
Occupation, traffic area, road network	Resource	land	cm2a	95,06	192,01	325,24

Occupation, urban, discontinuously built	Resource	land	mm2a	1,16	2,35	3,98
Occupation, water bodies, artificial	Resource	land	m2a	0,15	0,30	0,51
Occupation, water courses, artificial	Resource	land	m2a	0,05	0,10	0,18
Transformation, from arable	Resource	land	mm2	79,79	161,16	272,99
Transformation, from arable, non-irrigated	Resource	land	cm2	13,09	26,44	44,78
Transformation, from arable, non-irrigated, fallow	Resource	land	mm2	1,01	2,04	3,46
Transformation, from dump site, inert material landfill	Resource	land	mm2	50,46	101,92	172,64
Transformation, from dump site, residual material landfill	Resource	land	mm2	46,40	93,73	158,76
Transformation, from dump site, sanitary landfill	Resource	land	mm2	1,62	3,26	5,53
Transformation, from dump site, slag compartment	Resource	land	mm2	0,28	0,57	0,97
Transformation, from forest	Resource	land	cm2	35,99	72,69	123,14
Transformation, from forest, extensive	Resource	land	cm2	89,58	180,93	306,48
Transformation, from forest, intensive, clear-cutting	Resource	land	mm2	2,97	6,00	10,16
Transformation, from industrial area	Resource	land	mm2	129,92	262,43	444,52
Transformation, from industrial area, benthos	Resource	land	mm2	0,19	0,39	0,67
Transformation, from industrial area, built up	Resource	land	mm2	0,03	0,07	0,11
Transformation, from industrial area, vegetation	Resource	land	mm2	0,06	0,11	0,19
Transformation, from mineral extraction site	Resource	land	cm2	8,76	17,69	29,96
Transformation, from pasture and meadow	Resource	land	cm2	5,66	11,44	19,38
Transformation, from pasture and meadow, intensive	Resource	land	mm2	1,07	2,16	3,65
Transformation, from sea and ocean	Resource	land	cm2	29,85	60,29	102,12
Transformation, from shrub land, sclerophyllous	Resource	land	cm2	3,97	8,02	13,58
Transformation, from tropical rain forest	Resource	land	mm2	2,97	6,00	10,16
Transformation, from unknown	Resource	land	cm2	41,04	82,90	140,43
Transformation, to arable	Resource	land	cm2	12,19	24,63	41,72
Transformation, to arable, non-irrigated	Resource	land	cm2	13,10	26,46	44,82
Transformation, to arable, non-irrigated, fallow	Resource	land	mm2	1,48	3,00	5,08
Transformation, to dump site	Resource	land	cm2	7,42	14,98	25,37
Transformation, to dump site, benthos	Resource	land	cm2	29,84	60,26	102,08
Transformation, to dump site, inert material landfill	Resource	land	mm2	50,46	101,92	172,64
Transformation, to dump site, residual material landfill	Resource	land	mm2	46,40	93,73	158,76
Transformation, to dump site, sanitary landfill	Resource	land	mm2	1,62	3,26	5,53
Transformation, to dump site, slag compartment	Resource	land	mm2	0,28	0,57	0,97
Transformation, to forest	Resource	land	mm2	119,48	241,34	408,81
Transformation, to forest, intensive	Resource	land	mm2	23,12	46,70	79,11

Transformation, to forest, intensive, clear-cutting	Resource	land	mm2	2,97	6,00	10,16
Transformation, to forest, intensive, normal	Resource	land	cm2	88,45	178,65	302,61
Transformation, to forest, intensive, short-cycle	Resource	land	mm2	2,97	6,00	10,16
Transformation, to heterogeneous, agricultural	Resource	land	mm2	164,63	332,52	563,25
Transformation, to industrial area	Resource	land	cm2	10,40	21,01	35,59
Transformation, to industrial area, benthos	Resource	land	mm2	1,19	2,41	4,08
Transformation, to industrial area, built up	Resource	land	mm2	185,53	374,74	634,78
Transformation, to industrial area, vegetation	Resource	land	mm2	83,82	169,30	286,77
Transformation, to mineral extraction site	Resource	land	cm2	41,83	84,48	143,11
Transformation, to pasture and meadow	Resource	land	mm2	26,40	53,33	90,34
Transformation, to permanent crop, fruit, intensive	Resource	land	mm2	1,65	3,34	5,66
Transformation, to sea and ocean	Resource	land	mm2	0,19	0,39	0,67
Transformation, to shrub land, sclerophyllous	Resource	land	mm2	98,76	199,48	337,89
Transformation, to traffic area, rail embankment	Resource	land	mm2	6,54	13,21	22,38
Transformation, to traffic area, rail network	Resource	land	mm2	7,19	14,52	24,60
Transformation, to traffic area, road embankment	Resource	land	mm2	87,74	177,22	300,20
Transformation, to traffic area, road network	Resource	land	mm2	161,84	326,90	553,73
Transformation, to unknown	Resource	land	mm2	107,69	217,51	368,45
Transformation, to urban, discontinuously built	Resource	land	mm2	0,02	0,05	0,08
Transformation, to water bodies, artificial	Resource	land	cm2	9,86	19,91	33,73
Transformation, to water courses, artificial	Resource	land	cm2	6,25	12,62	21,38
Acenaphthene	Emission to air		pg	4,63	9,34	15,83
Acetaldehyde	Emission to air		mg	0,83	1,67	2,83
Acetic acid	Emission to air		mg	1,53	3,08	5,23
Acrolein	Emission to air		ng	2,68	5,41	9,16
Aldehydes, unspecified	Emission to air		ng	19,69	39,77	67,37
Aluminium	Emission to air		g	2,25	4,55	7,71
Ammonia	Emission to air		g	0,94	1,90	3,21
Antimony	Emission to air		µg	0,29	0,59	1,00
Arsenic	Emission to air		µg	1,76	3,55	6,02
Barium	Emission to air		pg	10,96	22,14	37,49
Benzal chloride	Emission to air		pg	0,34	0,69	1,16
Benzene	Emission to air		mg	1,68	3,38	5,73
Benzene, hexachloro-	Emission to air		µg	1,18	2,39	4,05
Benzo(a)pyrene	Emission to air		µg	20,91	42,23	71,53

Beryllium	Emission to air	µg	0,44	0,89	1,50
Boron	Emission to air	pg	63,25	127,76	216,42
Bromine	Emission to air	pg	51,59	104,20	176,51
Butadiene	Emission to air	ng	4,82	9,73	16,49
Butane	Emission to air	µg	4,86	9,82	16,64
Cadmium	Emission to air	µg	7,69	15,53	26,31
Carbon dioxide, biogenic	Emission to air	g	87,44	176,61	299,17
Carbon dioxide, fossil	Emission to air	kg	0,61	1,23	2,09
Carbon disulfide	Emission to air	pg	0,06	0,13	0,22
Carbon monoxide, fossil	Emission to air	g	9,03	18,23	30,88
Chlorine	Emission to air	µg	0,52	1,05	1,77
Chloroform	Emission to air	pg	0,03	0,06	0,10
Chromium	Emission to air	µg	180,40	364,38	617,22
Chromium VI	Emission to air	ng	83,41	168,47	285,37
Cobalt	Emission to air	µg	0,59	1,18	2,01
Copper	Emission to air	µg	235,05	474,77	804,21
Cumene	Emission to air	pg	0,00	0,01	0,01
Cyanide	Emission to air	pg	1,21	2,45	4,15
Dinitrogen monoxide	Emission to air	g	0,71	1,44	2,44
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	ng	1,78	3,60	6,10
Ethane	Emission to air	µg	7,19	14,53	24,61
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	pg	0,05	0,11	0,18
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	µg	164,22	331,69	561,86
Ethane, hexafluoro-, HFC-116	Emission to air	µg	193,40	390,64	661,70
Ethene, chloro-	Emission to air	pg	0,02	0,04	0,07
Ethene, tetrachloro-	Emission to air	pg	42,01	84,85	143,72
Ethylene oxide	Emission to air	ng	46,58	94,09	159,38
Ethyne	Emission to air	µg	27,09	54,72	92,70
Fluorine	Emission to air	ng	38,06	76,88	130,23
Formaldehyde	Emission to air	mg	2,22	4,48	7,59
Furan	Emission to air	pg	0,00	0,01	0,01
Heat, waste	Emission to air	MJ	35,10	70,89	120,09
Helium	Emission to air	pg	144,93	292,73	495,86
Hexane	Emission to air	µg	4,16	8,41	14,25
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	mg	29,12	58,82	99,64

Hydrocarbons, aliphatic, unsaturated	Emission to air	pg	19,50	39,39	66,72
Hydrocarbons, aromatic	Emission to air	mg	4,60	9,29	15,73
Hydrocarbons, chlorinated	Emission to air	µg	73,65	148,76	251,99
Hydrogen	Emission to air	µg	90,42	182,63	309,37
Hydrogen chloride	Emission to air	mg	15,36	31,02	52,54
Hydrogen fluoride	Emission to air	mg	6,61	13,35	22,61
Hydrogen sulfide	Emission to air	mg	49,17	99,32	168,24
Iodine	Emission to air	pg	26,39	53,30	90,29
Iron	Emission to air	mg	0,93	1,88	3,19
Isoprene	Emission to air	pg	0,06	0,11	0,19
Lead	Emission to air	mg	0,88	1,78	3,01
Lead-210	Emission to air	nBq	10,96	22,14	37,49
Magnesium	Emission to air	ng	9,98	20,15	34,13
Manganese	Emission to air	µg	211,68	427,56	724,25
Mercury	Emission to air	µg	152,09	307,19	520,35
Methane, biogenic	Emission to air	g	1,87	3,78	6,40
Methane, bromo-, Halon 1001	Emission to air	pg	0,08	0,16	0,27
Methane, dichlorodifluoro-, CFC-12	Emission to air	pg	0,05	0,10	0,18
Methane, fossil	Emission to air	mg	15,31	30,93	52,40
Methane, tetrachloro-, CFC-10	Emission to air	pg	23,10	46,66	79,05
Methane, tetrafluoro-, CFC-14	Emission to air	mg	1,74	3,52	5,96
Methanol	Emission to air	mg	0,77	1,55	2,63
Molybdenum	Emission to air	ng	66,30	133,91	226,84
Nickel	Emission to air	µg	93,39	188,63	319,53
Nitrogen oxides	Emission to air	g	8,33	16,83	28,50
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	g	1,28	2,59	4,39
Ozone	Emission to air	g	0,62	1,25	2,11
PAH, polycyclic aromatic hydrocarbons	Emission to air	mg	0,86	1,74	2,95
Particulates, < 2.5 um	Emission to air	g	0,37	0,74	1,26
Particulates, > 10 um	Emission to air	mg	123,82	250,10	423,64
Particulates, > 2.5 um, and < 10um	Emission to air	mg	79,23	160,03	271,08
Pentane	Emission to air	µg	6,04	12,20	20,66
Phenol	Emission to air	µg	4,11	8,31	14,07
Phosphorus	Emission to air	µg	0,55	1,11	1,88
Polonium-210	Emission to air	nBq	20,02	40,45	68,51

Polychlorinated biphenyls	Emission to air		µg	2,63	5,30	8,98
Potassium-40	Emission to air		nBq	2,70	5,44	9,22
Propanal	Emission to air		pg	0,18	0,37	0,63
Propane	Emission to air		µg	3,70	7,48	12,67
Propene	Emission to air		ng	4,36	8,82	14,93
Propionic acid	Emission to air		ng	84,01	169,69	287,44
Radium-226	Emission to air		nBq	2,83	5,71	9,68
Radium-228	Emission to air		nBq	0,84	1,69	2,87
Radon-220	Emission to air		nBq	58,82	118,81	201,26
Radon-222	Emission to air		nBq	33,04	66,73	113,04
Selenium	Emission to air		µg	1,00	2,02	3,43
Silicon	Emission to air		ng	0,57	1,16	1,96
Sodium	Emission to air		ng	37,78	76,31	129,26
Strontium	Emission to air		pg	9,99	20,18	34,19
Styrene	Emission to air		pg	0,01	0,02	0,04
Sulfate	Emission to air		µg	2,11	4,27	7,23
Sulfur dioxide	Emission to air		g	0,46	0,93	1,58
Sulfur hexafluoride	Emission to air		mg	11,09	22,40	37,94
Thallium	Emission to air		µg	1,91	3,85	6,52
Thorium-228	Emission to air		nBq	0,45	0,91	1,54
Thorium-232	Emission to air		nBq	0,71	1,43	2,43
Tin	Emission to air		µg	14,88	30,05	50,90
Titanium	Emission to air		µg	3,12	6,31	10,68
Toluene	Emission to air		mg	0,88	1,78	3,02
Uranium-238	Emission to air		nBq	2,36	4,76	8,06
Vanadium	Emission to air		µg	9,30	18,79	31,82
Water	Emission to air		g	3,46	6,99	11,85
Xylene	Emission to air		mg	0,72	1,46	2,46
Zinc	Emission to air		mg	1,66	3,36	5,68
1-Butanol	Emission to air	high. pop.	pg	259,24	523,61	886,95
1-Pentanol	Emission to air	high. pop.	ng	2,20	4,44	7,53
1-Pentene	Emission to air	high. pop.	ng	1,66	3,36	5,69
1-Propanol	Emission to air	high. pop.	µg	1,48	3,00	5,08
1,4-Butanediol	Emission to air	high. pop.	ng	6,97	14,07	23,83
2-Aminopropanol	Emission to air	high. pop.	pg	147,20	297,32	503,64

2-Butene, 2-methyl-	Emission to air	high. pop.	pg	0,37	0,74	1,26
2-Methyl-1-propanol	Emission to air	high. pop.	ng	3,99	8,07	13,66
2-Nitrobenzoic acid	Emission to air	high. pop.	pg	239,93	484,62	820,90
2-Propanol	Emission to air	high. pop.	µg	46,12	93,15	157,79
Acenaphthene	Emission to air	high. pop.	ng	184,87	373,40	632,50
Acetaldehyde	Emission to air	high. pop.	mg	14,57	29,44	49,86
Acetic acid	Emission to air	high. pop.	mg	80,45	162,49	275,24
Acetone	Emission to air	high. pop.	mg	12,73	25,71	43,56
Acrolein	Emission to air	high. pop.	µg	0,66	1,34	2,27
Acrylic acid	Emission to air	high. pop.	ng	125,18	252,83	428,28
Aldehydes, unspecified	Emission to air	high. pop.	µg	232,32	469,26	794,87
Aluminium	Emission to air	high. pop.	mg	16,30	32,92	55,76
Ammonia	Emission to air	high. pop.	mg	84,06	169,79	287,61
Ammonium carbonate	Emission to air	high. pop.	µg	202,65	409,32	693,36
Aniline	Emission to air	high. pop.	ng	10,21	20,63	34,94
Anthranilic acid	Emission to air	high. pop.	pg	174,89	353,26	598,39
Antimony	Emission to air	high. pop.	µg	2,88	5,82	9,87
Arsenic	Emission to air	high. pop.	mg	0,56	1,13	1,91
Arsine	Emission to air	high. pop.	pg	1,46	2,95	4,99
Barium	Emission to air	high. pop.	µg	196,50	396,90	672,31
Benzaldehyde	Emission to air	high. pop.	µg	0,35	0,70	1,18
Benzene	Emission to air	high. pop.	mg	41,44	83,70	141,79
Benzene, 1-methyl-2-nitro-	Emission to air	high. pop.	pg	207,19	418,50	708,89
Benzene, 1,2-dichloro-	Emission to air	high. pop.	ng	7,86	15,87	26,88
Benzene, ethyl-	Emission to air	high. pop.	mg	3,12	6,29	10,66
Benzene, hexachloro-	Emission to air	high. pop.	ng	82,35	166,34	281,76
Benzene, pentachloro-	Emission to air	high. pop.	ng	206,21	416,52	705,54
Benzo(a)pyrene	Emission to air	high. pop.	µg	15,31	30,93	52,39
Beryllium	Emission to air	high. pop.	µg	4,77	9,63	16,30
Boron	Emission to air	high. pop.	mg	1,03	2,08	3,53
Boron trifluoride	Emission to air	high. pop.	pg	0,02	0,04	0,07
Bromine	Emission to air	high. pop.	mg	1,74	3,52	5,96
Butadiene	Emission to air	high. pop.	ng	1,42	2,86	4,85
Butane	Emission to air	high. pop.	g	0,31	0,63	1,08
Butene	Emission to air	high. pop.	mg	2,25	4,55	7,71

Butyrolactone	Emission to air	high. pop.	ng	1,72	3,47	5,88
Cadmium	Emission to air	high. pop.	mg	0,33	0,66	1,12
Calcium	Emission to air	high. pop.	mg	171,41	346,22	586,47
Carbon dioxide, biogenic	Emission to air	high. pop.	kg	2,89	5,84	9,90
Carbon dioxide, fossil	Emission to air	high. pop.	kg	20,11	40,62	68,81
Carbon disulfide	Emission to air	high. pop.	ng	127,51	257,56	436,28
Carbon monoxide, biogenic	Emission to air	high. pop.	mg	216,29	436,87	740,02
Carbon monoxide, fossil	Emission to air	high. pop.	g	3,70	7,47	12,65
Chloramine	Emission to air	high. pop.	ng	8,00	16,17	27,39
Chlorine	Emission to air	high. pop.	mg	7,83	15,81	26,78
Chloroacetic acid	Emission to air	high. pop.	µg	0,33	0,67	1,13
Chloroform	Emission to air	high. pop.	µg	17,83	36,02	61,01
Chlorosilane, trimethyl-	Emission to air	high. pop.	µg	0,36	0,72	1,22
Chlorosulfonic acid	Emission to air	high. pop.	ng	1,67	3,37	5,71
Chromium	Emission to air	high. pop.	mg	0,99	2,00	3,38
Chromium VI	Emission to air	high. pop.	µg	21,61	43,65	73,94
Cobalt	Emission to air	high. pop.	mg	2,51	5,07	8,59
Copper	Emission to air	high. pop.	mg	4,23	8,55	14,48
Cumene	Emission to air	high. pop.	mg	0,55	1,11	1,88
Cyanide	Emission to air	high. pop.	µg	225,55	455,56	771,68
Cyanoacetic acid	Emission to air	high. pop.	ng	1,37	2,76	4,67
Diethylamine	Emission to air	high. pop.	ng	4,62	9,32	15,79
Dimethyl malonate	Emission to air	high. pop.	ng	1,71	3,46	5,86
Dinitrogen monoxide	Emission to air	high. pop.	g	0,59	1,20	2,03
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	high. pop.	ng	2,16	4,37	7,40
Dipropylamine	Emission to air	high. pop.	ng	2,86	5,78	9,79
Ethane	Emission to air	high. pop.	g	0,34	0,70	1,18
Ethane, 1,1-difluoro-, HFC-152a	Emission to air	high. pop.	µg	41,76	84,35	142,88
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	high. pop.	ng	215,04	434,34	735,74
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-, CFC-113	Emission to air	high. pop.	ng	5,94	12,00	20,33
Ethane, 1,2-dichloro-	Emission to air	high. pop.	mg	3,95	7,98	13,52
Ethane, hexafluoro-, HFC-116	Emission to air	high. pop.	µg	1,44	2,90	4,92
Ethanol	Emission to air	high. pop.	mg	25,79	52,09	88,23
Ethene	Emission to air	high. pop.	mg	11,67	23,56	39,91
Ethene, chloro-	Emission to air	high. pop.	mg	2,77	5,59	9,46

Ethene, tetrachloro-	Emission to air	high. pop.	ng	35,16	71,01	120,29
Ethyl acetate	Emission to air	high. pop.	mg	0,35	0,71	1,20
Ethyl cellulose	Emission to air	high. pop.	µg	0,45	0,91	1,54
Ethylamine	Emission to air	high. pop.	ng	3,22	6,50	11,00
Ethylene diamine	Emission to air	high. pop.	ng	55,58	112,27	190,18
Ethylene oxide	Emission to air	high. pop.	µg	7,33	14,81	25,09
Ethyne	Emission to air	high. pop.	mg	0,76	1,53	2,60
Fluorine	Emission to air	high. pop.	mg	1,43	2,90	4,91
Fluosilicic acid	Emission to air	high. pop.	µg	226,03	456,55	773,35
Formaldehyde	Emission to air	high. pop.	mg	51,22	103,46	175,25
Formamide	Emission to air	high. pop.	ng	4,02	8,13	13,77
Formic acid	Emission to air	high. pop.	ng	269,23	543,80	921,15
Heat, waste	Emission to air	high. pop.	MJ	245,68	496,23	840,57
Heptane	Emission to air	high. pop.	mg	22,49	45,42	76,93
Hexane	Emission to air	high. pop.	mg	233,10	470,82	797,52
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	high. pop.	µg	11,85	23,94	40,55
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	high. pop.	mg	81,20	164,02	277,84
Hydrocarbons, aliphatic, unsaturated	Emission to air	high. pop.	mg	92,17	186,17	315,35
Hydrocarbons, aromatic	Emission to air	high. pop.	mg	1,12	2,26	3,82
Hydrocarbons, chlorinated	Emission to air	high. pop.	µg	16,85	34,03	57,64
Hydrogen	Emission to air	high. pop.	mg	69,32	140,01	237,16
Hydrogen chloride	Emission to air	high. pop.	mg	69,44	140,25	237,57
Hydrogen fluoride	Emission to air	high. pop.	mg	3,97	8,02	13,59
Hydrogen peroxide	Emission to air	high. pop.	µg	0,42	0,84	1,43
Hydrogen sulfide	Emission to air	high. pop.	µg	28,59	57,76	97,83
Iodine	Emission to air	high. pop.	µg	17,30	34,95	59,20
Iron	Emission to air	high. pop.	mg	10,72	21,66	36,68
Isocyanic acid	Emission to air	high. pop.	mg	0,63	1,27	2,15
Isopropylamine	Emission to air	high. pop.	ng	0,49	0,98	1,66
Lactic acid	Emission to air	high. pop.	ng	2,24	4,53	7,67
Lead	Emission to air	high. pop.	mg	3,23	6,53	11,06
Lead-210	Emission to air	high. pop.	mBq	70,50	142,39	241,20
m-Xylene	Emission to air	high. pop.	mg	3,44	6,94	11,76
Magnesium	Emission to air	high. pop.	mg	16,12	32,56	55,16
Manganese	Emission to air	high. pop.	mg	5,69	11,50	19,48

Mercury	Emission to air	high. pop.	µg	53,06	107,17	181,53
Methane, biogenic	Emission to air	high. pop.	mg	13,89	28,05	47,52
Methane, bromotrifluoro-, Halon 1301	Emission to air	high. pop.	pg	98,49	198,94	336,99
Methane, chlorodifluoro-, HCFC-22	Emission to air	high. pop.	µg	3,16	6,38	10,81
Methane, dichloro-, HCC-30	Emission to air	high. pop.	µg	2,07	4,19	7,10
Methane, dichlorodifluoro-, CFC-12	Emission to air	high. pop.	µg	0,65	1,32	2,24
Methane, dichlorofluoro-, HCFC-21	Emission to air	high. pop.	ng	0,61	1,24	2,09
Methane, fossil	Emission to air	high. pop.	g	0,98	1,99	3,37
Methane, monochloro-, R-40	Emission to air	high. pop.	ng	31,57	63,77	108,03
Methane, tetrachloro-, CFC-10	Emission to air	high. pop.	µg	15,37	31,04	52,57
Methane, tetrafluoro-, CFC-14	Emission to air	high. pop.	µg	2,15	4,34	7,35
Methane, trichlorofluoro-, CFC-11	Emission to air	high. pop.	ng	0,99	2,01	3,40
Methane, trifluoro-, HFC-23	Emission to air	high. pop.	ng	194,66	393,19	666,03
Methanesulfonic acid	Emission to air	high. pop.	ng	1,38	2,79	4,72
Methanol	Emission to air	high. pop.	mg	27,29	55,13	93,38
Methyl acetate	Emission to air	high. pop.	pg	55,56	112,22	190,09
Methyl acrylate	Emission to air	high. pop.	ng	142,02	286,86	485,92
Methyl amine	Emission to air	high. pop.	ng	1,40	2,83	4,80
Methyl borate	Emission to air	high. pop.	ng	0,82	1,67	2,82
Methyl ethyl ketone	Emission to air	high. pop.	mg	0,35	0,71	1,20
Methyl formate	Emission to air	high. pop.	ng	1,59	3,21	5,44
Methyl lactate	Emission to air	high. pop.	ng	2,46	4,97	8,42
Molybdenum	Emission to air	high. pop.	mg	0,57	1,16	1,97
Monoethanolamine	Emission to air	high. pop.	µg	154,48	312,03	528,55
Nickel	Emission to air	high. pop.	mg	19,91	40,22	68,14
Nitrate	Emission to air	high. pop.	µg	102,88	207,79	351,98
Nitrobenzene	Emission to air	high. pop.	ng	13,85	27,97	47,38
Nitrogen oxides	Emission to air	high. pop.	g	31,63	63,89	108,22
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	high. pop.	g	0,30	0,61	1,03
Ozone	Emission to air	high. pop.	µg	30,24	61,08	103,46
PAH, polycyclic aromatic hydrocarbons	Emission to air	high. pop.	mg	2,30	4,64	7,86
Particulates, < 2.5 um	Emission to air	high. pop.	g	3,99	8,07	13,66
Particulates, > 10 um	Emission to air	high. pop.	g	0,60	1,20	2,04
Particulates, > 2.5 um, and < 10um	Emission to air	high. pop.	g	0,49	0,99	1,68
Pentane	Emission to air	high. pop.	g	0,39	0,80	1,35

Phenol	Emission to air	high. pop.	µg	32,34	65,31	110,63
Phenol, 2,4-dichloro-	Emission to air	high. pop.	ng	0,55	1,11	1,87
Phenol, pentachloro-	Emission to air	high. pop.	ng	254,62	514,30	871,17
Phosphine	Emission to air	high. pop.	pg	108,20	218,55	370,19
Phosphorus	Emission to air	high. pop.	mg	8,71	17,59	29,80
Platinum	Emission to air	high. pop.	ng	0,47	0,95	1,60
Polonium-210	Emission to air	high. pop.	mBq	128,87	260,29	440,90
Polychlorinated biphenyls	Emission to air	high. pop.	pg	4,41	8,92	15,10
Potassium	Emission to air	high. pop.	g	0,67	1,36	2,30
Potassium-40	Emission to air	high. pop.	mBq	20,47	41,34	70,02
Propanal	Emission to air	high. pop.	µg	1,11	2,25	3,81
Propane	Emission to air	high. pop.	mg	263,81	532,84	902,59
Propene	Emission to air	high. pop.	mg	5,84	11,81	20,00
Propionic acid	Emission to air	high. pop.	mg	3,78	7,64	12,94
Propylamine	Emission to air	high. pop.	ng	1,27	2,57	4,36
Propylene oxide	Emission to air	high. pop.	µg	18,52	37,40	63,35
Radioactive species, other beta emitters	Emission to air	high. pop.	Bq	3,32	6,71	11,37
Radium-226	Emission to air	high. pop.	mBq	18,19	36,75	62,24
Radium-228	Emission to air	high. pop.	mBq	98,51	198,98	337,05
Radon-220	Emission to air	high. pop.	mBq	1,53	3,10	5,25
Radon-222	Emission to air	high. pop.	mBq	1,53	3,08	5,22
Scandium	Emission to air	high. pop.	µg	1,91	3,86	6,53
Selenium	Emission to air	high. pop.	mg	0,39	0,79	1,35
Silicon	Emission to air	high. pop.	mg	24,32	49,12	83,21
Silver	Emission to air	high. pop.	µg	6,70	13,53	22,93
Sodium	Emission to air	high. pop.	mg	55,99	113,09	191,57
Sodium chlorate	Emission to air	high. pop.	µg	27,71	55,97	94,80
Sodium dichromate	Emission to air	high. pop.	mg	1,15	2,33	3,95
Sodium formate	Emission to air	high. pop.	µg	0,51	1,02	1,73
Sodium hydroxide	Emission to air	high. pop.	µg	1,38	2,78	4,72
Strontium	Emission to air	high. pop.	µg	287,95	581,61	985,19
Styrene	Emission to air	high. pop.	µg	6,66	13,44	22,77
Sulfate	Emission to air	high. pop.	mg	198,33	400,59	678,57
Sulfur dioxide	Emission to air	high. pop.	g	30,42	61,45	104,09
Sulfur trioxide	Emission to air	high. pop.	ng	112,44	227,11	384,70

Sulfuric acid	Emission to air	high. pop.	µg	0,35	0,70	1,19
t-Butyl methyl ether	Emission to air	high. pop.	µg	10,96	22,13	37,49
t-Butylamine	Emission to air	high. pop.	ng	1,41	2,85	4,83
Thallium	Emission to air	high. pop.	µg	2,42	4,88	8,27
Thorium	Emission to air	high. pop.	µg	2,88	5,81	9,85
Thorium-228	Emission to air	high. pop.	mBq	8,34	16,84	28,53
Thorium-232	Emission to air	high. pop.	mBq	5,31	10,72	18,15
Tin	Emission to air	high. pop.	µg	19,65	39,70	67,24
Titanium	Emission to air	high. pop.	mg	0,61	1,22	2,07
Toluene	Emission to air	high. pop.	mg	23,87	48,22	81,68
Toluene, 2-chloro-	Emission to air	high. pop.	ng	4,38	8,85	14,98
Trimethylamine	Emission to air	high. pop.	pg	98,40	198,75	336,66
Uranium	Emission to air	high. pop.	µg	3,83	7,74	13,11
Uranium-238	Emission to air	high. pop.	mBq	15,16	30,62	51,87
Vanadium	Emission to air	high. pop.	mg	70,79	142,99	242,21
Water	Emission to air	high. pop.	mg	0,52	1,06	1,79
Xylene	Emission to air	high. pop.	mg	9,30	18,78	31,82
Zinc	Emission to air	high. pop.	mg	10,78	21,76	36,87
Acenaphthene	Emission to air	low. pop.	ng	3,89	7,86	13,31
Acetaldehyde	Emission to air	low. pop.	µg	11,75	23,72	40,19
Acetic acid	Emission to air	low. pop.	µg	77,16	155,86	264,00
Acetone	Emission to air	low. pop.	mg	5,52	11,16	18,90
Acetonitrile	Emission to air	low. pop.	µg	3,23	6,52	11,05
Acrolein	Emission to air	low. pop.	µg	9,01	18,21	30,84
Actinides, radioactive, unspecified	Emission to air	low. pop.	mBq	15,81	31,93	54,09
Aerosols, radioactive, unspecified	Emission to air	low. pop.	Bq	0,42	0,84	1,43
Aldehydes, unspecified	Emission to air	low. pop.	mg	0,74	1,50	2,54
Aluminium	Emission to air	low. pop.	mg	1,51	3,05	5,17
Ammonia	Emission to air	low. pop.	mg	207,98	420,08	711,57
Antimony	Emission to air	low. pop.	mg	2,08	4,20	7,12
Antimony-124	Emission to air	low. pop.	µBq	1,38	2,78	4,71
Antimony-125	Emission to air	low. pop.	µBq	14,36	29,01	49,13
Argon-41	Emission to air	low. pop.	Bq	178,75	361,04	611,57
Arsenic	Emission to air	low. pop.	mg	15,15	30,61	51,84
Barium	Emission to air	low. pop.	mg	8,17	16,50	27,96

Barium-140	Emission to air	low. pop.	mBq	0,93	1,89	3,20
Benzene	Emission to air	low. pop.	mg	236,61	477,91	809,53
Benzene, ethyl-	Emission to air	low. pop.	µg	0,72	1,45	2,46
Benzo(a)pyrene	Emission to air	low. pop.	mg	1,02	2,06	3,50
Beryllium	Emission to air	low. pop.	µg	4,78	9,66	16,36
Boron	Emission to air	low. pop.	g	0,52	1,05	1,78
Bromine	Emission to air	low. pop.	mg	62,60	126,44	214,17
Butadiene	Emission to air	low. pop.	ng	0,34	0,69	1,16
Butane	Emission to air	low. pop.	mg	61,19	123,60	209,36
Cadmium	Emission to air	low. pop.	mg	4,74	9,56	16,20
Calcium	Emission to air	low. pop.	mg	0,44	0,88	1,49
Carbon-14	Emission to air	low. pop.	kBq	1,63	3,28	5,56
Carbon dioxide, biogenic	Emission to air	low. pop.	g	248,01	500,94	848,55
Carbon dioxide, fossil	Emission to air	low. pop.	kg	41,65	84,12	142,49
Carbon dioxide, land transformation	Emission to air	low. pop.	g	4,74	9,58	16,22
Carbon disulfide	Emission to air	low. pop.	g	0,31	0,63	1,07
Carbon monoxide, biogenic	Emission to air	low. pop.	mg	149,78	302,52	512,44
Carbon monoxide, fossil	Emission to air	low. pop.	g	10,77	21,76	36,85
Cerium-141	Emission to air	low. pop.	µBq	226,46	457,41	774,80
Cesium-134	Emission to air	low. pop.	µBq	10,85	21,91	37,11
Cesium-137	Emission to air	low. pop.	µBq	192,26	388,34	657,81
Chlorine	Emission to air	low. pop.	µg	216,86	438,02	741,96
Chloroform	Emission to air	low. pop.	µg	0,75	1,51	2,56
Chromium	Emission to air	low. pop.	mg	12,58	25,40	43,03
Chromium-51	Emission to air	low. pop.	µBq	14,51	29,31	49,65
Chromium VI	Emission to air	low. pop.	mg	0,40	0,80	1,36
Cobalt	Emission to air	low. pop.	mg	0,68	1,37	2,32
Cobalt-58	Emission to air	low. pop.	µBq	20,21	40,82	69,14
Cobalt-60	Emission to air	low. pop.	µBq	178,52	360,57	610,78
Copper	Emission to air	low. pop.	mg	45,50	91,90	155,68
Cumene	Emission to air	low. pop.	ng	41,55	83,92	142,16
Cyanide	Emission to air	low. pop.	mg	0,58	1,17	1,98
Dinitrogen monoxide	Emission to air	low. pop.	g	0,81	1,64	2,78
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	low. pop.	ng	4,10	8,28	14,03
Ethane	Emission to air	low. pop.	g	1,09	2,20	3,73

Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	low. pop.	ng	152,60	308,23	522,10
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	low. pop.	µg	41,50	83,83	142,00
Ethane, 1,2-dichloro-	Emission to air	low. pop.	µg	0,30	0,62	1,04
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Emission to air	low. pop.	mg	0,69	1,39	2,35
Ethanol	Emission to air	low. pop.	µg	213,38	431,00	730,07
Ethene	Emission to air	low. pop.	mg	4,22	8,52	14,43
Ethene, tetrachloro-	Emission to air	low. pop.	µg	0,33	0,66	1,12
Ethylene oxide	Emission to air	low. pop.	ng	3,28	6,64	11,24
Ethyne	Emission to air	low. pop.	µg	139,60	281,98	477,64
Fluorine	Emission to air	low. pop.	mg	1,42	2,86	4,85
Formaldehyde	Emission to air	low. pop.	mg	23,64	47,76	80,90
Formic acid	Emission to air	low. pop.	µg	21,60	43,62	73,89
Furan	Emission to air	low. pop.	µg	6,13	12,39	20,98
Heat, waste	Emission to air	low. pop.	MJ	566,02	1143,27	1936,59
Helium	Emission to air	low. pop.	mg	4,49	9,08	15,37
Hexane	Emission to air	low. pop.	mg	15,85	32,01	54,22
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	low. pop.	µg	4,42	8,93	15,12
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	low. pop.	mg	136,31	275,32	466,36
Hydrocarbons, aliphatic, unsaturated	Emission to air	low. pop.	mg	87,71	177,16	300,10
Hydrocarbons, aromatic	Emission to air	low. pop.	mg	24,79	50,06	84,80
Hydrocarbons, chlorinated	Emission to air	low. pop.	µg	1,55	3,13	5,30
Hydrogen-3, Tritium	Emission to air	low. pop.	kBq	9,59	19,37	32,81
Hydrogen chloride	Emission to air	low. pop.	g	3,58	7,23	12,25
Hydrogen fluoride	Emission to air	low. pop.	g	0,86	1,73	2,93
Hydrogen sulfide	Emission to air	low. pop.	mg	115,54	233,37	395,30
Iodine	Emission to air	low. pop.	mg	32,64	65,93	111,68
Iodine-129	Emission to air	low. pop.	Bq	1,66	3,35	5,68
Iodine-131	Emission to air	low. pop.	Bq	70,78	142,97	242,18
Iodine-133	Emission to air	low. pop.	mBq	3,08	6,22	10,53
Iodine-135	Emission to air	low. pop.	mBq	4,25	8,59	14,55
Iron	Emission to air	low. pop.	mg	0,70	1,41	2,39
Isoprene	Emission to air	low. pop.	ng	284,55	574,75	973,58
Krypton-85	Emission to air	low. pop.	Bq	559,38	1129,86	1913,88
Krypton-85m	Emission to air	low. pop.	Bq	22,43	45,30	76,74
Krypton-87	Emission to air	low. pop.	Bq	9,80	19,80	33,54

Krypton-88	Emission to air	low. pop.	Bq	9,28	18,75	31,76
Krypton-89	Emission to air	low. pop.	Bq	2,13	4,29	7,28
Lanthanum-140	Emission to air	low. pop.	µBq	79,84	161,26	273,16
Lead	Emission to air	low. pop.	mg	41,59	84,01	142,31
Lead-210	Emission to air	low. pop.	Bq	8,83	17,84	30,22
Magnesium	Emission to air	low. pop.	mg	0,64	1,29	2,18
Manganese	Emission to air	low. pop.	mg	8,31	16,79	28,44
Manganese-54	Emission to air	low. pop.	µBq	7,43	15,01	25,43
Mercury	Emission to air	low. pop.	mg	1,80	3,64	6,16
Methane, biogenic	Emission to air	low. pop.	g	1,55	3,13	5,30
Methane, bromochlorodifluoro-, Halon 1211	Emission to air	low. pop.	µg	280,36	566,28	959,22
Methane, bromotrifluoro-, Halon 1301	Emission to air	low. pop.	µg	59,22	119,62	202,63
Methane, chlorodifluoro-, HCFC-22	Emission to air	low. pop.	mg	1,38	2,78	4,71
Methane, dichloro-, HCC-30	Emission to air	low. pop.	µg	2,21	4,47	7,57
Methane, dichlorodifluoro-, CFC-12	Emission to air	low. pop.	µg	0,85	1,71	2,90
Methane, fossil	Emission to air	low. pop.	g	114,37	231,01	391,31
Methane, monochloro-, R-40	Emission to air	low. pop.	µg	4,04	8,16	13,83
Methanol	Emission to air	low. pop.	mg	1,21	2,45	4,15
Molybdenum	Emission to air	low. pop.	mg	0,46	0,93	1,58
Nickel	Emission to air	low. pop.	mg	32,43	65,51	110,96
Niobium-95	Emission to air	low. pop.	µBq	0,88	1,78	3,02
Nitrate	Emission to air	low. pop.	mg	2,25	4,55	7,70
Nitrogen oxides	Emission to air	low. pop.	g	71,16	143,74	243,48
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	low. pop.	g	6,73	13,59	23,02
Noble gases, radioactive, unspecified	Emission to air	low. pop.	kBq	15942,20	32200,65	54544,87
Ozone	Emission to air	low. pop.	µg	1,00	2,01	3,41
PAH, polycyclic aromatic hydrocarbons	Emission to air	low. pop.	mg	1,03	2,08	3,52
Particulates, < 2.5 um	Emission to air	low. pop.	g	12,20	24,65	41,75
Particulates, > 10 um	Emission to air	low. pop.	g	40,74	82,29	139,40
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop.	g	3,25	6,57	11,13
Pentane	Emission to air	low. pop.	mg	59,60	120,39	203,92
Phenol	Emission to air	low. pop.	µg	107,06	216,25	366,30
Phenol, pentachloro-	Emission to air	low. pop.	mg	0,45	0,91	1,53
Phosphorus	Emission to air	low. pop.	µg	86,44	174,60	295,76
Platinum	Emission to air	low. pop.	ng	20,69	41,80	70,80

Plutonium-238	Emission to air	low. pop.	nBq	226,30	457,08	774,25
Plutonium-alpha	Emission to air	low. pop.	µBq	0,52	1,05	1,77
Polonium-210	Emission to air	low. pop.	Bq	15,58	31,48	53,32
Potassium	Emission to air	low. pop.	µg	207,30	418,72	709,27
Potassium-40	Emission to air	low. pop.	Bq	2,03	4,10	6,95
Propane	Emission to air	low. pop.	g	0,30	0,60	1,02
Propene	Emission to air	low. pop.	mg	6,78	13,69	23,19
Protactinium-234	Emission to air	low. pop.	mBq	226,13	456,75	773,69
Radioactive species, other beta emitters	Emission to air	low. pop.	mBq	8,23	16,61	28,14
Radium-226	Emission to air	low. pop.	Bq	9,51	19,22	32,55
Radium-228	Emission to air	low. pop.	Bq	0,75	1,51	2,56
Radon-220	Emission to air	low. pop.	Bq	95,03	191,94	325,13
Radon-222	Emission to air	low. pop.	kBq	696,46	1406,73	2382,87
Ruthenium-103	Emission to air	low. pop.	nBq	193,82	391,48	663,14
Scandium	Emission to air	low. pop.	µg	5,39	10,89	18,44
Selenium	Emission to air	low. pop.	mg	5,72	11,55	19,56
Silicon	Emission to air	low. pop.	mg	3,12	6,31	10,69
Silicon tetrafluoride	Emission to air	low. pop.	µg	0,70	1,41	2,39
Silver	Emission to air	low. pop.	ng	18,92	38,21	64,73
Silver-110	Emission to air	low. pop.	µBq	1,92	3,88	6,57
Sodium	Emission to air	low. pop.	mg	0,43	0,88	1,48
Strontium	Emission to air	low. pop.	mg	8,06	16,27	27,57
Styrene	Emission to air	low. pop.	µg	5,90	11,91	20,17
Sulfate	Emission to air	low. pop.	mg	17,01	34,36	58,21
Sulfur dioxide	Emission to air	low. pop.	g	173,36	350,16	593,13
Sulfur hexafluoride	Emission to air	low. pop.	µg	2,64	5,33	9,03
Sulfuric acid	Emission to air	low. pop.	ng	41,45	83,73	141,83
Terpenes	Emission to air	low. pop.	µg	2,69	5,43	9,21
Thallium	Emission to air	low. pop.	ng	285,32	576,31	976,21
Thorium	Emission to air	low. pop.	µg	0,34	0,70	1,18
Thorium-228	Emission to air	low. pop.	Bq	0,40	0,81	1,38
Thorium-230	Emission to air	low. pop.	Bq	0,84	1,69	2,86
Thorium-232	Emission to air	low. pop.	Bq	0,63	1,28	2,17
Thorium-234	Emission to air	low. pop.	mBq	226,18	456,84	773,85
Tin	Emission to air	low. pop.	mg	1,82	3,67	6,22

Titanium	Emission to air	low. pop.	µg	53,38	107,82	182,64
Toluene	Emission to air	low. pop.	mg	47,82	96,58	163,60
Tungsten	Emission to air	low. pop.	µg	0,68	1,36	2,31
Uranium	Emission to air	low. pop.	ng	175,31	354,10	599,80
Uranium-234	Emission to air	low. pop.	Bq	2,63	5,31	9,00
Uranium-235	Emission to air	low. pop.	mBq	127,60	257,73	436,57
Uranium-238	Emission to air	low. pop.	Bq	4,19	8,46	14,33
Uranium alpha	Emission to air	low. pop.	Bq	12,29	24,82	42,04
Vanadium	Emission to air	low. pop.	mg	2,37	4,79	8,12
Water	Emission to air	low. pop.	µg	22,29	45,03	76,28
Xenon-131m	Emission to air	low. pop.	Bq	44,38	89,65	151,85
Xenon-133	Emission to air	low. pop.	kBq	1,39	2,80	4,74
Xenon-133m	Emission to air	low. pop.	Bq	6,59	13,31	22,54
Xenon-135	Emission to air	low. pop.	Bq	570,36	1152,03	1951,44
Xenon-135m	Emission to air	low. pop.	Bq	333,13	672,87	1139,78
Xenon-137	Emission to air	low. pop.	Bq	5,83	11,78	19,95
Xenon-138	Emission to air	low. pop.	Bq	53,60	108,27	183,40
Xylene	Emission to air	low. pop.	g	0,38	0,76	1,29
Zinc	Emission to air	low. pop.	mg	31,94	64,52	109,28
Zinc-65	Emission to air	low. pop.	µBq	37,11	74,95	126,96
Zirconium	Emission to air	low. pop.	µg	4,25	8,58	14,53
Zirconium-95	Emission to air	low. pop.	µBq	36,27	73,26	124,10
Aluminium	Emission to air	low. pop., long-term	g	0,76	1,54	2,61
Antimony	Emission to air	low. pop., long-term	µg	68,80	138,97	235,41
Arsenic	Emission to air	low. pop., long-term	mg	4,04	8,17	13,84
Barium	Emission to air	low. pop., long-term	mg	4,42	8,93	15,12
Beryllium	Emission to air	low. pop., long-term	µg	96,33	194,56	329,57
Boron	Emission to air	low. pop., long-term	mg	1,28	2,59	4,39
Cadmium	Emission to air	low. pop., long-term	µg	104,25	210,56	356,68
Calcium	Emission to air	low. pop., long-term	mg	248,11	501,14	848,89
Chlorine	Emission to air	low. pop., long-term	mg	9,47	19,12	32,39
Chromium VI	Emission to air	low. pop., long-term	mg	0,49	0,99	1,68
Cobalt	Emission to air	low. pop., long-term	mg	0,61	1,24	2,10
Copper	Emission to air	low. pop., long-term	mg	6,46	13,05	22,11
Fluorine	Emission to air	low. pop., long-term	mg	46,49	93,91	159,08

Iron	Emission to air	low. pop., long-term	g	0,83	1,68	2,84
Lead	Emission to air	low. pop., long-term	mg	6,84	13,81	23,40
Magnesium	Emission to air	low. pop., long-term	mg	76,10	153,71	260,37
Manganese	Emission to air	low. pop., long-term	mg	17,16	34,66	58,71
Mercury	Emission to air	low. pop., long-term	µg	52,54	106,12	179,76
Molybdenum	Emission to air	low. pop., long-term	mg	1,33	2,68	4,54
Nickel	Emission to air	low. pop., long-term	mg	1,40	2,83	4,79
Nitrate	Emission to air	low. pop., long-term	mg	6,55	13,22	22,40
Particulates, < 2.5 um	Emission to air	low. pop., long-term	g	0,61	1,23	2,08
Particulates, > 10 um	Emission to air	low. pop., long-term	g	1,52	3,07	5,21
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop., long-term	g	0,91	1,84	3,12
Phosphorus	Emission to air	low. pop., long-term	mg	1,28	2,59	4,39
Potassium	Emission to air	low. pop., long-term	mg	130,52	263,63	446,56
Radon-222	Emission to air	low. pop., long-term	kBq	29189,45	58957,93	99869,18
Scandium	Emission to air	low. pop., long-term	mg	2,73	5,52	9,34
Selenium	Emission to air	low. pop., long-term	mg	0,38	0,77	1,31
Silicon	Emission to air	low. pop., long-term	mg	169,92	343,22	581,38
Silver	Emission to air	low. pop., long-term	µg	114,26	230,78	390,92
Sodium	Emission to air	low. pop., long-term	mg	44,83	90,54	153,37
Strontium	Emission to air	low. pop., long-term	mg	2,77	5,60	9,49
Sulfate	Emission to air	low. pop., long-term	g	0,70	1,42	2,40
Tin	Emission to air	low. pop., long-term	µg	159,08	321,32	544,29
Titanium	Emission to air	low. pop., long-term	mg	49,83	100,65	170,49
Tungsten	Emission to air	low. pop., long-term	mg	0,31	0,62	1,06
Vanadium	Emission to air	low. pop., long-term	mg	4,73	9,56	16,19
Zinc	Emission to air	low. pop., long-term	mg	4,90	9,90	16,76
Benzene	Emission to air	stratosphere + troposphere	ng	2,18	4,40	7,46
Butadiene	Emission to air	stratosphere + troposphere	ng	2,07	4,17	7,07
Cadmium	Emission to air	stratosphere + troposphere	pg	1,09	2,21	3,74
Carbon dioxide, fossil	Emission to air	stratosphere + troposphere	mg	0,34	0,70	1,18
Carbon monoxide, fossil	Emission to air	stratosphere + troposphere	µg	0,40	0,82	1,38
Chromium	Emission to air	stratosphere + troposphere	pg	5,46	11,04	18,69
Copper	Emission to air	stratosphere + troposphere	pg	185,75	375,19	635,54
Dinitrogen monoxide	Emission to air	stratosphere + troposphere	ng	3,28	6,62	11,22
Ethylene oxide	Emission to air	stratosphere + troposphere	ng	19,96	40,32	68,30

Formaldehyde	Emission to air	stratosphere + troposphere	ng	17,21	34,76	58,89
Heat, waste	Emission to air	stratosphere + troposphere	J	4,98	10,06	17,05
Hydrogen chloride	Emission to air	stratosphere + troposphere	pg	93,97	189,81	321,52
Lead	Emission to air	stratosphere + troposphere	pg	2,19	4,41	7,48
Mercury	Emission to air	stratosphere + troposphere	pg	0,01	0,02	0,03
Methane, fossil	Emission to air	stratosphere + troposphere	ng	5,46	11,04	18,69
Nickel	Emission to air	stratosphere + troposphere	pg	7,65	15,45	26,17
Nitrogen oxides	Emission to air	stratosphere + troposphere	µg	1,53	3,09	5,23
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	stratosphere + troposphere	ng	73,32	148,09	250,84
Particulates, < 2.5 um	Emission to air	stratosphere + troposphere	ng	4,15	8,39	14,21
Selenium	Emission to air	stratosphere + troposphere	pg	1,09	2,21	3,74
Sulfur dioxide	Emission to air	stratosphere + troposphere	ng	109,27	220,71	373,86
Water	Emission to air	stratosphere + troposphere	µg	135,49	273,67	463,57
Zinc	Emission to air	stratosphere + troposphere	pg	109,27	220,71	373,86
4-Methyl-2-pentanone	Emission to water		ng	2,02	4,07	6,90
Acetone	Emission to water		ng	4,81	9,71	16,44
Acidity, unspecified	Emission to water		ng	101,11	204,23	345,95
Aluminium	Emission to water		µg	80,53	162,66	275,54
Ammonium, ion	Emission to water		µg	5,93	11,97	20,28
Antimony	Emission to water		ng	5,41	10,93	18,52
AOX, Adsorbable Organic Halogen as Cl	Emission to water		µg	1,05	2,12	3,59
Arsenic, ion	Emission to water		µg	18,33	37,02	62,70
Barium	Emission to water		µg	136,89	276,49	468,35
Benzene	Emission to water		µg	0,81	1,63	2,76
Benzene, ethyl-	Emission to water		ng	45,33	91,55	155,08
Beryllium	Emission to water		ng	4,82	9,74	16,49
BOD5, Biological Oxygen Demand	Emission to water		mg	35,89	72,49	122,80
Boron	Emission to water		µg	1,51	3,05	5,17
Bromine	Emission to water		µg	103,08	208,21	352,69
Cadmium, ion	Emission to water		µg	44,80	90,50	153,29
Calcium, ion	Emission to water		mg	1,55	3,12	5,29
Chloride	Emission to water		mg	48,81	98,58	166,99
Chromium VI	Emission to water		µg	23,53	47,53	80,50
Chromium, ion	Emission to water		µg	96,44	194,79	329,95
Cobalt	Emission to water		ng	10,66	21,53	36,46

COD, Chemical Oxygen Demand	Emission to water	mg	36,29	73,29	124,15
Copper, ion	Emission to water	µg	151,21	305,41	517,34
Cyanide	Emission to water	µg	182,21	368,03	623,41
DOC, Dissolved Organic Carbon	Emission to water	mg	3,92	7,92	13,42
Fluoride	Emission to water	mg	0,39	0,79	1,33
Formaldehyde	Emission to water	µg	105,02	212,13	359,32
Heat, waste	Emission to water	kJ	1,88	3,81	6,45
Hydrocarbons, unspecified	Emission to water	mg	0,33	0,67	1,14
Iron, ion	Emission to water	mg	16,42	33,18	56,20
Lead	Emission to water	µg	95,01	191,90	325,06
Lead-210	Emission to water	µBq	139,16	281,08	476,13
Lithium, ion	Emission to water	mg	0,52	1,04	1,77
m-Xylene	Emission to water	ng	14,57	29,42	49,84
Magnesium	Emission to water	mg	0,30	0,61	1,03
Manganese	Emission to water	µg	108,66	219,48	371,77
Mercury	Emission to water	µg	7,13	14,39	24,38
Methanol	Emission to water	µg	31,51	63,64	107,80
Molybdenum	Emission to water	ng	11,05	22,32	37,81
Nickel, ion	Emission to water	µg	242,91	490,64	831,09
o-Xylene	Emission to water	ng	10,61	21,43	36,31
Oils, unspecified	Emission to water	mg	9,85	19,89	33,69
Phenol	Emission to water	µg	10,72	21,65	36,67
Phosphorus	Emission to water	µg	10,52	21,24	35,98
Radium-226	Emission to water	mBq	0,64	1,29	2,18
Radium-228	Emission to water	mBq	0,90	1,81	3,07
Selenium	Emission to water	ng	1,07	2,16	3,66
Silver, ion	Emission to water	µg	1,01	2,04	3,45
Sodium, ion	Emission to water	mg	125,41	253,32	429,09
Solved solids	Emission to water	mg	21,37	43,17	73,13
Strontium	Emission to water	µg	26,23	52,97	89,73
Sulfate	Emission to water	µg	235,14	474,94	804,50
Sulfur	Emission to water	µg	1,27	2,58	4,36
Suspended solids, unspecified	Emission to water	mg	31,67	63,96	108,34
Thallium	Emission to water	ng	1,14	2,31	3,91
Tin, ion	Emission to water	ng	52,91	106,86	181,01

Titanium, ion	Emission to water		ng	83,07	167,79	284,23
TOC, Total Organic Carbon	Emission to water		mg	3,92	7,92	13,42
Toluene	Emission to water		µg	0,76	1,54	2,61
Vanadium, ion	Emission to water		ng	13,07	26,39	44,71
Xylene	Emission to water		µg	0,39	0,78	1,32
Zinc, ion	Emission to water		mg	0,77	1,56	2,65
Aluminium	Emission to water	groundwater	mg	118,33	239,01	404,86
Ammonium, ion	Emission to water	groundwater	mg	10,65	21,50	36,42
Antimony	Emission to water	groundwater	mg	6,19	12,51	21,19
Arsenic, ion	Emission to water	groundwater	mg	31,31	63,24	107,12
Barium	Emission to water	groundwater	mg	1,75	3,54	6,00
Beryllium	Emission to water	groundwater	µg	191,52	386,85	655,28
BOD5, Biological Oxygen Demand	Emission to water	groundwater	mg	2,13	4,29	7,27
Boron	Emission to water	groundwater	mg	231,13	466,84	790,78
Bromine	Emission to water	groundwater	mg	14,58	29,45	49,89
Cadmium, ion	Emission to water	groundwater	µg	233,51	471,66	798,95
Calcium, ion	Emission to water	groundwater	g	14,49	29,26	49,57
Chloride	Emission to water	groundwater	g	136,92	276,56	468,47
Chromium VI	Emission to water	groundwater	mg	18,47	37,31	63,20
Chromium, ion	Emission to water	groundwater	µg	5,61	11,34	19,21
Cobalt	Emission to water	groundwater	mg	2,07	4,18	7,09
COD, Chemical Oxygen Demand	Emission to water	groundwater	mg	2,13	4,29	7,27
Copper, ion	Emission to water	groundwater	mg	1,70	3,43	5,81
Fluoride	Emission to water	groundwater	mg	87,39	176,51	298,99
Iodide	Emission to water	groundwater	mg	1,77	3,58	6,07
Iron, ion	Emission to water	groundwater	g	31,71	64,05	108,49
Lead	Emission to water	groundwater	µg	108,01	218,17	369,56
Lead-210	Emission to water	groundwater	µBq	223,02	450,47	763,05
Magnesium	Emission to water	groundwater	g	5,64	11,40	19,31
Manganese	Emission to water	groundwater	mg	284,32	574,29	972,79
Mercury	Emission to water	groundwater	µg	29,88	60,35	102,23
Molybdenum	Emission to water	groundwater	mg	42,45	85,75	145,25
Nickel, ion	Emission to water	groundwater	mg	11,08	22,38	37,92
Nitrate	Emission to water	groundwater	g	0,86	1,74	2,95
Phosphate	Emission to water	groundwater	g	22,83	46,11	78,11

Phosphorus	Emission to water	groundwater	µg	0,52	1,05	1,78
Polonium-210	Emission to water	groundwater	mBq	0,34	0,69	1,16
Potassium-40	Emission to water	groundwater	µBq	26,96	54,45	92,23
Potassium, ion	Emission to water	groundwater	g	3,87	7,81	13,23
Radium-226	Emission to water	groundwater	µBq	250,18	505,32	855,96
Scandium	Emission to water	groundwater	mg	2,31	4,67	7,91
Selenium	Emission to water	groundwater	mg	4,82	9,74	16,50
Silicon	Emission to water	groundwater	g	3,06	6,19	10,49
Silver, ion	Emission to water	groundwater	µg	128,33	259,21	439,08
Sodium, ion	Emission to water	groundwater	g	8,68	17,54	29,71
Solids, inorganic	Emission to water	groundwater	g	69,47	140,31	237,67
Solved solids	Emission to water	groundwater	g	2,29	4,62	7,82
Strontium	Emission to water	groundwater	mg	197,17	398,25	674,60
Sulfate	Emission to water	groundwater	g	238,32	481,36	815,38
Thallium	Emission to water	groundwater	µg	15,42	31,14	52,75
Thorium-228	Emission to water	groundwater	µBq	2,73	5,52	9,36
Tin, ion	Emission to water	groundwater	µg	100,13	202,25	342,59
Titanium, ion	Emission to water	groundwater	mg	1,81	3,65	6,18
Tungsten	Emission to water	groundwater	mg	4,58	9,25	15,66
Uranium-238	Emission to water	groundwater	µBq	114,42	231,11	391,48
Vanadium, ion	Emission to water	groundwater	mg	1,89	3,82	6,48
Zinc, ion	Emission to water	groundwater	mg	14,72	29,73	50,36
Aluminium	Emission to water	groundwater, long-term	g	98,22	198,40	336,06
Ammonium, ion	Emission to water	groundwater, long-term	mg	5,46	11,03	18,68
Antimony	Emission to water	groundwater, long-term	mg	57,01	115,15	195,05
Arsenic, ion	Emission to water	groundwater, long-term	mg	282,50	570,60	966,55
Barium	Emission to water	groundwater, long-term	g	2,07	4,19	7,10
Beryllium	Emission to water	groundwater, long-term	mg	82,74	167,13	283,10
BOD5, Biological Oxygen Demand	Emission to water	groundwater, long-term	g	1,30	2,63	4,46
Boron	Emission to water	groundwater, long-term	g	3,32	6,71	11,37
Bromine	Emission to water	groundwater, long-term	mg	6,06	12,23	20,72
Cadmium, ion	Emission to water	groundwater, long-term	mg	89,09	179,94	304,80
Calcium, ion	Emission to water	groundwater, long-term	kg	1,11	2,24	3,79
Chloride	Emission to water	groundwater, long-term	g	116,25	234,80	397,72
Chromium VI	Emission to water	groundwater, long-term	g	0,41	0,82	1,39

Cobalt	Emission to water	groundwater, long-term	g	1,17	2,37	4,01
COD, Chemical Oxygen Demand	Emission to water	groundwater, long-term	g	3,74	7,54	12,78
Copper, ion	Emission to water	groundwater, long-term	g	1,16	2,34	3,96
DOC, Dissolved Organic Carbon	Emission to water	groundwater, long-term	g	1,87	3,79	6,41
Fluoride	Emission to water	groundwater, long-term	g	6,38	12,88	21,82
Heat, waste	Emission to water	groundwater, long-term	kJ	104,91	211,90	358,94
Hydrogen sulfide	Emission to water	groundwater, long-term	mg	20,08	40,55	68,69
Iodide	Emission to water	groundwater, long-term	ng	23,42	47,30	80,13
Iron, ion	Emission to water	groundwater, long-term	g	132,69	268,00	453,97
Lead	Emission to water	groundwater, long-term	mg	158,91	320,97	543,69
Magnesium	Emission to water	groundwater, long-term	kg	0,56	1,12	1,90
Manganese	Emission to water	groundwater, long-term	g	45,13	91,16	154,41
Mercury	Emission to water	groundwater, long-term	mg	14,08	28,45	48,19
Molybdenum	Emission to water	groundwater, long-term	mg	263,98	533,20	903,18
Nickel, ion	Emission to water	groundwater, long-term	g	4,62	9,32	15,79
Nitrate	Emission to water	groundwater, long-term	g	50,09	101,17	171,37
Nitrite	Emission to water	groundwater, long-term	mg	0,30	0,60	1,02
Nitrogen, organic bound	Emission to water	groundwater, long-term	mg	8,92	18,01	30,51
Phosphate	Emission to water	groundwater, long-term	g	157,14	317,40	537,65
Potassium, ion	Emission to water	groundwater, long-term	kg	0,32	0,65	1,11
Scandium	Emission to water	groundwater, long-term	mg	138,32	279,38	473,25
Selenium	Emission to water	groundwater, long-term	mg	194,33	392,52	664,89
Silicon	Emission to water	groundwater, long-term	kg	0,79	1,59	2,69
Silver, ion	Emission to water	groundwater, long-term	mg	5,02	10,14	17,18
Sodium, ion	Emission to water	groundwater, long-term	kg	0,50	1,00	1,70
Strontium	Emission to water	groundwater, long-term	g	18,16	36,69	62,15
Sulfate	Emission to water	groundwater, long-term	kg	4,23	8,55	14,48
Thallium	Emission to water	groundwater, long-term	mg	9,85	19,90	33,71
Tin, ion	Emission to water	groundwater, long-term	mg	78,47	158,49	268,46
Titanium, ion	Emission to water	groundwater, long-term	g	2,59	5,23	8,85
TOC, Total Organic Carbon	Emission to water	groundwater, long-term	g	1,87	3,79	6,41
Tungsten	Emission to water	groundwater, long-term	mg	93,58	189,03	320,19
Vanadium, ion	Emission to water	groundwater, long-term	g	0,40	0,81	1,37
Zinc, ion	Emission to water	groundwater, long-term	g	7,80	15,76	26,70
Arsenic, ion	Emission to water	lake	pg	13,41	27,09	45,89

Cadmium, ion	Emission to water	lake	pg	11,39	23,01	38,98
Calcium, ion	Emission to water	lake	mg	1,07	2,15	3,65
Copper, ion	Emission to water	lake	ng	0,52	1,04	1,77
DOC, Dissolved Organic Carbon	Emission to water	lake	µg	19,14	38,67	65,50
Lead	Emission to water	lake	pg	33,76	68,18	115,50
Mercury	Emission to water	lake	pg	0,29	0,59	1,00
Nickel, ion	Emission to water	lake	pg	45,85	92,61	156,87
Zinc, ion	Emission to water	lake	pg	33,26	67,18	113,80
Acenaphthene	Emission to water	ocean	ng	222,37	449,15	760,81
Acenaphthylene	Emission to water	ocean	ng	13,91	28,09	47,58
Actinides, radioactive, unspecified	Emission to water	ocean	Bq	2,69	5,44	9,22
Aluminium	Emission to water	ocean	mg	36,40	73,52	124,53
Ammonium, ion	Emission to water	ocean	mg	2,65	5,35	9,06
AOX, Adsorbable Organic Halogen as Cl	Emission to water	ocean	µg	19,82	40,03	67,81
Arsenic, ion	Emission to water	ocean	µg	63,45	128,16	217,10
Barite	Emission to water	ocean	g	1,86	3,75	6,36
Barium	Emission to water	ocean	mg	31,18	62,98	106,69
Benzene	Emission to water	ocean	mg	2,96	5,99	10,14
Benzene, ethyl-	Emission to water	ocean	mg	0,86	1,73	2,94
BOD5, Biological Oxygen Demand	Emission to water	ocean	g	5,87	11,86	20,09
Boron	Emission to water	ocean	mg	0,29	0,59	1,01
Bromine	Emission to water	ocean	mg	25,03	50,55	85,62
Cadmium, ion	Emission to water	ocean	µg	14,66	29,61	50,16
Calcium, ion	Emission to water	ocean	g	1,21	2,45	4,14
Carboxylic acids, unspecified	Emission to water	ocean	mg	217,95	440,22	745,69
Cesium	Emission to water	ocean	µg	35,75	72,21	122,32
Cesium-137	Emission to water	ocean	Bq	308,76	623,65	1056,40
Chloride	Emission to water	ocean	g	17,95	36,25	61,41
Chlorinated solvents, unspecified	Emission to water	ocean	pg	21,87	44,18	74,83
Chromium, ion	Emission to water	ocean	µg	199,32	402,59	681,95
Cobalt	Emission to water	ocean	µg	9,30	18,79	31,82
COD, Chemical Oxygen Demand	Emission to water	ocean	g	5,90	11,92	20,20
Copper, ion	Emission to water	ocean	µg	129,29	261,14	442,35
Cyanide	Emission to water	ocean	µg	142,13	287,07	486,27
DOC, Dissolved Organic Carbon	Emission to water	ocean	g	1,83	3,69	6,25

Fluoride	Emission to water	ocean	mg	4,69	9,47	16,05
Glutaraldehyde	Emission to water	ocean	µg	229,51	463,57	785,25
Heat, waste	Emission to water	ocean	kJ	9,65	19,50	33,03
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	ocean	mg	4,65	9,39	15,90
Hydrocarbons, aliphatic, unsaturated	Emission to water	ocean	mg	0,43	0,87	1,47
Hydrocarbons, aromatic	Emission to water	ocean	mg	21,77	43,97	74,48
Hydrocarbons, unspecified	Emission to water	ocean	mg	34,68	70,06	118,67
Hydrogen-3, Tritium	Emission to water	ocean	kBq	641,49	1295,71	2194,82
Hypochlorite	Emission to water	ocean	mg	18,29	36,95	62,59
Iodide	Emission to water	ocean	mg	3,58	7,22	12,23
Iron, ion	Emission to water	ocean	mg	1,96	3,95	6,70
Lead	Emission to water	ocean	mg	0,40	0,82	1,38
Lead-210	Emission to water	ocean	mBq	264,56	534,37	905,17
Magnesium	Emission to water	ocean	mg	197,08	398,07	674,30
Manganese	Emission to water	ocean	mg	1,58	3,19	5,41
Mercury	Emission to water	ocean	µg	3,29	6,65	11,26
Methanol	Emission to water	ocean	mg	3,35	6,77	11,47
Molybdenum	Emission to water	ocean	µg	7,35	14,84	25,14
Nickel, ion	Emission to water	ocean	µg	32,83	66,31	112,32
Nitrate	Emission to water	ocean	mg	207,39	418,90	709,58
Nitrite	Emission to water	ocean	mg	4,18	8,44	14,30
Nitrogen	Emission to water	ocean	mg	0,71	1,44	2,44
Nitrogen, organic bound	Emission to water	ocean	mg	12,43	25,11	42,54
Oils, unspecified	Emission to water	ocean	g	1,86	3,77	6,38
PAH, polycyclic aromatic hydrocarbons	Emission to water	ocean	µg	284,49	574,63	973,37
Phenol	Emission to water	ocean	mg	4,58	9,26	15,68
Phosphate	Emission to water	ocean	mg	4,46	9,01	15,27
Phosphorus	Emission to water	ocean	mg	0,36	0,74	1,25
Polonium-210	Emission to water	ocean	Bq	0,40	0,82	1,38
Potassium-40	Emission to water	ocean	mBq	31,98	64,59	109,41
Potassium, ion	Emission to water	ocean	mg	152,17	307,36	520,64
Radioactive species, Nuclides, unspecified	Emission to water	ocean	kBq	1,61	3,25	5,51
Radium-224	Emission to water	ocean	Bq	1,79	3,61	6,12
Radium-226	Emission to water	ocean	Bq	3,16	6,38	10,80
Radium-228	Emission to water	ocean	Bq	3,58	7,22	12,23

Rubidium	Emission to water	ocean	mg	0,36	0,72	1,22
Selenium	Emission to water	ocean	µg	11,01	22,25	37,68
Silicon	Emission to water	ocean	µg	57,16	115,45	195,56
Silver, ion	Emission to water	ocean	µg	21,45	43,33	73,39
Sodium, ion	Emission to water	ocean	g	10,94	22,11	37,45
Strontium	Emission to water	ocean	mg	64,86	131,02	221,93
Strontium-90	Emission to water	ocean	Bq	34,33	69,34	117,45
Sulfate	Emission to water	ocean	g	0,48	0,97	1,64
Sulfide	Emission to water	ocean	mg	0,42	0,84	1,42
Sulfur	Emission to water	ocean	mg	2,34	4,72	8,00
Suspended solids, unspecified	Emission to water	ocean	g	6,58	13,29	22,51
t-Butyl methyl ether	Emission to water	ocean	µg	232,83	470,28	796,62
Thorium-228	Emission to water	ocean	Bq	7,15	14,45	24,47
Titanium, ion	Emission to water	ocean	µg	8,79	17,76	30,08
TOC, Total Organic Carbon	Emission to water	ocean	g	1,83	3,69	6,25
Toluene	Emission to water	ocean	mg	5,10	10,31	17,46
Tributyltin compounds	Emission to water	ocean	mg	0,66	1,33	2,25
Triethylene glycol	Emission to water	ocean	mg	2,81	5,67	9,60
Uranium-238	Emission to water	ocean	mBq	135,73	274,15	464,39
Vanadium, ion	Emission to water	ocean	µg	21,96	44,36	75,14
VOC, volatile organic compounds, unspecified origin	Emission to water	ocean	mg	12,51	25,27	42,81
Xylene	Emission to water	ocean	mg	4,24	8,57	14,52
Zinc, ion	Emission to water	ocean	mg	91,64	185,09	313,52
1-Butanol	Emission to water	river	µg	1,27	2,57	4,35
1-Pentanol	Emission to water	river	ng	5,28	10,67	18,07
1-Pentene	Emission to water	river	ng	3,99	8,06	13,65
1,4-Butanediol	Emission to water	river	ng	2,79	5,63	9,53
2-Aminopropanol	Emission to water	river	ng	0,37	0,74	1,26
2-Methyl-1-propanol	Emission to water	river	ng	9,59	19,36	32,79
2-Methyl-2-butene	Emission to water	river	pg	0,89	1,79	3,03
2-Propanol	Emission to water	river	ng	2,69	5,43	9,20
Acenaphthene	Emission to water	river	µg	0,45	0,90	1,53
Acenaphthylene	Emission to water	river	ng	28,01	56,58	95,84
Acetaldehyde	Emission to water	river	µg	2,70	5,45	9,24
Acetic acid	Emission to water	river	mg	0,33	0,67	1,13

Acetone	Emission to water	river	ng	118,35	239,05	404,93
Acetonitrile	Emission to water	river	ng	1,14	2,31	3,91
Acetyl chloride	Emission to water	river	ng	4,15	8,38	14,19
Acidity, unspecified	Emission to water	river	µg	110,51	223,22	378,12
Acrylate, ion	Emission to water	river	µg	0,30	0,60	1,01
Aluminium	Emission to water	river	g	0,33	0,66	1,12
Ammonium, ion	Emission to water	river	mg	123,49	249,43	422,51
Aniline	Emission to water	river	ng	24,61	49,70	84,19
Antimony	Emission to water	river	mg	1,95	3,94	6,67
Antimony-122	Emission to water	river	mBq	0,55	1,12	1,90
Antimony-124	Emission to water	river	Bq	0,45	0,91	1,55
Antimony-125	Emission to water	river	Bq	0,45	0,92	1,56
AOX, Adsorbable Organic Halogen as Cl	Emission to water	river	mg	1,13	2,29	3,88
Arsenic, ion	Emission to water	river	mg	21,52	43,46	73,62
Barium	Emission to water	river	mg	64,41	130,09	220,36
Barium-140	Emission to water	river	mBq	2,43	4,91	8,31
Benzene	Emission to water	river	mg	5,62	11,35	19,23
Benzene, 1,2-dichloro-	Emission to water	river	µg	0,85	1,71	2,89
Benzene, chloro-	Emission to water	river	µg	17,10	34,53	58,49
Benzene, ethyl-	Emission to water	river	mg	1,73	3,49	5,91
Beryllium	Emission to water	river	µg	14,35	28,99	49,10
BOD5, Biological Oxygen Demand	Emission to water	river	g	19,61	39,62	67,10
Borate	Emission to water	river	µg	0,41	0,84	1,42
Boron	Emission to water	river	mg	33,04	66,74	113,05
Bromate	Emission to water	river	mg	3,07	6,19	10,49
Bromide	Emission to water	river	µg	22,79	46,04	77,99
Bromine	Emission to water	river	mg	68,94	139,25	235,87
Butene	Emission to water	river	µg	10,49	21,20	35,90
Butyl acetate	Emission to water	river	µg	1,65	3,34	5,66
Butyrolactone	Emission to water	river	ng	4,12	8,33	14,11
Cadmium, ion	Emission to water	river	µg	144,58	292,03	494,67
Calcium, ion	Emission to water	river	g	9,63	19,45	32,95
Carbon disulfide	Emission to water	river	ng	249,10	503,13	852,26
Carbonate	Emission to water	river	mg	31,15	62,92	106,57
Carboxylic acids, unspecified	Emission to water	river	mg	265,00	535,26	906,68

Cerium-141	Emission to water	river	mBq	0,97	1,96	3,32
Cerium-144	Emission to water	river	mBq	0,30	0,60	1,01
Cesium	Emission to water	river	µg	72,01	145,45	246,38
Cesium-134	Emission to water	river	Bq	0,44	0,88	1,49
Cesium-136	Emission to water	river	µBq	172,45	348,32	590,03
Cesium-137	Emission to water	river	Bq	1,22	2,47	4,19
Chloramine	Emission to water	river	ng	71,57	144,56	244,87
Chlorate	Emission to water	river	mg	25,91	52,33	88,65
Chloride	Emission to water	river	g	76,03	153,57	260,13
Chlorinated solvents, unspecified	Emission to water	river	µg	65,52	132,34	224,18
Chlorine	Emission to water	river	mg	0,56	1,12	1,90
Chloroacetic acid	Emission to water	river	µg	23,96	48,40	81,99
Chloroacetyl chloride	Emission to water	river	ng	0,49	0,99	1,68
Chloroform	Emission to water	river	ng	19,54	39,47	66,86
Chlorosulfonic acid	Emission to water	river	ng	4,16	8,40	14,23
Chromium-51	Emission to water	river	Bq	0,44	0,89	1,50
Chromium VI	Emission to water	river	mg	14,87	30,03	50,87
Chromium, ion	Emission to water	river	mg	1,71	3,46	5,86
Cobalt	Emission to water	river	µg	120,70	243,80	412,98
Cobalt-57	Emission to water	river	mBq	5,47	11,06	18,73
Cobalt-58	Emission to water	river	Bq	3,49	7,05	11,94
Cobalt-60	Emission to water	river	Bq	2,68	5,42	9,19
COD, Chemical Oxygen Demand	Emission to water	river	g	19,89	40,18	68,05
Copper, ion	Emission to water	river	mg	0,91	1,83	3,10
Cumene	Emission to water	river	mg	1,32	2,67	4,52
Cyanide	Emission to water	river	mg	12,62	25,50	43,19
Dichromate	Emission to water	river	mg	4,29	8,66	14,68
Diethylamine	Emission to water	river	ng	11,08	22,38	37,90
Dimethylamine	Emission to water	river	ng	15,20	30,70	52,00
Dipropylamine	Emission to water	river	ng	6,87	13,88	23,50
DOC, Dissolved Organic Carbon	Emission to water	river	g	5,80	11,72	19,85
Ethane, 1,2-dichloro-	Emission to water	river	µg	97,97	197,89	335,20
Ethanol	Emission to water	river	µg	3,27	6,60	11,18
Ethene	Emission to water	river	mg	0,50	1,02	1,73
Ethene, chloro-	Emission to water	river	µg	37,26	75,25	127,47

Ethyl acetate	Emission to water	river	ng	11,78	23,79	40,30
Ethylamine	Emission to water	river	ng	7,72	15,59	26,41
Ethylene diamine	Emission to water	river	ng	133,76	270,17	457,64
Ethylene oxide	Emission to water	river	µg	0,43	0,86	1,46
Fluoride	Emission to water	river	mg	40,27	81,33	137,77
Fluosilicic acid	Emission to water	river	mg	0,41	0,82	1,39
Formaldehyde	Emission to water	river	µg	7,25	14,63	24,79
Formamide	Emission to water	river	ng	9,66	19,51	33,05
Formate	Emission to water	river	µg	0,43	0,88	1,49
Formic acid	Emission to water	river	ng	2,80	5,66	9,59
Heat, waste	Emission to water	river	MJ	79,91	161,41	273,41
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	river	mg	9,36	18,91	32,03
Hydrocarbons, aliphatic, unsaturated	Emission to water	river	mg	0,86	1,75	2,96
Hydrocarbons, aromatic	Emission to water	river	mg	37,86	76,46	129,52
Hydrocarbons, unspecified	Emission to water	river	mg	7,47	15,10	25,57
Hydrogen-3, Tritium	Emission to water	river	kBq	69,84	141,07	238,96
Hydrogen peroxide	Emission to water	river	µg	14,60	29,50	49,97
Hydrogen sulfide	Emission to water	river	mg	0,59	1,20	2,03
Hydroxide	Emission to water	river	µg	49,21	99,40	168,37
Hypochlorite	Emission to water	river	mg	17,36	35,06	59,40
Iodide	Emission to water	river	mg	8,77	17,72	30,01
Iodine-131	Emission to water	river	mBq	82,80	167,24	283,28
Iodine-133	Emission to water	river	mBq	1,53	3,08	5,22
Iron-59	Emission to water	river	mBq	0,42	0,85	1,44
Iron, ion	Emission to water	river	mg	175,03	353,53	598,85
Isopropylamine	Emission to water	river	ng	1,17	2,35	3,99
Lactic acid	Emission to water	river	ng	5,38	10,87	18,41
Lanthanum-140	Emission to water	river	mBq	2,59	5,23	8,86
Lead	Emission to water	river	mg	14,98	30,25	51,24
Lead-210	Emission to water	river	Bq	4,51	9,10	15,42
Lithium, ion	Emission to water	river	ng	184,24	372,14	630,37
m-Xylene	Emission to water	river	ng	10,36	20,93	35,46
Magnesium	Emission to water	river	g	1,44	2,90	4,92
Manganese	Emission to water	river	mg	45,54	91,99	155,82
Manganese-54	Emission to water	river	mBq	220,43	445,23	754,18

Mercury	Emission to water	river	µg	40,39	81,59	138,20
Methane, dichloro-, HCC-30	Emission to water	river	mg	1,89	3,83	6,48
Methanol	Emission to water	river	µg	20,25	40,90	69,29
Methyl acetate	Emission to water	river	pg	133,34	269,32	456,21
Methyl acrylate	Emission to water	river	µg	2,77	5,60	9,49
Methyl amine	Emission to water	river	ng	3,36	6,80	11,51
Methyl formate	Emission to water	river	ng	0,63	1,28	2,17
Molybdenum	Emission to water	river	mg	18,13	36,63	62,04
Molybdenum-99	Emission to water	river	mBq	0,89	1,80	3,05
Nickel, ion	Emission to water	river	mg	1,71	3,45	5,85
Niobium-95	Emission to water	river	mBq	47,95	96,86	164,06
Nitrate	Emission to water	river	g	0,57	1,16	1,96
Nitrite	Emission to water	river	µg	244,47	493,80	836,45
Nitrobenzene	Emission to water	river	ng	55,50	112,10	189,89
Nitrogen	Emission to water	river	g	0,42	0,85	1,45
Nitrogen, organic bound	Emission to water	river	mg	70,14	141,67	239,98
Oils, unspecified	Emission to water	river	g	6,14	12,40	21,00
PAH, polycyclic aromatic hydrocarbons	Emission to water	river	mg	0,37	0,74	1,25
Phenol	Emission to water	river	mg	5,92	11,96	20,25
Phosphate	Emission to water	river	mg	3,16	6,39	10,82
Phosphorus	Emission to water	river	mg	2,03	4,11	6,96
Polonium-210	Emission to water	river	Bq	4,51	9,10	15,42
Potassium-40	Emission to water	river	Bq	5,66	11,42	19,35
Potassium, ion	Emission to water	river	g	1,48	2,99	5,07
Propanal	Emission to water	river	ng	7,65	15,44	26,16
Propanol	Emission to water	river	ng	8,70	17,57	29,76
Propene	Emission to water	river	mg	0,58	1,16	1,97
Propionic acid	Emission to water	river	ng	2,16	4,37	7,40
Propylamine	Emission to water	river	ng	3,06	6,18	10,47
Propylene oxide	Emission to water	river	µg	44,52	89,93	152,34
Protactinium-234	Emission to water	river	Bq	4,17	8,42	14,27
Radioactive species, alpha emitters	Emission to water	river	mBq	0,91	1,84	3,12
Radioactive species, Nuclides, unspecified	Emission to water	river	Bq	4,26	8,60	14,57
Radium-224	Emission to water	river	Bq	3,60	7,27	12,32
Radium-226	Emission to water	river	kBq	2,60	5,26	8,90

Radium-228	Emission to water	river	Bq	7,20	14,54	24,64
Rubidium	Emission to water	river	mg	0,72	1,45	2,46
Ruthenium-103	Emission to water	river	µBq	188,31	380,36	644,30
Scandium	Emission to water	river	mg	1,71	3,45	5,85
Selenium	Emission to water	river	mg	2,78	5,62	9,52
Silicon	Emission to water	river	mg	191,55	386,90	655,37
Silver-110	Emission to water	river	Bq	2,34	4,73	8,01
Silver, ion	Emission to water	river	µg	68,33	138,01	233,78
Sodium-24	Emission to water	river	mBq	6,75	13,64	23,10
Sodium formate	Emission to water	river	µg	1,22	2,45	4,16
Sodium, ion	Emission to water	river	g	26,46	53,44	90,52
Solids, inorganic	Emission to water	river	g	0,35	0,72	1,21
Solved solids	Emission to water	river	mg	178,17	359,88	609,61
Strontium	Emission to water	river	mg	130,82	264,23	447,59
Strontium-89	Emission to water	river	mBq	50,53	102,06	172,88
Strontium-90	Emission to water	river	kBq	1,93	3,89	6,60
Sulfate	Emission to water	river	g	38,41	77,59	131,43
Sulfide	Emission to water	river	mg	2,76	5,57	9,44
Sulfite	Emission to water	river	mg	98,96	199,88	338,58
Sulfur	Emission to water	river	mg	20,30	41,00	69,46
Suspended solids, unspecified	Emission to water	river	g	1,34	2,71	4,58
t-Butyl methyl ether	Emission to water	river	ng	173,09	349,61	592,20
t-Butylamine	Emission to water	river	ng	3,38	6,84	11,58
Technetium-99m	Emission to water	river	mBq	20,73	41,86	70,91
Tellurium-123m	Emission to water	river	mBq	53,30	107,65	182,35
Tellurium-132	Emission to water	river	µBq	51,67	104,37	176,80
Thallium	Emission to water	river	µg	184,77	373,21	632,18
Thorium-228	Emission to water	river	Bq	14,40	29,09	49,28
Thorium-230	Emission to water	river	Bq	568,94	1149,18	1946,60
Thorium-232	Emission to water	river	Bq	1,05	2,13	3,61
Thorium-234	Emission to water	river	Bq	4,17	8,42	14,27
Tin, ion	Emission to water	river	mg	0,31	0,63	1,06
Titanium, ion	Emission to water	river	mg	2,39	4,83	8,18
TOC, Total Organic Carbon	Emission to water	river	g	5,87	11,86	20,09
Toluene	Emission to water	river	mg	8,21	16,59	28,10

Toluene, 2-chloro-	Emission to water	river	ng	8,91	17,99	30,48
Trimethylamine	Emission to water	river	pg	236,15	476,99	807,98
Tungsten	Emission to water	river	mg	1,65	3,33	5,64
Uranium-234	Emission to water	river	Bq	5,00	10,11	17,12
Uranium-235	Emission to water	river	Bq	8,26	16,68	28,25
Uranium-238	Emission to water	river	Bq	14,80	29,89	50,63
Uranium alpha	Emission to water	river	Bq	240,23	485,23	821,94
Urea	Emission to water	river	ng	8,91	18,00	30,49
Vanadium, ion	Emission to water	river	mg	7,18	14,50	24,57
VOC, volatile organic compounds, unspecified origin	Emission to water	river	mg	35,65	72,02	121,99
Xylene	Emission to water	river	mg	6,81	13,76	23,31
Zinc-65	Emission to water	river	mBq	91,55	184,91	313,22
Zinc, ion	Emission to water	river	mg	8,41	16,98	28,76
Zirconium-95	Emission to water	river	mBq	1,06	2,14	3,63
Benzene, chloro-	Emission to water	river, long-term	ng	9,35	18,88	31,97
Chloride	Emission to water	river, long-term	µg	0,94	1,90	3,21
Boron	Emission to soil		mg	29,12	58,83	99,65
Cadmium	Emission to soil		ng	130,58	263,75	446,77
Chloride	Emission to soil		mg	140,32	283,41	480,08
Chromium	Emission to soil		µg	0,62	1,26	2,13
Chromium VI	Emission to soil		mg	164,73	332,73	563,61
Copper	Emission to soil		mg	102,78	207,60	351,65
Fluoride	Emission to soil		mg	111,35	224,91	380,98
Heat, waste	Emission to soil		MJ	38,04	76,83	130,14
Iron	Emission to soil		g	0,36	0,73	1,24
Lead	Emission to soil		µg	5,37	10,85	18,39
Nickel	Emission to soil		µg	1,69	3,41	5,77
Oils, biogenic	Emission to soil		mg	2,04	4,11	6,96
Oils, unspecified	Emission to soil		mg	35,13	70,96	120,20
Sodium	Emission to soil		mg	0,45	0,91	1,53
Zinc	Emission to soil		mg	0,37	0,74	1,26
2,4-D	Emission to soil	agricultural	µg	1,08	2,19	3,71
Aclonifen	Emission to soil	agricultural	µg	2,07	4,18	7,07
Aldrin	Emission to soil	agricultural	ng	3,54	7,14	12,10
Aluminium	Emission to soil	agricultural	mg	78,88	159,32	269,87

Antimony	Emission to soil	agricultural	ng	7,48	15,12	25,61
Arsenic	Emission to soil	agricultural	µg	25,39	51,28	86,87
Atrazine	Emission to soil	agricultural	ng	0,93	1,87	3,18
Barium	Emission to soil	agricultural	µg	1,08	2,18	3,69
Benomyl	Emission to soil	agricultural	ng	6,90	13,95	23,62
Bentazone	Emission to soil	agricultural	µg	1,06	2,13	3,61
Boron	Emission to soil	agricultural	ng	274,70	554,84	939,85
Cadmium	Emission to soil	agricultural	µg	53,91	108,88	184,43
Calcium	Emission to soil	agricultural	g	1,07	2,17	3,68
Carbetamide	Emission to soil	agricultural	µg	0,43	0,87	1,48
Carbofuran	Emission to soil	agricultural	µg	3,79	7,65	12,95
Carbon	Emission to soil	agricultural	mg	49,25	99,47	168,50
Chloride	Emission to soil	agricultural	mg	12,10	24,45	41,41
Chlorothalonil	Emission to soil	agricultural	µg	56,92	114,97	194,74
Chromium	Emission to soil	agricultural	mg	0,74	1,49	2,53
Cobalt	Emission to soil	agricultural	µg	68,18	137,72	233,28
Copper	Emission to soil	agricultural	mg	0,62	1,25	2,13
Cypermethrin	Emission to soil	agricultural	µg	0,55	1,10	1,87
Fenpiclonil	Emission to soil	agricultural	µg	2,31	4,67	7,91
Glyphosate	Emission to soil	agricultural	µg	10,84	21,90	37,10
Iron	Emission to soil	agricultural	mg	88,06	177,87	301,30
Lead	Emission to soil	agricultural	µg	247,59	500,10	847,12
Linuron	Emission to soil	agricultural	µg	15,93	32,18	54,50
Magnesium	Emission to soil	agricultural	mg	121,50	245,41	415,70
Mancozeb	Emission to soil	agricultural	µg	73,93	149,32	252,93
Manganese	Emission to soil	agricultural	mg	75,66	152,82	258,86
Mercury	Emission to soil	agricultural	µg	0,42	0,85	1,44
Metaldehyde	Emission to soil	agricultural	ng	95,76	193,43	327,65
Metolachlor	Emission to soil	agricultural	µg	115,29	232,87	394,46
Metribuzin	Emission to soil	agricultural	µg	2,60	5,26	8,91
Molybdenum	Emission to soil	agricultural	µg	14,05	28,38	48,08
Napropamide	Emission to soil	agricultural	ng	169,43	342,22	579,69
Nickel	Emission to soil	agricultural	µg	209,84	423,84	717,94
Orbencarb	Emission to soil	agricultural	µg	14,06	28,39	48,09
Phosphorus	Emission to soil	agricultural	mg	37,07	74,88	126,83

Pirimicarb	Emission to soil	agricultural	ng	99,81	201,61	341,51
Potassium	Emission to soil	agricultural	mg	206,16	416,40	705,35
Silicon	Emission to soil	agricultural	g	0,31	0,63	1,07
Strontium	Emission to soil	agricultural	µg	3,43	6,94	11,75
Sulfur	Emission to soil	agricultural	mg	34,98	70,66	119,69
Sulfuric acid	Emission to soil	agricultural	pg	162,30	327,82	555,29
Tebutam	Emission to soil	agricultural	µg	0,40	0,81	1,37
Teflubenzuron	Emission to soil	agricultural	ng	173,53	350,51	593,72
Thiram	Emission to soil	agricultural	ng	12,25	24,74	41,91
Tin	Emission to soil	agricultural	ng	248,95	502,85	851,78
Titanium	Emission to soil	agricultural	mg	5,22	10,54	17,86
Vanadium	Emission to soil	agricultural	µg	149,42	301,80	511,22
Zinc	Emission to soil	agricultural	mg	6,31	12,75	21,59
Oils, biogenic	Emission to soil	forestry	mg	10,34	20,88	35,37
Oils, unspecified	Emission to soil	forestry	g	7,63	15,42	26,11
Aluminium	Emission to soil	industrial	mg	74,81	151,11	255,96
Arsenic	Emission to soil	industrial	µg	29,92	60,44	102,39
Barium	Emission to soil	industrial	mg	37,41	75,55	127,98
Boron	Emission to soil	industrial	mg	0,75	1,51	2,56
Calcium	Emission to soil	industrial	g	0,30	0,60	1,02
Carbon	Emission to soil	industrial	mg	224,44	453,33	767,89
Chloride	Emission to soil	industrial	mg	261,84	528,88	895,88
Chromium	Emission to soil	industrial	mg	0,37	0,76	1,28
Copper	Emission to soil	industrial	µg	4,26	8,61	14,59
Fluoride	Emission to soil	industrial	mg	3,74	7,56	12,80
Glyphosate	Emission to soil	industrial	µg	189,24	382,23	647,46
Heat, waste	Emission to soil	industrial	kJ	6,50	13,14	22,26
Iron	Emission to soil	industrial	mg	149,62	302,22	511,93
Magnesium	Emission to soil	industrial	mg	59,85	120,89	204,77
Manganese	Emission to soil	industrial	mg	2,99	6,04	10,24
Oils, unspecified	Emission to soil	industrial	mg	0,98	1,98	3,35
Phosphorus	Emission to soil	industrial	mg	3,74	7,56	12,80
Potassium	Emission to soil	industrial	mg	26,18	52,89	89,59
Silicon	Emission to soil	industrial	mg	7,48	15,11	25,60
Sodium	Emission to soil	industrial	mg	149,62	302,22	511,93

Strontium	Emission to soil	industrial	mg	0,75	1,51	2,56
Sulfur	Emission to soil	industrial	mg	44,89	90,67	153,58
Zinc	Emission to soil	industrial	mg	1,12	2,27	3,84

Analisi di inventario: fase di fine vita delle batterie

Sostanza	Compartimento	Sottocompartimento	U.M.	UF_1	UF_2	UF_3
Energy, gross calorific value, in biomass	Resource	biotic	MJ	2,42	0,82	1,45
Energy, gross calorific value, in biomass, primary forest	Resource	biotic	J	373,53	126,34	224,12
Peat, in ground	Resource	biotic	mg	94,13	31,84	56,48
Wood, hard, standing	Resource	biotic	cm3	53,32	18,04	31,99
Wood, primary forest, standing	Resource	biotic	mm3	34,65	11,72	20,79
Wood, soft, standing	Resource	biotic	cm3	189,01	63,93	113,40
Wood, unspecified, standing/m3	Resource	biotic	mm3	0,34	0,12	0,20
Carbon dioxide, in air	Resource	in air	g	254,77	86,17	152,86
Energy, kinetic (in wind), converted	Resource	in air	kJ	919,76	311,09	551,85
Energy, solar, converted	Resource	in air	kJ	13,29	4,49	7,97
Aluminium, 24% in bauxite, 11% in crude ore, in ground	Resource	in ground	g	7,75	2,62	4,65
Anhydrite, in ground	Resource	in ground	µg	48,59	16,43	29,15
Barite, 15% in crude ore, in ground	Resource	in ground	g	8,51	2,88	5,11
Basalt, in ground	Resource	in ground	g	1,69	0,57	1,01
Borax, in ground	Resource	in ground	µg	88,82	30,04	53,29
Cadmium, 0.30% in sulfide, Cd 0.18%, Pb, Zn, Ag, In, in ground	Resource	in ground	mg	3,03	1,03	1,82
Calcite, in ground	Resource	in ground	kg	1,37	0,46	0,82
Carbon, in organic matter, in soil	Resource	in ground	mg	5,39	1,82	3,23
Chromium, 25.5% in chromite, 11.6% in crude ore, in ground	Resource	in ground	g	4,95	1,67	2,97
Chrysotile, in ground	Resource	in ground	mg	59,80	20,23	35,88
Cinnabar, in ground	Resource	in ground	mg	5,50	1,86	3,30
Clay, bentonite, in ground	Resource	in ground	g	1,63	0,55	0,98
Clay, unspecified, in ground	Resource	in ground	g	229,24	77,54	137,54
Coal, brown, in ground	Resource	in ground	kg	2,25	0,76	1,35
Coal, hard, unspecified, in ground	Resource	in ground	kg	1,34	0,45	0,80
Cobalt, in ground	Resource	in ground	µg	8,20	2,78	4,92
Colemanite, in ground	Resource	in ground	mg	39,84	13,47	23,90
Copper, 0.99% in sulfide, Cu 0.36% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	mg	434,77	147,06	260,86
Copper, 1.18% in sulfide, Cu 0.39% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	2,39	0,81	1,43
Copper, 1.42% in sulfide, Cu 0.81% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	mg	633,83	214,39	380,30
Copper, 2.19% in sulfide, Cu 1.83% and Mo 8.2E-3% in crude ore, in ground	Resource	in ground	g	3,18	1,07	1,91
Diatomite, in ground	Resource	in ground	ng	800,98	270,92	480,59
Dolomite, in ground	Resource	in ground	mg	398,83	134,90	239,30

Feldspar, in ground	Resource	in ground	µg	2,39	0,81	1,44
Fluorine, 4.5% in apatite, 1% in crude ore, in ground	Resource	in ground	mg	655,73	221,79	393,44
Fluorine, 4.5% in apatite, 3% in crude ore, in ground	Resource	in ground	mg	287,62	97,28	172,57
Fluorspar, 92%, in ground	Resource	in ground	g	18,92	6,40	11,35
Gallium, 0.014% in bauxite, in ground	Resource	in ground	ng	37,66	12,74	22,59
Gas, mine, off-gas, process, coal mining/m3	Resource	in ground	l	13,01	4,40	7,81
Gas, natural, in ground	Resource	in ground	l	670,47	226,78	402,28
Gold, Au 1.1E-4%, Ag 4.2E-3%, in ore, in ground	Resource	in ground	µg	25,14	8,50	15,09
Gold, Au 1.3E-4%, Ag 4.6E-5%, in ore, in ground	Resource	in ground	µg	46,11	15,60	27,67
Gold, Au 1.4E-4%, in ore, in ground	Resource	in ground	µg	55,21	18,67	33,12
Gold, Au 2.1E-4%, Ag 2.1E-4%, in ore, in ground	Resource	in ground	µg	84,32	28,52	50,59
Gold, Au 4.3E-4%, in ore, in ground	Resource	in ground	µg	20,90	7,07	12,54
Gold, Au 4.9E-5%, in ore, in ground	Resource	in ground	µg	50,06	16,93	30,03
Gold, Au 6.7E-4%, in ore, in ground	Resource	in ground	µg	77,49	26,21	46,50
Gold, Au 7.1E-4%, in ore, in ground	Resource	in ground	µg	87,38	29,56	52,43
Gold, Au 9.7E-4%, Ag 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	µg	5,24	1,77	3,14
Granite, in ground	Resource	in ground	ng	16,50	5,58	9,90
Gravel, in ground	Resource	in ground	kg	2,34	0,79	1,41
Gypsum, in ground	Resource	in ground	µg	728,71	246,47	437,22
Indium, 0.005% in sulfide, In 0.003%, Pb, Zn, Ag, Cd, in ground	Resource	in ground	µg	52,40	17,72	31,44
Iron, 46% in ore, 25% in crude ore, in ground	Resource	in ground	g	86,42	29,23	51,85
Kaolinite, 24% in crude ore, in ground	Resource	in ground	mg	29,19	9,87	17,51
Kieserite, 25% in crude ore, in ground	Resource	in ground	µg	247,18	83,61	148,31
Lead, 5.0% in sulfide, Pb 3.0%, Zn, Ag, Cd, In, in ground	Resource	in ground	mg	163,58	55,33	98,15
Lithium, 0.15% in brine, in ground	Resource	in ground	ng	35,16	11,89	21,09
Magnesite, 60% in crude ore, in ground	Resource	in ground	g	25,55	8,64	15,33
Manganese, 35.7% in sedimentary deposit, 14.2% in crude ore, in ground	Resource	in ground	mg	442,73	149,75	265,64
Metamorphous rock, graphite containing, in ground	Resource	in ground	mg	9,94	3,36	5,96
Molybdenum, 0.010% in sulfide, Mo 8.2E-3% and Cu 1.83% in crude ore, in ground	Resource	in ground	mg	59,04	19,97	35,42
Molybdenum, 0.014% in sulfide, Mo 8.2E-3% and Cu 0.81% in crude ore, in ground	Resource	in ground	mg	8,33	2,82	5,00
Molybdenum, 0.022% in sulfide, Mo 8.2E-3% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	4,93	1,67	2,96
Molybdenum, 0.025% in sulfide, Mo 8.2E-3% and Cu 0.39% in crude ore, in ground	Resource	in ground	mg	30,51	10,32	18,30
Molybdenum, 0.11% in sulfide, Mo 4.1E-2% and Cu 0.36% in crude ore, in ground	Resource	in ground	mg	9,79	3,31	5,87
Nickel, 1.13% in sulfide, Ni 0.76% and Cu 0.76% in crude ore, in ground	Resource	in ground	mg	13,97	4,73	8,38
Nickel, 1.98% in silicates, 1.04% in crude ore, in ground	Resource	in ground	g	10,83	3,66	6,50

Oil, crude, in ground	Resource	in ground	g	630,90	213,39	378,54
Olivine, in ground	Resource	in ground	µg	20,85	7,05	12,51
Pd, Pd 2.0E-4%, Pt 4.8E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	µg	5,75	1,95	3,45
Pd, Pd 7.3E-4%, Pt 2.5E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	µg	13,82	4,68	8,29
Phosphorus, 18% in apatite, 12% in crude ore, in ground	Resource	in ground	g	1,15	0,39	0,69
Phosphorus, 18% in apatite, 4% in crude ore, in ground	Resource	in ground	g	2,62	0,89	1,57
Pt, Pt 2.5E-4%, Pd 7.3E-4%, Rh 2.0E-5%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	118,76	40,17	71,26
Pt, Pt 4.8E-4%, Pd 2.0E-4%, Rh 2.4E-5%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	ng	425,75	144,00	255,45
Rh, Rh 2.0E-5%, Pt 2.5E-4%, Pd 7.3E-4%, Ni 2.3E+0%, Cu 3.2E+0% in ore, in ground	Resource	in ground	ng	31,00	10,49	18,60
Rh, Rh 2.4E-5%, Pt 4.8E-4%, Pd 2.0E-4%, Ni 3.7E-2%, Cu 5.2E-2% in ore, in ground	Resource	in ground	ng	97,10	32,84	58,26
Rhenium, in crude ore, in ground	Resource	in ground	ng	41,77	14,13	25,06
Sand, unspecified, in ground	Resource	in ground	mg	20,86	7,06	12,52
Shale, in ground	Resource	in ground	µg	137,57	46,53	82,54
Silver, 0.007% in sulfide, Ag 0.004%, Pb, Zn, Cd, In, in ground	Resource	in ground	µg	558,75	188,99	335,25
Silver, 3.2ppm in sulfide, Ag 1.2ppm, Cu and Te, in crude ore, in ground	Resource	in ground	µg	398,62	134,83	239,17
Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, in ground	Resource	in ground	µg	36,80	12,45	22,08
Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, in ground	Resource	in ground	µg	84,05	28,43	50,43
Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, in ground	Resource	in ground	µg	82,38	27,86	49,43
Silver, Ag 9.7E-4%, Au 9.7E-4%, Zn 0.63%, Cu 0.38%, Pb 0.014%, in ore, in ground	Resource	in ground	µg	54,36	18,39	32,62
Sodium chloride, in ground	Resource	in ground	kg	2,09	0,71	1,25
Sodium nitrate, in ground	Resource	in ground	ng	12,85	4,35	7,71
Sodium sulphate, various forms, in ground	Resource	in ground	g	5,49	1,86	3,29
Stibnite, in ground	Resource	in ground	ng	83,24	28,15	49,94
Sulfur, in ground	Resource	in ground	mg	6,83	2,31	4,10
Sylvite, 25 % in sylvinite, in ground	Resource	in ground	mg	40,97	13,86	24,58
Talc, in ground	Resource	in ground	mg	14,78	5,00	8,87
Tantalum, 81.9% in tantalite, 1.6E-4% in crude ore, in ground	Resource	in ground	µg	440,47	148,98	264,28
Tellurium, 0.5ppm in sulfide, Te 0.2ppm, Cu and Ag, in crude ore, in ground	Resource	in ground	µg	59,79	20,22	35,88
Tin, 79% in cassiterite, 0.1% in crude ore, in ground	Resource	in ground	mg	19,53	6,61	11,72
TiO2, 54% in ilmenite, 2.6% in crude ore, in ground	Resource	in ground	g	10,30	3,48	6,18
TiO2, 95% in rutile, 0.40% in crude ore, in ground	Resource	in ground	µg	3,99	1,35	2,39
Ulexite, in ground	Resource	in ground	mg	1,90	0,64	1,14
Uranium, in ground	Resource	in ground	mg	90,56	30,63	54,34
Vermiculite, in ground	Resource	in ground	µg	139,43	47,16	83,66
Volume occupied, final repository for low-active radioactive waste	Resource	in ground	mm3	186,70	63,15	112,02

Volume occupied, final repository for radioactive waste	Resource	in ground	mm3	47,14	15,94	28,28
Volume occupied, underground deposit	Resource	in ground	mm3	269,86	91,28	161,91
Zinc, 9.0% in sulfide, Zn 5.3%, Pb, Ag, Cd, In, in ground	Resource	in ground	g	2,04	0,69	1,22
Zirconium, 50% in zircon, 0.39% in crude ore, in ground	Resource	in ground	µg	602,60	203,82	361,56
Bromine, 0.0023% in water	Resource	in water	µg	9,18	3,10	5,51
Energy, potential (in hydropower reservoir), converted	Resource	in water	MJ	6,31	2,13	3,78
Iodine, 0.03% in water	Resource	in water	µg	2,24	0,76	1,34
Magnesium, 0.13% in water	Resource	in water	µg	155,31	52,53	93,18
Volume occupied, reservoir	Resource	in water	m3day	39,78	13,46	23,87
Water, cooling, unspecified natural origin/m3	Resource	in water	l	370,83	125,43	222,50
Water, lake	Resource	in water	cm3	146,45	49,53	87,87
Water, river	Resource	in water	l	43,92	14,86	26,35
Water, salt, ocean	Resource	in water	l	6,38	2,16	3,83
Water, salt, sole	Resource	in water	cm3	426,18	144,15	255,71
Water, turbine use, unspecified natural origin	Resource	in water	m3	52,16	17,64	31,29
Water, unspecified natural origin/m3	Resource	in water	l	117,68	39,80	70,61
Water, well, in ground	Resource	in water	l	10,41	3,52	6,25
Occupation, arable, non-irrigated	Resource	land	mm2a	319,27	107,99	191,56
Occupation, construction site	Resource	land	cm2a	41,84	14,15	25,10
Occupation, dump site	Resource	land	cm2a	143,98	48,70	86,39
Occupation, dump site, benthos	Resource	land	mm2a	283,59	95,92	170,16
Occupation, forest, intensive	Resource	land	cm2a	315,73	106,79	189,44
Occupation, forest, intensive, normal	Resource	land	m2a	0,22	0,07	0,13
Occupation, forest, intensive, short-cycle	Resource	land	mm2a	93,70	31,69	56,22
Occupation, industrial area	Resource	land	cm2a	56,95	19,26	34,17
Occupation, industrial area, benthos	Resource	land	mm2a	2,63	0,89	1,58
Occupation, industrial area, built up	Resource	land	cm2a	110,90	37,51	66,54
Occupation, industrial area, vegetation	Resource	land	cm2a	36,27	12,27	21,76
Occupation, mineral extraction site	Resource	land	cm2a	69,73	23,59	41,84
Occupation, permanent crop, fruit, intensive	Resource	land	mm2a	48,29	16,33	28,97
Occupation, shrub land, sclerophyllous	Resource	land	cm2a	11,71	3,96	7,03
Occupation, traffic area, rail embankment	Resource	land	mm2a	656,70	222,12	394,02
Occupation, traffic area, rail network	Resource	land	mm2a	726,15	245,61	435,69
Occupation, traffic area, road embankment	Resource	land	cm2a	41,39	14,00	24,83
Occupation, traffic area, road network	Resource	land	cm2a	142,97	48,36	85,78

Occupation, urban, discontinuously built	Resource	land	mm2a	0,58	0,20	0,35
Occupation, water bodies, artificial	Resource	land	cm2a	113,18	38,28	67,91
Occupation, water courses, artificial	Resource	land	cm2a	56,41	19,08	33,84
Transformation, from arable	Resource	land	mm2	7,32	2,48	4,39
Transformation, from arable, non-irrigated	Resource	land	mm2	588,81	199,16	353,28
Transformation, from arable, non-irrigated, fallow	Resource	land	mm2	0,94	0,32	0,56
Transformation, from dump site, inert material landfill	Resource	land	mm2	90,29	30,54	54,18
Transformation, from dump site, residual material landfill	Resource	land	mm2	24,14	8,17	14,49
Transformation, from dump site, sanitary landfill	Resource	land	mm2	116,42	39,38	69,85
Transformation, from dump site, slag compartment	Resource	land	mm2	3,38	1,14	2,03
Transformation, from forest	Resource	land	mm2	799,79	270,52	479,88
Transformation, from forest, extensive	Resource	land	cm2	19,59	6,63	11,76
Transformation, from forest, intensive, clear-cutting	Resource	land	mm2	3,35	1,13	2,01
Transformation, from industrial area	Resource	land	mm2	13,50	4,56	8,10
Transformation, from industrial area, benthos	Resource	land	mm2	0,02	0,01	0,01
Transformation, from industrial area, built up	Resource	land	mm2	0,94	0,32	0,56
Transformation, from industrial area, vegetation	Resource	land	mm2	1,60	0,54	0,96
Transformation, from mineral extraction site	Resource	land	mm2	155,68	52,66	93,41
Transformation, from pasture and meadow	Resource	land	mm2	381,10	128,90	228,66
Transformation, from pasture and meadow, intensive	Resource	land	mm2	0,48	0,16	0,29
Transformation, from sea and ocean	Resource	land	mm2	284,68	96,29	170,81
Transformation, from shrub land, sclerophyllous	Resource	land	mm2	265,25	89,72	159,15
Transformation, from tropical rain forest	Resource	land	mm2	3,35	1,13	2,01
Transformation, from unknown	Resource	land	mm2	800,06	270,61	480,03
Transformation, to arable	Resource	land	mm2	133,31	45,09	79,99
Transformation, to arable, non-irrigated	Resource	land	mm2	589,30	199,32	353,58
Transformation, to arable, non-irrigated, fallow	Resource	land	mm2	1,86	0,63	1,11
Transformation, to dump site	Resource	land	mm2	75,28	25,46	45,17
Transformation, to dump site, benthos	Resource	land	mm2	283,59	95,92	170,16
Transformation, to dump site, inert material landfill	Resource	land	mm2	90,29	30,54	54,18
Transformation, to dump site, residual material landfill	Resource	land	mm2	24,14	8,17	14,49
Transformation, to dump site, sanitary landfill	Resource	land	mm2	116,42	39,38	69,85
Transformation, to dump site, slag compartment	Resource	land	mm2	3,38	1,14	2,03
Transformation, to forest	Resource	land	mm2	257,69	87,16	154,62
Transformation, to forest, intensive	Resource	land	mm2	210,24	71,11	126,14

Transformation, to forest, intensive, clear-cutting	Resource	land	mm2	3,35	1,13	2,01
Transformation, to forest, intensive, normal	Resource	land	cm2	17,27	5,84	10,36
Transformation, to forest, intensive, short-cycle	Resource	land	mm2	3,35	1,13	2,01
Transformation, to heterogeneous, agricultural	Resource	land	mm2	40,93	13,85	24,56
Transformation, to industrial area	Resource	land	mm2	99,52	33,66	59,71
Transformation, to industrial area, benthos	Resource	land	mm2	1,08	0,37	0,65
Transformation, to industrial area, built up	Resource	land	mm2	231,92	78,44	139,15
Transformation, to industrial area, vegetation	Resource	land	mm2	77,22	26,12	46,33
Transformation, to mineral extraction site	Resource	land	mm2	949,14	321,03	569,48
Transformation, to pasture and meadow	Resource	land	mm2	12,89	4,36	7,73
Transformation, to permanent crop, fruit, intensive	Resource	land	mm2	0,68	0,23	0,41
Transformation, to sea and ocean	Resource	land	mm2	0,02	0,01	0,01
Transformation, to shrub land, sclerophyllous	Resource	land	mm2	234,23	79,23	140,54
Transformation, to traffic area, rail embankment	Resource	land	mm2	1,53	0,52	0,92
Transformation, to traffic area, rail network	Resource	land	mm2	1,68	0,57	1,01
Transformation, to traffic area, road embankment	Resource	land	mm2	24,12	8,16	14,47
Transformation, to traffic area, road network	Resource	land	mm2	118,46	40,07	71,07
Transformation, to unknown	Resource	land	mm2	37,14	12,56	22,28
Transformation, to urban, discontinuously built	Resource	land	mm2	0,01	0,00	0,01
Transformation, to water bodies, artificial	Resource	land	mm2	88,13	29,81	52,88
Transformation, to water courses, artificial	Resource	land	mm2	67,18	22,72	40,31
Acenaphthene	Emission to air		pg	5,57	1,88	3,34
Acetaldehyde	Emission to air		µg	782,90	264,80	469,74
Acetic acid	Emission to air		µg	952,63	322,21	571,58
Acrolein	Emission to air		ng	3,22	1,09	1,93
Aldehydes, unspecified	Emission to air		ng	23,69	8,01	14,22
Aluminium	Emission to air		mg	263,60	89,16	158,16
Ammonia	Emission to air		mg	152,23	51,49	91,34
Antimony	Emission to air		ng	177,88	60,17	106,73
Arsenic	Emission to air		µg	1,07	0,36	0,64
Barium	Emission to air		pg	1,13	0,38	0,68
Benzal chloride	Emission to air		pg	0,41	0,14	0,25
Benzene	Emission to air		µg	963,72	325,96	578,23
Benzene, hexachloro-	Emission to air		ng	799,52	270,43	479,71
Benzo(a)pyrene	Emission to air		µg	16,70	5,65	10,02

Beryllium	Emission to air	ng	266,85	90,26	160,11
Boron	Emission to air	pg	6,54	2,21	3,92
Bromine	Emission to air	pg	5,35	1,81	3,21
Butadiene	Emission to air	ng	54,06	18,29	32,44
Butane	Emission to air	µg	5,85	1,98	3,51
Cadmium	Emission to air	µg	6,27	2,12	3,76
Carbon dioxide, biogenic	Emission to air	g	10,71	3,62	6,43
Carbon dioxide, fossil	Emission to air	g	952,36	322,12	571,42
Carbon disulfide	Emission to air	pg	0,08	0,03	0,05
Carbon monoxide, fossil	Emission to air	g	4,75	1,61	2,85
Chlorine	Emission to air	ng	419,83	142,00	251,90
Chloroform	Emission to air	pg	0,03	0,01	0,02
Chromium	Emission to air	µg	131,66	44,53	79,00
Chromium VI	Emission to air	ng	70,55	23,86	42,33
Cobalt	Emission to air	ng	356,21	120,48	213,73
Copper	Emission to air	mg	1,71	0,58	1,03
Cumene	Emission to air	pg	0,00	0,00	0,00
Cyanide	Emission to air	pg	1,46	0,49	0,88
Dinitrogen monoxide	Emission to air	mg	91,16	30,84	54,70
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	pg	760,51	257,23	456,31
Ethane	Emission to air	µg	8,66	2,93	5,19
Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	pg	0,06	0,02	0,04
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	mg	1,84	0,62	1,11
Ethane, hexafluoro-, HFC-116	Emission to air	µg	157,43	53,25	94,46
Ethene, chloro-	Emission to air	pg	0,02	0,01	0,01
Ethene, tetrachloro-	Emission to air	pg	50,55	17,10	30,33
Ethylene oxide	Emission to air	ng	522,63	176,77	313,58
Ethyne	Emission to air	µg	9,46	3,20	5,68
Fluorine	Emission to air	ng	72,33	24,46	43,40
Formaldehyde	Emission to air	mg	3,77	1,27	2,26
Furan	Emission to air	pg	0,00	0,00	0,00
Heat, waste	Emission to air	MJ	15,00	5,07	9,00
Helium	Emission to air	pg	84,85	28,70	50,91
Hexane	Emission to air	µg	5,01	1,69	3,01
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	mg	11,00	3,72	6,60

Hydrocarbons, aliphatic, unsaturated	Emission to air	pg	2,01	0,68	1,21
Hydrocarbons, aromatic	Emission to air	mg	3,12	1,06	1,87
Hydrocarbons, chlorinated	Emission to air	µg	107,71	36,43	64,62
Hydrogen	Emission to air	µg	56,36	19,06	33,82
Hydrogen chloride	Emission to air	mg	23,62	7,99	14,17
Hydrogen fluoride	Emission to air	mg	6,88	2,33	4,13
Hydrogen sulfide	Emission to air	mg	5,90	2,00	3,54
Iodine	Emission to air	pg	2,73	0,92	1,64
Iron	Emission to air	µg	604,06	204,31	362,43
Isoprene	Emission to air	pg	0,07	0,02	0,04
Lead	Emission to air	µg	430,67	145,67	258,40
Lead-210	Emission to air	nBq	1,13	0,38	0,68
Magnesium	Emission to air	ng	12,01	4,06	7,20
Manganese	Emission to air	µg	82,16	27,79	49,30
Mercury	Emission to air	µg	97,70	33,05	58,62
Methane, biogenic	Emission to air	mg	205,51	69,51	123,30
Methane, bromo-, Halon 1001	Emission to air	pg	0,09	0,03	0,06
Methane, dichlorodifluoro-, CFC-12	Emission to air	pg	0,06	0,02	0,04
Methane, fossil	Emission to air	mg	66,97	22,65	40,18
Methane, tetrachloro-, CFC-10	Emission to air	pg	27,80	9,40	16,68
Methane, tetrafluoro-, CFC-14	Emission to air	mg	1,42	0,48	0,85
Methanol	Emission to air	µg	479,74	162,26	287,84
Molybdenum	Emission to air	ng	6,53	2,21	3,92
Nickel	Emission to air	µg	84,61	28,62	50,76
Nitrogen oxides	Emission to air	g	9,04	3,06	5,42
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	mg	845,76	286,07	507,46
Ozone	Emission to air	mg	56,03	18,95	33,62
PAH, polycyclic aromatic hydrocarbons	Emission to air	µg	626,74	211,98	376,04
Particulates, < 2.5 um	Emission to air	mg	357,78	121,01	214,67
Particulates, > 10 um	Emission to air	mg	98,20	33,21	58,92
Particulates, > 2.5 um, and < 10um	Emission to air	mg	89,50	30,27	53,70
Pentane	Emission to air	µg	7,27	2,46	4,36
Phenol	Emission to air	µg	18,42	6,23	11,05
Phosphorus	Emission to air	ng	445,01	150,52	267,01
Polonium-210	Emission to air	nBq	2,07	0,70	1,24

Polychlorinated biphenyls	Emission to air		µg	1,38	0,47	0,83
Potassium-40	Emission to air		nBq	0,28	0,09	0,17
Propanal	Emission to air		pg	0,22	0,08	0,13
Propane	Emission to air		µg	4,45	1,51	2,67
Propene	Emission to air		ng	5,25	1,78	3,15
Propionic acid	Emission to air		ng	101,10	34,19	60,66
Radium-226	Emission to air		nBq	0,29	0,10	0,18
Radium-228	Emission to air		nBq	0,09	0,03	0,05
Radon-220	Emission to air		nBq	6,08	2,06	3,65
Radon-222	Emission to air		nBq	3,41	1,15	2,05
Selenium	Emission to air		µg	2,58	0,87	1,55
Silicon	Emission to air		pg	335,12	113,35	201,07
Sodium	Emission to air		ng	154,99	52,42	92,99
Strontium	Emission to air		pg	1,03	0,35	0,62
Styrene	Emission to air		pg	0,01	0,00	0,01
Sulfate	Emission to air		ng	676,27	228,74	405,76
Sulfur dioxide	Emission to air		mg	264,89	89,59	158,93
Sulfur hexafluoride	Emission to air		µg	841,53	284,63	504,92
Thallium	Emission to air		µg	1,16	0,39	0,69
Thorium-228	Emission to air		nBq	0,05	0,02	0,03
Thorium-232	Emission to air		nBq	0,07	0,02	0,04
Tin	Emission to air		µg	27,83	9,41	16,70
Titanium	Emission to air		µg	1,12	0,38	0,67
Toluene	Emission to air		µg	475,16	160,72	285,10
Uranium-238	Emission to air		nBq	0,24	0,08	0,15
Vanadium	Emission to air		µg	3,52	1,19	2,11
Water	Emission to air		mg	408,55	138,19	245,13
Xylene	Emission to air		µg	328,48	111,10	197,09
Zinc	Emission to air		mg	2,95	1,00	1,77
1-Butanol	Emission to air	high. pop.	pg	631,76	213,68	379,06
1-Pentanol	Emission to air	high. pop.	pg	664,44	224,74	398,66
1-Pentene	Emission to air	high. pop.	pg	502,11	169,83	301,26
1-Propanol	Emission to air	high. pop.	ng	179,41	60,68	107,64
1,4-Butanediol	Emission to air	high. pop.	ng	147,22	49,80	88,33
2-Aminopropanol	Emission to air	high. pop.	pg	73,60	24,90	44,16

2-Butene, 2-methyl-	Emission to air	high. pop.	pg	0,11	0,04	0,07
2-Methyl-1-propanol	Emission to air	high. pop.	ng	1,30	0,44	0,78
2-Nitrobenzoic acid	Emission to air	high. pop.	pg	126,78	42,88	76,07
2-Propanol	Emission to air	high. pop.	mg	2,73	0,92	1,64
Acenaphthene	Emission to air	high. pop.	ng	15,27	5,17	9,16
Acetaldehyde	Emission to air	high. pop.	mg	1,53	0,52	0,92
Acetic acid	Emission to air	high. pop.	mg	8,61	2,91	5,17
Acetone	Emission to air	high. pop.	mg	4,74	1,60	2,84
Acrolein	Emission to air	high. pop.	ng	512,53	173,36	307,52
Acrylic acid	Emission to air	high. pop.	µg	7,07	2,39	4,24
Aldehydes, unspecified	Emission to air	high. pop.	µg	23,18	7,84	13,91
Aluminium	Emission to air	high. pop.	mg	17,47	5,91	10,48
Ammonia	Emission to air	high. pop.	mg	184,81	62,51	110,89
Ammonium carbonate	Emission to air	high. pop.	µg	2,94	1,00	1,77
Aniline	Emission to air	high. pop.	ng	4,84	1,64	2,90
Anthranilic acid	Emission to air	high. pop.	pg	92,69	31,35	55,61
Antimony	Emission to air	high. pop.	µg	3,98	1,34	2,39
Arsenic	Emission to air	high. pop.	µg	92,19	31,18	55,31
Arsine	Emission to air	high. pop.	pg	82,42	27,88	49,45
Barium	Emission to air	high. pop.	µg	462,30	156,37	277,38
Benzaldehyde	Emission to air	high. pop.	ng	267,41	90,45	160,44
Benzene	Emission to air	high. pop.	mg	8,32	2,81	4,99
Benzene, 1-methyl-2-nitro-	Emission to air	high. pop.	pg	109,48	37,03	65,69
Benzene, 1,2-dichloro-	Emission to air	high. pop.	ng	3,24	1,10	1,95
Benzene, ethyl-	Emission to air	high. pop.	µg	894,90	302,69	536,94
Benzene, hexachloro-	Emission to air	high. pop.	µg	2,23	0,76	1,34
Benzene, pentachloro-	Emission to air	high. pop.	µg	5,61	1,90	3,36
Benzo(a)pyrene	Emission to air	high. pop.	ng	957,11	323,73	574,26
Beryllium	Emission to air	high. pop.	µg	2,55	0,86	1,53
Boron	Emission to air	high. pop.	mg	1,30	0,44	0,78
Boron trifluoride	Emission to air	high. pop.	pg	1,13	0,38	0,68
Bromine	Emission to air	high. pop.	µg	470,62	159,18	282,37
Butadiene	Emission to air	high. pop.	pg	428,22	144,84	256,93
Butane	Emission to air	high. pop.	mg	55,79	18,87	33,47
Butene	Emission to air	high. pop.	µg	848,23	286,90	508,94

Butyrolactone	Emission to air	high. pop.	ng	42,35	14,32	25,41
Cadmium	Emission to air	high. pop.	µg	85,83	29,03	51,50
Calcium	Emission to air	high. pop.	mg	24,84	8,40	14,90
Carbon dioxide, biogenic	Emission to air	high. pop.	g	849,58	287,36	509,75
Carbon dioxide, fossil	Emission to air	high. pop.	kg	6,42	2,17	3,85
Carbon disulfide	Emission to air	high. pop.	ng	50,62	17,12	30,37
Carbon monoxide, biogenic	Emission to air	high. pop.	mg	125,28	42,38	75,17
Carbon monoxide, fossil	Emission to air	high. pop.	mg	998,55	337,74	599,13
Chloramine	Emission to air	high. pop.	ng	2,48	0,84	1,49
Chlorine	Emission to air	high. pop.	mg	46,69	15,79	28,01
Chloroacetic acid	Emission to air	high. pop.	ng	150,54	50,92	90,32
Chloroform	Emission to air	high. pop.	µg	7,78	2,63	4,67
Chlorosilane, trimethyl-	Emission to air	high. pop.	ng	961,99	325,38	577,20
Chlorosulfonic acid	Emission to air	high. pop.	pg	846,28	286,24	507,77
Chromium	Emission to air	high. pop.	µg	136,14	46,05	81,68
Chromium VI	Emission to air	high. pop.	µg	4,12	1,39	2,47
Cobalt	Emission to air	high. pop.	µg	309,53	104,69	185,72
Copper	Emission to air	high. pop.	mg	1,43	0,48	0,86
Cumene	Emission to air	high. pop.	µg	624,39	211,19	374,64
Cyanide	Emission to air	high. pop.	mg	11,57	3,91	6,94
Cyanoacetic acid	Emission to air	high. pop.	pg	693,07	234,42	415,84
Diethylamine	Emission to air	high. pop.	ng	2,19	0,74	1,31
Dimethyl malonate	Emission to air	high. pop.	pg	869,11	293,96	521,46
Dinitrogen monoxide	Emission to air	high. pop.	mg	349,98	118,38	209,99
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	high. pop.	ng	17,55	5,94	10,53
Dipropylamine	Emission to air	high. pop.	ng	1,35	0,46	0,81
Ethane	Emission to air	high. pop.	mg	36,25	12,26	21,75
Ethane, 1,1-difluoro-, HFC-152a	Emission to air	high. pop.	µg	4,89	1,65	2,93
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	high. pop.	ng	792,31	267,99	475,38
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-, CFC-113	Emission to air	high. pop.	ng	335,57	113,50	201,34
Ethane, 1,2-dichloro-	Emission to air	high. pop.	µg	233,89	79,11	140,33
Ethane, hexafluoro-, HFC-116	Emission to air	high. pop.	µg	23,25	7,86	13,95
Ethanol	Emission to air	high. pop.	mg	2,89	0,98	1,73
Ethene	Emission to air	high. pop.	mg	4,30	1,45	2,58
Ethene, chloro-	Emission to air	high. pop.	µg	117,96	39,90	70,78

Ethene, tetrachloro-	Emission to air	high. pop.	ng	5,16	1,75	3,10
Ethyl acetate	Emission to air	high. pop.	mg	12,69	4,29	7,61
Ethyl cellulose	Emission to air	high. pop.	µg	25,67	8,68	15,40
Ethylamine	Emission to air	high. pop.	ng	1,06	0,36	0,64
Ethylene diamine	Emission to air	high. pop.	ng	16,87	5,71	10,12
Ethylene oxide	Emission to air	high. pop.	µg	12,66	4,28	7,60
Ethyne	Emission to air	high. pop.	µg	384,21	129,95	230,53
Fluorine	Emission to air	high. pop.	µg	77,14	26,09	46,28
Fluosilicic acid	Emission to air	high. pop.	µg	183,99	62,23	110,39
Formaldehyde	Emission to air	high. pop.	mg	6,55	2,21	3,93
Formamide	Emission to air	high. pop.	ng	1,22	0,41	0,73
Formic acid	Emission to air	high. pop.	µg	15,88	5,37	9,53
Heat, waste	Emission to air	high. pop.	MJ	122,43	41,41	73,46
Heptane	Emission to air	high. pop.	mg	8,43	2,85	5,06
Hexane	Emission to air	high. pop.	mg	33,44	11,31	20,06
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	high. pop.	µg	8,89	3,01	5,34
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	high. pop.	mg	9,03	3,05	5,42
Hydrocarbons, aliphatic, unsaturated	Emission to air	high. pop.	mg	5,45	1,84	3,27
Hydrocarbons, aromatic	Emission to air	high. pop.	µg	812,56	274,84	487,54
Hydrocarbons, chlorinated	Emission to air	high. pop.	µg	41,77	14,13	25,06
Hydrogen	Emission to air	high. pop.	g	1,12	0,38	0,67
Hydrogen chloride	Emission to air	high. pop.	mg	35,04	11,85	21,02
Hydrogen fluoride	Emission to air	high. pop.	mg	1,56	0,53	0,93
Hydrogen peroxide	Emission to air	high. pop.	µg	19,02	6,43	11,41
Hydrogen sulfide	Emission to air	high. pop.	µg	11,76	3,98	7,05
Iodine	Emission to air	high. pop.	µg	8,75	2,96	5,25
Iron	Emission to air	high. pop.	mg	4,28	1,45	2,57
Isocyanic acid	Emission to air	high. pop.	µg	69,16	23,39	41,50
Isopropylamine	Emission to air	high. pop.	pg	194,40	65,75	116,64
Lactic acid	Emission to air	high. pop.	ng	1,06	0,36	0,64
Lead	Emission to air	high. pop.	µg	502,38	169,92	301,43
Lead-210	Emission to air	high. pop.	mBq	35,67	12,06	21,40
m-Xylene	Emission to air	high. pop.	µg	184,50	62,40	110,70
Magnesium	Emission to air	high. pop.	mg	6,13	2,07	3,68
Manganese	Emission to air	high. pop.	µg	359,90	121,73	215,94

Mercury	Emission to air	high. pop.	mg	1,42	0,48	0,85
Methane, biogenic	Emission to air	high. pop.	mg	8,56	2,89	5,14
Methane, bromotrifluoro-, Halon 1301	Emission to air	high. pop.	pg	38,09	12,88	22,85
Methane, chlorodifluoro-, HCFC-22	Emission to air	high. pop.	µg	11,70	3,96	7,02
Methane, dichloro-, HCC-30	Emission to air	high. pop.	ng	288,07	97,44	172,84
Methane, dichlorodifluoro-, CFC-12	Emission to air	high. pop.	ng	925,63	313,08	555,38
Methane, dichlorofluoro-, HCFC-21	Emission to air	high. pop.	ng	2,25	0,76	1,35
Methane, fossil	Emission to air	high. pop.	mg	292,20	98,83	175,32
Methane, monochloro-, R-40	Emission to air	high. pop.	ng	18,52	6,26	11,11
Methane, tetrachloro-, CFC-10	Emission to air	high. pop.	µg	67,46	22,82	40,48
Methane, tetrafluoro-, CFC-14	Emission to air	high. pop.	ng	251,48	85,06	150,89
Methane, trichlorofluoro-, CFC-11	Emission to air	high. pop.	ng	3,66	1,24	2,20
Methane, trifluoro-, HFC-23	Emission to air	high. pop.	ng	717,24	242,59	430,34
Methanesulfonic acid	Emission to air	high. pop.	pg	700,37	236,89	420,22
Methanol	Emission to air	high. pop.	mg	4,30	1,45	2,58
Methyl acetate	Emission to air	high. pop.	pg	29,36	9,93	17,61
Methyl acrylate	Emission to air	high. pop.	µg	8,02	2,71	4,81
Methyl amine	Emission to air	high. pop.	ng	15,86	5,36	9,52
Methyl borate	Emission to air	high. pop.	pg	256,11	86,63	153,67
Methyl ethyl ketone	Emission to air	high. pop.	mg	12,69	4,29	7,61
Methyl formate	Emission to air	high. pop.	ng	31,43	10,63	18,86
Methyl lactate	Emission to air	high. pop.	ng	1,16	0,39	0,70
Molybdenum	Emission to air	high. pop.	µg	88,72	30,01	53,23
Monoethanolamine	Emission to air	high. pop.	µg	340,89	115,30	204,53
Nickel	Emission to air	high. pop.	mg	2,75	0,93	1,65
Nitrate	Emission to air	high. pop.	µg	11,97	4,05	7,18
Nitrobenzene	Emission to air	high. pop.	ng	6,58	2,22	3,95
Nitrogen oxides	Emission to air	high. pop.	g	5,51	1,86	3,30
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	high. pop.	mg	289,45	97,90	173,67
Ozone	Emission to air	high. pop.	µg	4,80	1,62	2,88
PAH, polycyclic aromatic hydrocarbons	Emission to air	high. pop.	µg	205,21	69,41	123,13
Particulates, < 2.5 um	Emission to air	high. pop.	g	1,05	0,35	0,63
Particulates, > 10 um	Emission to air	high. pop.	mg	229,85	77,74	137,91
Particulates, > 2.5 um, and < 10um	Emission to air	high. pop.	mg	802,27	271,36	481,36
Pentane	Emission to air	high. pop.	mg	75,59	25,57	45,35

Phenol	Emission to air	high. pop.	µg	179,35	60,66	107,61
Phenol, 2,4-dichloro-	Emission to air	high. pop.	pg	478,62	161,89	287,17
Phenol, pentachloro-	Emission to air	high. pop.	ng	626,21	211,81	375,73
Phosphine	Emission to air	high. pop.	ng	6,11	2,07	3,67
Phosphorus	Emission to air	high. pop.	µg	571,95	193,45	343,17
Platinum	Emission to air	high. pop.	pg	72,29	24,45	43,37
Polonium-210	Emission to air	high. pop.	mBq	65,20	22,05	39,12
Polychlorinated biphenyls	Emission to air	high. pop.	pg	257,61	87,13	154,56
Potassium	Emission to air	high. pop.	mg	38,75	13,11	23,25
Potassium-40	Emission to air	high. pop.	mBq	10,35	3,50	6,21
Propanal	Emission to air	high. pop.	ng	361,82	122,38	217,09
Propane	Emission to air	high. pop.	mg	50,60	17,12	30,36
Propene	Emission to air	high. pop.	mg	2,60	0,88	1,56
Propionic acid	Emission to air	high. pop.	µg	349,70	118,28	209,82
Propylamine	Emission to air	high. pop.	pg	384,83	130,16	230,90
Propylene oxide	Emission to air	high. pop.	µg	192,90	65,25	115,74
Radioactive species, other beta emitters	Emission to air	high. pop.	Bq	1,28	0,43	0,77
Radium-226	Emission to air	high. pop.	mBq	9,20	3,11	5,52
Radium-228	Emission to air	high. pop.	mBq	49,85	16,86	29,91
Radon-220	Emission to air	high. pop.	µBq	768,98	260,10	461,39
Radon-222	Emission to air	high. pop.	µBq	768,23	259,84	460,94
Scandium	Emission to air	high. pop.	ng	966,37	326,86	579,82
Selenium	Emission to air	high. pop.	µg	64,38	21,77	38,63
Silicon	Emission to air	high. pop.	mg	34,62	11,71	20,77
Silver	Emission to air	high. pop.	ng	785,35	265,63	471,21
Sodium	Emission to air	high. pop.	mg	32,51	11,00	19,51
Sodium chlorate	Emission to air	high. pop.	µg	218,19	73,80	130,91
Sodium dichromate	Emission to air	high. pop.	µg	17,65	5,97	10,59
Sodium formate	Emission to air	high. pop.	µg	7,33	2,48	4,40
Sodium hydroxide	Emission to air	high. pop.	µg	70,93	23,99	42,56
Strontium	Emission to air	high. pop.	µg	163,25	55,22	97,95
Styrene	Emission to air	high. pop.	µg	19,18	6,49	11,51
Sulfate	Emission to air	high. pop.	g	7,02	2,38	4,21
Sulfur dioxide	Emission to air	high. pop.	g	25,05	8,47	15,03
Sulfur trioxide	Emission to air	high. pop.	ng	53,36	18,05	32,01

Sulfuric acid	Emission to air	high. pop.	µg	14,85	5,02	8,91
t-Butyl methyl ether	Emission to air	high. pop.	µg	5,06	1,71	3,04
t-Butylamine	Emission to air	high. pop.	pg	653,10	220,90	391,86
Thallium	Emission to air	high. pop.	µg	2,66	0,90	1,60
Thorium	Emission to air	high. pop.	µg	1,46	0,49	0,87
Thorium-228	Emission to air	high. pop.	mBq	4,22	1,43	2,53
Thorium-232	Emission to air	high. pop.	mBq	2,68	0,91	1,61
Tin	Emission to air	high. pop.	µg	61,46	20,79	36,87
Titanium	Emission to air	high. pop.	mg	2,08	0,70	1,25
Toluene	Emission to air	high. pop.	mg	8,24	2,79	4,95
Toluene, 2-chloro-	Emission to air	high. pop.	ng	2,09	0,71	1,25
Trimethylamine	Emission to air	high. pop.	pg	52,41	17,73	31,45
Uranium	Emission to air	high. pop.	µg	1,94	0,66	1,16
Uranium-238	Emission to air	high. pop.	mBq	7,67	2,59	4,60
Vanadium	Emission to air	high. pop.	mg	9,52	3,22	5,71
Water	Emission to air	high. pop.	µg	76,97	26,03	46,18
Xylene	Emission to air	high. pop.	mg	3,68	1,25	2,21
Zinc	Emission to air	high. pop.	mg	1,42	0,48	0,85
Acenaphthene	Emission to air	low. pop.	pg	418,24	141,46	250,94
Acetaldehyde	Emission to air	low. pop.	µg	13,24	4,48	7,94
Acetic acid	Emission to air	low. pop.	µg	86,95	29,41	52,17
Acetone	Emission to air	low. pop.	µg	560,18	189,47	336,11
Acetonitrile	Emission to air	low. pop.	µg	3,64	1,23	2,18
Acrolein	Emission to air	low. pop.	ng	911,95	308,45	547,17
Actinides, radioactive, unspecified	Emission to air	low. pop.	mBq	1,70	0,57	1,02
Aerosols, radioactive, unspecified	Emission to air	low. pop.	mBq	39,59	13,39	23,75
Aldehydes, unspecified	Emission to air	low. pop.	µg	72,99	24,69	43,79
Aluminium	Emission to air	low. pop.	µg	557,49	188,56	334,50
Ammonia	Emission to air	low. pop.	mg	22,33	7,55	13,40
Antimony	Emission to air	low. pop.	µg	282,11	95,42	169,27
Antimony-124	Emission to air	low. pop.	nBq	218,50	73,90	131,10
Antimony-125	Emission to air	low. pop.	µBq	2,28	0,77	1,37
Argon-41	Emission to air	low. pop.	Bq	20,75	7,02	12,45
Arsenic	Emission to air	low. pop.	mg	1,96	0,66	1,17
Barium	Emission to air	low. pop.	µg	815,32	275,77	489,19

Barium-140	Emission to air	low. pop.	µBq	148,32	50,17	88,99
Benzene	Emission to air	low. pop.	mg	23,51	7,95	14,10
Benzene, ethyl-	Emission to air	low. pop.	ng	77,15	26,10	46,29
Benzo(a)pyrene	Emission to air	low. pop.	µg	102,52	34,68	61,51
Beryllium	Emission to air	low. pop.	µg	1,36	0,46	0,82
Boron	Emission to air	low. pop.	mg	57,50	19,45	34,50
Bromine	Emission to air	low. pop.	mg	6,28	2,13	3,77
Butadiene	Emission to air	low. pop.	ng	3,81	1,29	2,29
Butane	Emission to air	low. pop.	mg	6,35	2,15	3,81
Cadmium	Emission to air	low. pop.	µg	584,15	197,58	350,49
Calcium	Emission to air	low. pop.	mg	18,29	6,19	10,97
Carbon-14	Emission to air	low. pop.	Bq	162,03	54,80	97,22
Carbon dioxide, biogenic	Emission to air	low. pop.	g	27,83	9,41	16,70
Carbon dioxide, fossil	Emission to air	low. pop.	kg	4,77	1,61	2,86
Carbon dioxide, land transformation	Emission to air	low. pop.	mg	505,03	170,82	303,02
Carbon disulfide	Emission to air	low. pop.	mg	40,50	13,70	24,30
Carbon monoxide, biogenic	Emission to air	low. pop.	mg	20,64	6,98	12,39
Carbon monoxide, fossil	Emission to air	low. pop.	g	4,47	1,51	2,68
Cerium-141	Emission to air	low. pop.	µBq	35,96	12,16	21,57
Cesium-134	Emission to air	low. pop.	µBq	1,72	0,58	1,03
Cesium-137	Emission to air	low. pop.	µBq	30,53	10,33	18,32
Chlorine	Emission to air	low. pop.	µg	21,54	7,29	12,93
Chloroform	Emission to air	low. pop.	ng	80,40	27,19	48,24
Chromium	Emission to air	low. pop.	mg	15,55	5,26	9,33
Chromium-51	Emission to air	low. pop.	µBq	2,30	0,78	1,38
Chromium VI	Emission to air	low. pop.	µg	397,02	134,29	238,21
Cobalt	Emission to air	low. pop.	µg	253,58	85,77	152,15
Cobalt-58	Emission to air	low. pop.	µBq	3,21	1,09	1,93
Cobalt-60	Emission to air	low. pop.	µBq	28,34	9,59	17,01
Copper	Emission to air	low. pop.	mg	6,15	2,08	3,69
Cumene	Emission to air	low. pop.	ng	4,47	1,51	2,68
Cyanide	Emission to air	low. pop.	µg	221,54	74,93	132,92
Dinitrogen monoxide	Emission to air	low. pop.	mg	72,90	24,66	43,74
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	Emission to air	low. pop.	pg	569,20	192,52	341,52
Ethane	Emission to air	low. pop.	mg	117,16	39,63	70,30

Ethane, 1,1,1-trichloro-, HCFC-140	Emission to air	low. pop.	ng	16,40	5,55	9,84
Ethane, 1,1,1,2-tetrafluoro-, HFC-134a	Emission to air	low. pop.	µg	3,80	1,29	2,28
Ethane, 1,2-dichloro-	Emission to air	low. pop.	ng	32,77	11,08	19,66
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-, CFC-114	Emission to air	low. pop.	µg	65,83	22,27	39,50
Ethanol	Emission to air	low. pop.	µg	19,92	6,74	11,95
Ethene	Emission to air	low. pop.	mg	1,59	0,54	0,95
Ethene, tetrachloro-	Emission to air	low. pop.	ng	35,25	11,92	21,15
Ethylene oxide	Emission to air	low. pop.	ng	36,86	12,47	22,11
Ethyne	Emission to air	low. pop.	µg	56,34	19,06	33,80
Fluorine	Emission to air	low. pop.	µg	229,76	77,71	137,85
Formaldehyde	Emission to air	low. pop.	mg	2,55	0,86	1,53
Formic acid	Emission to air	low. pop.	µg	24,33	8,23	14,60
Furan	Emission to air	low. pop.	µg	6,91	2,34	4,15
Heat, waste	Emission to air	low. pop.	MJ	57,52	19,46	34,51
Helium	Emission to air	low. pop.	mg	3,03	1,03	1,82
Hexane	Emission to air	low. pop.	mg	1,56	0,53	0,94
Hydrocarbons, aliphatic, alkanes, cyclic	Emission to air	low. pop.	ng	475,09	160,69	285,05
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to air	low. pop.	mg	14,61	4,94	8,77
Hydrocarbons, aliphatic, unsaturated	Emission to air	low. pop.	mg	8,51	2,88	5,11
Hydrocarbons, aromatic	Emission to air	low. pop.	mg	3,14	1,06	1,89
Hydrocarbons, chlorinated	Emission to air	low. pop.	ng	166,48	56,31	99,89
Hydrogen-3, Tritium	Emission to air	low. pop.	Bq	934,96	316,24	560,98
Hydrogen chloride	Emission to air	low. pop.	mg	386,58	130,75	231,95
Hydrogen fluoride	Emission to air	low. pop.	mg	545,12	184,38	327,07
Hydrogen sulfide	Emission to air	low. pop.	mg	14,69	4,97	8,81
Iodine	Emission to air	low. pop.	mg	3,38	1,14	2,03
Iodine-129	Emission to air	low. pop.	mBq	163,61	55,34	98,16
Iodine-131	Emission to air	low. pop.	Bq	8,21	2,78	4,93
Iodine-133	Emission to air	low. pop.	µBq	379,89	128,49	227,93
Iodine-135	Emission to air	low. pop.	µBq	439,29	148,58	263,57
Iron	Emission to air	low. pop.	µg	333,42	112,78	200,05
Isoprene	Emission to air	low. pop.	ng	320,63	108,45	192,38
Krypton-85	Emission to air	low. pop.	Bq	64,98	21,98	38,99
Krypton-85m	Emission to air	low. pop.	Bq	3,18	1,07	1,91
Krypton-87	Emission to air	low. pop.	Bq	1,26	0,43	0,76

Krypton-88	Emission to air	low. pop.	Bq	1,25	0,42	0,75
Krypton-89	Emission to air	low. pop.	mBq	318,61	107,77	191,17
Lanthanum-140	Emission to air	low. pop.	µBq	12,68	4,29	7,61
Lead	Emission to air	low. pop.	mg	5,68	1,92	3,41
Lead-210	Emission to air	low. pop.	mBq	885,11	299,38	531,07
Magnesium	Emission to air	low. pop.	µg	213,50	72,21	128,10
Manganese	Emission to air	low. pop.	mg	1,05	0,36	0,63
Manganese-54	Emission to air	low. pop.	µBq	1,18	0,40	0,71
Mercury	Emission to air	low. pop.	µg	207,77	70,27	124,66
Methane, biogenic	Emission to air	low. pop.	mg	141,77	47,95	85,06
Methane, bromochlorodifluoro-, Halon 1211	Emission to air	low. pop.	µg	31,54	10,67	18,92
Methane, bromotrifluoro-, Halon 1301	Emission to air	low. pop.	µg	26,07	8,82	15,64
Methane, chlorodifluoro-, HCFC-22	Emission to air	low. pop.	µg	150,17	50,79	90,10
Methane, dichloro-, HCC-30	Emission to air	low. pop.	ng	237,95	80,48	142,77
Methane, dichlorodifluoro-, CFC-12	Emission to air	low. pop.	ng	107,53	36,37	64,52
Methane, fossil	Emission to air	low. pop.	g	12,60	4,26	7,56
Methane, monochloro-, R-40	Emission to air	low. pop.	ng	434,48	146,96	260,69
Methanol	Emission to air	low. pop.	µg	483,43	163,51	290,06
Molybdenum	Emission to air	low. pop.	µg	50,47	17,07	30,28
Nickel	Emission to air	low. pop.	mg	4,12	1,39	2,47
Niobium-95	Emission to air	low. pop.	nBq	140,07	47,38	84,04
Nitrate	Emission to air	low. pop.	µg	221,55	74,94	132,93
Nitrogen oxides	Emission to air	low. pop.	g	7,89	2,67	4,73
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	low. pop.	g	1,60	0,54	0,96
Noble gases, radioactive, unspecified	Emission to air	low. pop.	kBq	1572,21	531,78	943,32
Ozone	Emission to air	low. pop.	µg	2,32	0,78	1,39
PAH, polycyclic aromatic hydrocarbons	Emission to air	low. pop.	µg	108,77	36,79	65,26
Particulates, < 2.5 um	Emission to air	low. pop.	g	1,53	0,52	0,92
Particulates, > 10 um	Emission to air	low. pop.	g	4,39	1,49	2,64
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop.	mg	749,78	253,60	449,87
Pentane	Emission to air	low. pop.	mg	5,76	1,95	3,46
Phenol	Emission to air	low. pop.	µg	252,78	85,50	151,67
Phenol, pentachloro-	Emission to air	low. pop.	µg	44,42	15,02	26,65
Phosphorus	Emission to air	low. pop.	µg	10,83	3,66	6,50
Platinum	Emission to air	low. pop.	ng	2,27	0,77	1,36

Plutonium-238	Emission to air	low. pop.	nBq	22,32	7,55	13,39
Plutonium-alpha	Emission to air	low. pop.	nBq	51,16	17,31	30,70
Polonium-210	Emission to air	low. pop.	Bq	1,55	0,52	0,93
Potassium	Emission to air	low. pop.	µg	72,23	24,43	43,34
Potassium-40	Emission to air	low. pop.	mBq	193,88	65,58	116,33
Propane	Emission to air	low. pop.	mg	32,67	11,05	19,60
Propene	Emission to air	low. pop.	µg	751,07	254,04	450,64
Protactinium-234	Emission to air	low. pop.	mBq	22,26	7,53	13,35
Radioactive species, other beta emitters	Emission to air	low. pop.	µBq	956,34	323,47	573,80
Radium-226	Emission to air	low. pop.	mBq	974,94	329,76	584,96
Radium-228	Emission to air	low. pop.	mBq	73,50	24,86	44,10
Radon-220	Emission to air	low. pop.	Bq	8,86	3,00	5,32
Radon-222	Emission to air	low. pop.	kBq	68,57	23,19	41,14
Ruthenium-103	Emission to air	low. pop.	nBq	30,77	10,41	18,46
Scandium	Emission to air	low. pop.	ng	622,00	210,38	373,20
Selenium	Emission to air	low. pop.	µg	638,45	215,95	383,07
Silicon	Emission to air	low. pop.	mg	1,50	0,51	0,90
Silicon tetrafluoride	Emission to air	low. pop.	µg	19,83	6,71	11,90
Silver	Emission to air	low. pop.	ng	3,10	1,05	1,86
Silver-110	Emission to air	low. pop.	nBq	305,00	103,16	183,00
Sodium	Emission to air	low. pop.	µg	66,73	22,57	40,04
Strontium	Emission to air	low. pop.	µg	803,16	271,66	481,90
Styrene	Emission to air	low. pop.	ng	585,87	198,16	351,52
Sulfate	Emission to air	low. pop.	mg	1,67	0,57	1,00
Sulfur dioxide	Emission to air	low. pop.	g	75,69	25,60	45,42
Sulfur hexafluoride	Emission to air	low. pop.	ng	678,03	229,33	406,82
Sulfuric acid	Emission to air	low. pop.	ng	4,85	1,64	2,91
Terpenes	Emission to air	low. pop.	µg	3,03	1,03	1,82
Thallium	Emission to air	low. pop.	ng	51,41	17,39	30,85
Thorium	Emission to air	low. pop.	ng	125,57	42,47	75,34
Thorium-228	Emission to air	low. pop.	mBq	39,64	13,41	23,78
Thorium-230	Emission to air	low. pop.	mBq	118,42	40,06	71,05
Thorium-232	Emission to air	low. pop.	mBq	62,68	21,20	37,61
Thorium-234	Emission to air	low. pop.	mBq	22,26	7,53	13,36
Tin	Emission to air	low. pop.	µg	313,78	106,13	188,27

Titanium	Emission to air	low. pop.	µg	19,36	6,55	11,62
Toluene	Emission to air	low. pop.	mg	4,71	1,59	2,82
Tungsten	Emission to air	low. pop.	ng	66,47	22,48	39,88
Uranium	Emission to air	low. pop.	ng	63,84	21,59	38,31
Uranium-234	Emission to air	low. pop.	mBq	294,93	99,75	176,96
Uranium-235	Emission to air	low. pop.	mBq	12,55	4,25	7,53
Uranium-238	Emission to air	low. pop.	mBq	447,69	151,42	268,61
Uranium alpha	Emission to air	low. pop.	Bq	1,21	0,41	0,73
Vanadium	Emission to air	low. pop.	µg	250,22	84,63	150,13
Water	Emission to air	low. pop.	µg	250,14	84,60	150,08
Xenon-131m	Emission to air	low. pop.	Bq	5,82	1,97	3,49
Xenon-133	Emission to air	low. pop.	Bq	185,40	62,71	111,24
Xenon-133m	Emission to air	low. pop.	mBq	787,09	266,22	472,26
Xenon-135	Emission to air	low. pop.	Bq	75,99	25,70	45,59
Xenon-135m	Emission to air	low. pop.	Bq	44,85	15,17	26,91
Xenon-137	Emission to air	low. pop.	mBq	873,44	295,43	524,06
Xenon-138	Emission to air	low. pop.	Bq	7,68	2,60	4,61
Xylene	Emission to air	low. pop.	mg	36,47	12,33	21,88
Zinc	Emission to air	low. pop.	mg	8,64	2,92	5,18
Zinc-65	Emission to air	low. pop.	µBq	5,89	1,99	3,54
Zirconium	Emission to air	low. pop.	µg	1,55	0,52	0,93
Zirconium-95	Emission to air	low. pop.	µBq	5,76	1,95	3,46
Aluminium	Emission to air	low. pop., long-term	mg	75,08	25,40	45,05
Antimony	Emission to air	low. pop., long-term	µg	6,77	2,29	4,06
Arsenic	Emission to air	low. pop., long-term	µg	397,98	134,61	238,79
Barium	Emission to air	low. pop., long-term	µg	434,90	147,10	260,94
Beryllium	Emission to air	low. pop., long-term	µg	9,48	3,21	5,69
Boron	Emission to air	low. pop., long-term	µg	126,16	42,67	75,70
Cadmium	Emission to air	low. pop., long-term	µg	10,26	3,47	6,15
Calcium	Emission to air	low. pop., long-term	mg	24,41	8,26	14,65
Chlorine	Emission to air	low. pop., long-term	µg	931,35	315,01	558,81
Chromium VI	Emission to air	low. pop., long-term	µg	48,41	16,38	29,05
Cobalt	Emission to air	low. pop., long-term	µg	60,31	20,40	36,19
Copper	Emission to air	low. pop., long-term	µg	635,94	215,10	381,56
Fluorine	Emission to air	low. pop., long-term	mg	4,57	1,55	2,74

Iron	Emission to air	low. pop., long-term	mg	81,65	27,62	48,99
Lead	Emission to air	low. pop., long-term	µg	672,87	227,59	403,72
Magnesium	Emission to air	low. pop., long-term	mg	7,49	2,53	4,49
Manganese	Emission to air	low. pop., long-term	mg	1,69	0,57	1,01
Mercury	Emission to air	low. pop., long-term	µg	5,17	1,75	3,10
Molybdenum	Emission to air	low. pop., long-term	µg	130,68	44,20	78,41
Nickel	Emission to air	low. pop., long-term	µg	137,86	46,63	82,71
Nitrate	Emission to air	low. pop., long-term	µg	644,15	217,87	386,49
Particulates, < 2.5 um	Emission to air	low. pop., long-term	mg	59,90	20,26	35,94
Particulates, > 10 um	Emission to air	low. pop., long-term	mg	149,75	50,65	89,85
Particulates, > 2.5 um, and < 10um	Emission to air	low. pop., long-term	mg	89,85	30,39	53,91
Phosphorus	Emission to air	low. pop., long-term	µg	126,16	42,67	75,70
Potassium	Emission to air	low. pop., long-term	mg	12,84	4,34	7,71
Radon-222	Emission to air	low. pop., long-term	kBq	2871,99	971,41	1723,19
Scandium	Emission to air	low. pop., long-term	µg	268,74	90,90	161,24
Selenium	Emission to air	low. pop., long-term	µg	37,54	12,70	22,52
Silicon	Emission to air	low. pop., long-term	mg	16,72	5,65	10,03
Silver	Emission to air	low. pop., long-term	µg	11,24	3,80	6,75
Sodium	Emission to air	low. pop., long-term	mg	4,41	1,49	2,65
Strontium	Emission to air	low. pop., long-term	µg	272,84	92,28	163,70
Sulfate	Emission to air	low. pop., long-term	mg	69,13	23,38	41,48
Tin	Emission to air	low. pop., long-term	µg	15,65	5,29	9,39
Titanium	Emission to air	low. pop., long-term	mg	4,90	1,66	2,94
Tungsten	Emission to air	low. pop., long-term	µg	30,36	10,27	18,22
Vanadium	Emission to air	low. pop., long-term	µg	465,67	157,51	279,40
Zinc	Emission to air	low. pop., long-term	µg	482,08	163,06	289,25
Benzene	Emission to air	stratosphere + troposphere	ng	24,46	8,27	14,67
Butadiene	Emission to air	stratosphere + troposphere	ng	23,17	7,84	13,90
Cadmium	Emission to air	stratosphere + troposphere	pg	12,26	4,15	7,36
Carbon dioxide, fossil	Emission to air	stratosphere + troposphere	mg	3,86	1,31	2,32
Carbon monoxide, fossil	Emission to air	stratosphere + troposphere	µg	4,54	1,53	2,72
Chromium	Emission to air	stratosphere + troposphere	pg	61,30	20,73	36,78
Copper	Emission to air	stratosphere + troposphere	ng	2,08	0,70	1,25
Dinitrogen monoxide	Emission to air	stratosphere + troposphere	ng	36,78	12,44	22,07
Ethylene oxide	Emission to air	stratosphere + troposphere	ng	223,98	75,76	134,39

Formaldehyde	Emission to air	stratosphere + troposphere	ng	193,09	65,31	115,86
Heat, waste	Emission to air	stratosphere + troposphere	J	55,90	18,91	33,54
Hydrogen chloride	Emission to air	stratosphere + troposphere	ng	1,05	0,36	0,63
Lead	Emission to air	stratosphere + troposphere	pg	24,52	8,29	14,71
Mercury	Emission to air	stratosphere + troposphere	pg	0,09	0,03	0,05
Methane, fossil	Emission to air	stratosphere + troposphere	ng	61,30	20,73	36,78
Nickel	Emission to air	stratosphere + troposphere	pg	85,82	29,03	51,49
Nitrogen oxides	Emission to air	stratosphere + troposphere	µg	17,16	5,81	10,30
NMVOC, non-methane volatile organic compounds, unspecified origin	Emission to air	stratosphere + troposphere	ng	822,56	278,22	493,53
Particulates, < 2.5 um	Emission to air	stratosphere + troposphere	ng	46,59	15,76	27,95
Selenium	Emission to air	stratosphere + troposphere	pg	12,26	4,15	7,36
Sulfur dioxide	Emission to air	stratosphere + troposphere	µg	1,23	0,41	0,74
Water	Emission to air	stratosphere + troposphere	mg	1,52	0,51	0,91
Zinc	Emission to air	stratosphere + troposphere	ng	1,23	0,41	0,74
4-Methyl-2-pentanone	Emission to water		ng	2,43	0,82	1,46
Acetone	Emission to water		ng	5,78	1,96	3,47
Acidity, unspecified	Emission to water		ng	121,67	41,15	73,00
Aluminium	Emission to water		µg	40,97	13,86	24,58
Ammonium, ion	Emission to water		µg	7,13	2,41	4,28
Antimony	Emission to water		ng	6,51	2,20	3,91
AOX, Adsorbable Organic Halogen as Cl	Emission to water		ng	612,12	207,04	367,27
Arsenic, ion	Emission to water		µg	6,66	2,25	4,00
Barium	Emission to water		µg	164,73	55,72	98,84
Benzene	Emission to water		ng	970,48	328,25	582,29
Benzene, ethyl-	Emission to water		ng	54,54	18,45	32,73
Beryllium	Emission to water		ng	5,80	1,96	3,48
BOD5, Biological Oxygen Demand	Emission to water		mg	15,48	5,24	9,29
Boron	Emission to water		µg	1,82	0,61	1,09
Bromine	Emission to water		µg	124,05	41,96	74,43
Cadmium, ion	Emission to water		µg	23,32	7,89	13,99
Calcium, ion	Emission to water		mg	1,86	0,63	1,12
Chloride	Emission to water		mg	29,90	10,11	17,94
Chromium VI	Emission to water		µg	9,61	3,25	5,77
Chromium, ion	Emission to water		µg	63,19	21,37	37,91
Cobalt	Emission to water		ng	12,82	4,34	7,69

COD, Chemical Oxygen Demand	Emission to water	mg	15,73	5,32	9,44
Copper, ion	Emission to water	µg	166,41	56,29	99,85
Cyanide	Emission to water	µg	65,33	22,10	39,20
DOC, Dissolved Organic Carbon	Emission to water	mg	2,27	0,77	1,36
Fluoride	Emission to water	mg	12,21	4,13	7,33
Formaldehyde	Emission to water	µg	61,21	20,70	36,73
Heat, waste	Emission to water	kJ	13,98	4,73	8,39
Hydrocarbons, unspecified	Emission to water	µg	192,82	65,22	115,69
Iron, ion	Emission to water	mg	13,48	4,56	8,09
Lead	Emission to water	µg	107,86	36,48	64,72
Lead-210	Emission to water	µBq	167,46	56,64	100,48
Lithium, ion	Emission to water	µg	622,05	210,40	373,23
m-Xylene	Emission to water	ng	17,53	5,93	10,52
Magnesium	Emission to water	µg	363,02	122,78	217,81
Manganese	Emission to water	µg	62,87	21,26	37,72
Mercury	Emission to water	µg	3,71	1,25	2,22
Methanol	Emission to water	µg	18,36	6,21	11,02
Molybdenum	Emission to water	ng	13,30	4,50	7,98
Nickel, ion	Emission to water	µg	139,32	47,12	83,59
o-Xylene	Emission to water	ng	12,77	4,32	7,66
Oils, unspecified	Emission to water	mg	1,65	0,56	0,99
Phenol	Emission to water	µg	6,38	2,16	3,83
Phosphorus	Emission to water	µg	6,40	2,17	3,84
Radium-226	Emission to water	µBq	766,17	259,14	459,70
Radium-228	Emission to water	mBq	1,08	0,36	0,65
Selenium	Emission to water	ng	1,29	0,43	0,77
Silver, ion	Emission to water	µg	1,21	0,41	0,73
Sodium, ion	Emission to water	g	1,13	0,38	0,68
Solved solids	Emission to water	mg	25,72	8,70	15,43
Strontium	Emission to water	µg	31,56	10,67	18,94
Sulfate	Emission to water	µg	98,90	33,45	59,34
Sulfur	Emission to water	µg	1,53	0,52	0,92
Suspended solids, unspecified	Emission to water	mg	19,43	6,57	11,66
Thallium	Emission to water	ng	1,38	0,47	0,83
Tin, ion	Emission to water	ng	63,71	21,55	38,22

Titanium, ion	Emission to water		ng	99,97	33,81	59,98
TOC, Total Organic Carbon	Emission to water		mg	2,27	0,77	1,36
Toluene	Emission to water		ng	917,57	310,36	550,54
Vanadium, ion	Emission to water		ng	15,72	5,32	9,43
Xylene	Emission to water		ng	463,35	156,72	278,01
Zinc, ion	Emission to water		mg	4,55	1,54	2,73
Aluminium	Emission to water	groundwater	mg	13,64	4,61	8,18
Ammonium, ion	Emission to water	groundwater	µg	969,71	327,99	581,83
Antimony	Emission to water	groundwater	µg	719,25	243,28	431,55
Arsenic, ion	Emission to water	groundwater	mg	3,60	1,22	2,16
Barium	Emission to water	groundwater	µg	188,90	63,89	113,34
Beryllium	Emission to water	groundwater	µg	21,80	7,37	13,08
BOD5, Biological Oxygen Demand	Emission to water	groundwater	µg	193,34	65,39	116,00
Boron	Emission to water	groundwater	mg	36,59	12,38	21,96
Bromine	Emission to water	groundwater	mg	1,66	0,56	1,00
Cadmium, ion	Emission to water	groundwater	µg	30,66	10,37	18,40
Calcium, ion	Emission to water	groundwater	g	1,65	0,56	0,99
Chloride	Emission to water	groundwater	g	12,75	4,31	7,65
Chromium VI	Emission to water	groundwater	mg	2,13	0,72	1,28
Chromium, ion	Emission to water	groundwater	µg	1,00	0,34	0,60
Cobalt	Emission to water	groundwater	µg	239,82	81,12	143,89
COD, Chemical Oxygen Demand	Emission to water	groundwater	µg	193,34	65,39	116,00
Copper, ion	Emission to water	groundwater	µg	223,46	75,58	134,08
Fluoride	Emission to water	groundwater	mg	9,65	3,27	5,79
Iodide	Emission to water	groundwater	µg	201,75	68,24	121,05
Iron, ion	Emission to water	groundwater	g	3,61	1,22	2,17
Lead	Emission to water	groundwater	µg	15,44	5,22	9,26
Lead-210	Emission to water	groundwater	mBq	6,33	2,14	3,80
Magnesium	Emission to water	groundwater	mg	636,55	215,30	381,93
Manganese	Emission to water	groundwater	mg	31,36	10,61	18,82
Mercury	Emission to water	groundwater	µg	3,26	1,10	1,96
Molybdenum	Emission to water	groundwater	mg	4,96	1,68	2,98
Nickel, ion	Emission to water	groundwater	mg	1,20	0,40	0,72
Nitrate	Emission to water	groundwater	mg	107,44	36,34	64,47
Phosphate	Emission to water	groundwater	g	2,76	0,93	1,66

Phosphorus	Emission to water	groundwater	ng	591,01	199,90	354,61
Polonium-210	Emission to water	groundwater	mBq	9,64	3,26	5,78
Potassium-40	Emission to water	groundwater	µBq	765,51	258,92	459,31
Potassium, ion	Emission to water	groundwater	mg	440,88	149,12	264,53
Radium-226	Emission to water	groundwater	mBq	7,10	2,40	4,26
Scandium	Emission to water	groundwater	µg	264,39	89,43	158,64
Selenium	Emission to water	groundwater	µg	559,46	189,23	335,67
Silicon	Emission to water	groundwater	mg	346,87	117,33	208,12
Silver, ion	Emission to water	groundwater	µg	14,24	4,82	8,54
Sodium, ion	Emission to water	groundwater	mg	979,62	331,34	587,77
Solids, inorganic	Emission to water	groundwater	g	7,90	2,67	4,74
Solved solids	Emission to water	groundwater	mg	207,89	70,31	124,73
Strontium	Emission to water	groundwater	mg	20,93	7,08	12,56
Sulfate	Emission to water	groundwater	g	28,83	9,75	17,30
Thallium	Emission to water	groundwater	µg	2,14	0,72	1,29
Thorium-228	Emission to water	groundwater	µBq	77,65	26,26	46,59
Tin, ion	Emission to water	groundwater	µg	15,31	5,18	9,19
Titanium, ion	Emission to water	groundwater	µg	205,95	69,66	123,57
Tungsten	Emission to water	groundwater	µg	573,34	193,92	344,00
Uranium-238	Emission to water	groundwater	mBq	3,25	1,10	1,95
Vanadium, ion	Emission to water	groundwater	µg	209,98	71,02	125,99
Zinc, ion	Emission to water	groundwater	mg	1,83	0,62	1,10
Aluminium	Emission to water	groundwater, long-term	g	16,48	5,57	9,89
Ammonium, ion	Emission to water	groundwater, long-term	mg	2,27	0,77	1,36
Antimony	Emission to water	groundwater, long-term	mg	56,69	19,17	34,01
Arsenic, ion	Emission to water	groundwater, long-term	mg	41,12	13,91	24,67
Barium	Emission to water	groundwater, long-term	mg	558,14	188,78	334,88
Beryllium	Emission to water	groundwater, long-term	mg	10,71	3,62	6,43
BOD5, Biological Oxygen Demand	Emission to water	groundwater, long-term	g	11,91	4,03	7,15
Boron	Emission to water	groundwater, long-term	mg	488,75	165,31	293,25
Bromine	Emission to water	groundwater, long-term	mg	22,31	7,54	13,38
Cadmium, ion	Emission to water	groundwater, long-term	mg	14,30	4,84	8,58
Calcium, ion	Emission to water	groundwater, long-term	g	629,18	212,81	377,51
Chloride	Emission to water	groundwater, long-term	g	13,76	4,65	8,26
Chromium VI	Emission to water	groundwater, long-term	mg	63,68	21,54	38,21

Cobalt	Emission to water	groundwater, long-term	mg	200,43	67,79	120,26
COD, Chemical Oxygen Demand	Emission to water	groundwater, long-term	g	36,39	12,31	21,83
Copper, ion	Emission to water	groundwater, long-term	mg	628,69	212,64	377,21
DOC, Dissolved Organic Carbon	Emission to water	groundwater, long-term	g	14,58	4,93	8,75
Fluoride	Emission to water	groundwater, long-term	g	2,82	0,95	1,69
Heat, waste	Emission to water	groundwater, long-term	kJ	41,31	13,97	24,78
Hydrogen sulfide	Emission to water	groundwater, long-term	g	17,71	5,99	10,63
Iodide	Emission to water	groundwater, long-term	ng	11,78	3,98	7,07
Iron, ion	Emission to water	groundwater, long-term	g	19,03	6,44	11,42
Lead	Emission to water	groundwater, long-term	mg	84,97	28,74	50,98
Magnesium	Emission to water	groundwater, long-term	g	66,95	22,64	40,17
Manganese	Emission to water	groundwater, long-term	g	5,47	1,85	3,28
Mercury	Emission to water	groundwater, long-term	mg	1,93	0,65	1,16
Molybdenum	Emission to water	groundwater, long-term	mg	33,31	11,27	19,99
Nickel, ion	Emission to water	groundwater, long-term	mg	633,72	214,35	380,23
Nitrate	Emission to water	groundwater, long-term	g	6,24	2,11	3,74
Nitrite	Emission to water	groundwater, long-term	µg	123,47	41,76	74,08
Nitrogen, organic bound	Emission to water	groundwater, long-term	mg	3,70	1,25	2,22
Phosphate	Emission to water	groundwater, long-term	g	17,98	6,08	10,79
Potassium, ion	Emission to water	groundwater, long-term	g	37,84	12,80	22,70
Scandium	Emission to water	groundwater, long-term	mg	15,93	5,39	9,56
Selenium	Emission to water	groundwater, long-term	mg	26,78	9,06	16,07
Silicon	Emission to water	groundwater, long-term	g	123,33	41,71	74,00
Silver, ion	Emission to water	groundwater, long-term	µg	719,87	243,48	431,92
Sodium, ion	Emission to water	groundwater, long-term	g	58,26	19,71	34,96
Strontium	Emission to water	groundwater, long-term	g	2,24	0,76	1,34
Sulfate	Emission to water	groundwater, long-term	kg	1,18	0,40	0,71
Thallium	Emission to water	groundwater, long-term	mg	2,20	0,74	1,32
Tin, ion	Emission to water	groundwater, long-term	mg	33,52	11,34	20,11
Titanium, ion	Emission to water	groundwater, long-term	g	1,10	0,37	0,66
TOC, Total Organic Carbon	Emission to water	groundwater, long-term	g	14,58	4,93	8,75
Tungsten	Emission to water	groundwater, long-term	mg	14,18	4,80	8,51
Vanadium, ion	Emission to water	groundwater, long-term	mg	138,21	46,75	82,92
Zinc, ion	Emission to water	groundwater, long-term	g	1,09	0,37	0,66
Arsenic, ion	Emission to water	lake	pg	327,62	110,81	196,57

Cadmium, ion	Emission to water	lake	pg	278,26	94,12	166,96
Calcium, ion	Emission to water	lake	µg	838,65	283,66	503,19
Copper, ion	Emission to water	lake	ng	12,63	4,27	7,58
DOC, Dissolved Organic Carbon	Emission to water	lake	µg	10,79	3,65	6,47
Lead	Emission to water	lake	pg	824,54	278,89	494,73
Mercury	Emission to water	lake	pg	7,13	2,41	4,28
Nickel, ion	Emission to water	lake	ng	1,12	0,38	0,67
Zinc, ion	Emission to water	lake	pg	812,47	274,81	487,48
Acenaphthene	Emission to water	ocean	ng	56,68	19,17	34,01
Acenaphthylene	Emission to water	ocean	ng	3,54	1,20	2,13
Actinides, radioactive, unspecified	Emission to water	ocean	mBq	265,74	89,88	159,45
Aluminium	Emission to water	ocean	mg	3,64	1,23	2,18
Ammonium, ion	Emission to water	ocean	mg	1,42	0,48	0,85
AOX, Adsorbable Organic Halogen as Cl	Emission to water	ocean	µg	5,55	1,88	3,33
Arsenic, ion	Emission to water	ocean	µg	172,63	58,39	103,58
Barite	Emission to water	ocean	mg	176,70	59,77	106,02
Barium	Emission to water	ocean	mg	7,96	2,69	4,78
Benzene	Emission to water	ocean	µg	756,63	255,92	453,98
Benzene, ethyl-	Emission to water	ocean	µg	218,78	74,00	131,27
BOD5, Biological Oxygen Demand	Emission to water	ocean	g	1,13	0,38	0,68
Boron	Emission to water	ocean	µg	135,28	45,76	81,17
Bromine	Emission to water	ocean	mg	6,38	2,16	3,83
Cadmium, ion	Emission to water	ocean	µg	68,53	23,18	41,12
Calcium, ion	Emission to water	ocean	g	3,15	1,06	1,89
Carboxylic acids, unspecified	Emission to water	ocean	mg	52,26	17,68	31,36
Cesium	Emission to water	ocean	µg	9,11	3,08	5,47
Cesium-137	Emission to water	ocean	Bq	30,45	10,30	18,27
Chloride	Emission to water	ocean	g	4,58	1,55	2,75
Chlorinated solvents, unspecified	Emission to water	ocean	pg	5,12	1,73	3,07
Chromium, ion	Emission to water	ocean	µg	96,89	32,77	58,14
Cobalt	Emission to water	ocean	ng	917,33	310,28	550,40
COD, Chemical Oxygen Demand	Emission to water	ocean	g	1,14	0,39	0,68
Copper, ion	Emission to water	ocean	µg	493,73	167,00	296,24
Cyanide	Emission to water	ocean	µg	840,50	284,29	504,30
DOC, Dissolved Organic Carbon	Emission to water	ocean	mg	363,05	122,80	217,83

Fluoride	Emission to water	ocean	mg	31,04	10,50	18,63
Glutaraldehyde	Emission to water	ocean	µg	21,81	7,38	13,09
Heat, waste	Emission to water	ocean	J	997,50	337,39	598,50
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	ocean	mg	1,18	0,40	0,71
Hydrocarbons, aliphatic, unsaturated	Emission to water	ocean	µg	109,35	36,99	65,61
Hydrocarbons, aromatic	Emission to water	ocean	mg	5,23	1,77	3,14
Hydrocarbons, unspecified	Emission to water	ocean	mg	3,33	1,13	2,00
Hydrogen-3, Tritium	Emission to water	ocean	kBq	63,27	21,40	37,96
Hypochlorite	Emission to water	ocean	mg	1,93	0,65	1,16
Iodide	Emission to water	ocean	µg	911,29	308,23	546,77
Iron, ion	Emission to water	ocean	µg	614,37	207,80	368,62
Lead	Emission to water	ocean	µg	132,87	44,94	79,72
Lead-210	Emission to water	ocean	Bq	7,44	2,52	4,46
Magnesium	Emission to water	ocean	mg	54,00	18,26	32,40
Manganese	Emission to water	ocean	µg	535,93	181,27	321,56
Mercury	Emission to water	ocean	ng	358,70	121,33	215,22
Methanol	Emission to water	ocean	µg	421,35	142,51	252,81
Molybdenum	Emission to water	ocean	µg	3,38	1,14	2,03
Nickel, ion	Emission to water	ocean	µg	155,65	52,65	93,39
Nitrate	Emission to water	ocean	mg	22,63	7,66	13,58
Nitrite	Emission to water	ocean	µg	412,33	139,46	247,40
Nitrogen	Emission to water	ocean	µg	42,22	14,28	25,33
Nitrogen, organic bound	Emission to water	ocean	mg	2,89	0,98	1,73
Oils, unspecified	Emission to water	ocean	mg	358,25	121,17	214,95
PAH, polycyclic aromatic hydrocarbons	Emission to water	ocean	µg	74,52	25,20	44,71
Phenol	Emission to water	ocean	mg	1,19	0,40	0,71
Phosphate	Emission to water	ocean	mg	125,52	42,46	75,31
Phosphorus	Emission to water	ocean	µg	138,62	46,89	83,17
Polonium-210	Emission to water	ocean	Bq	11,36	3,84	6,81
Potassium-40	Emission to water	ocean	mBq	899,38	304,20	539,63
Potassium, ion	Emission to water	ocean	mg	40,00	13,53	24,00
Radioactive species, Nuclides, unspecified	Emission to water	ocean	Bq	158,88	53,74	95,33
Radium-224	Emission to water	ocean	mBq	455,64	154,12	273,39
Radium-226	Emission to water	ocean	Bq	9,11	3,08	5,46
Radium-228	Emission to water	ocean	mBq	911,29	308,23	546,77

Rubidium	Emission to water	ocean	µg	91,13	30,82	54,68
Selenium	Emission to water	ocean	µg	5,07	1,71	3,04
Silicon	Emission to water	ocean	µg	5,68	1,92	3,41
Silver, ion	Emission to water	ocean	µg	5,47	1,85	3,28
Sodium, ion	Emission to water	ocean	g	2,83	0,96	1,70
Strontium	Emission to water	ocean	mg	16,64	5,63	9,98
Strontium-90	Emission to water	ocean	Bq	3,39	1,15	2,03
Sulfate	Emission to water	ocean	g	6,40	2,17	3,84
Sulfide	Emission to water	ocean	µg	66,12	22,37	39,67
Sulfur	Emission to water	ocean	µg	133,85	45,27	80,31
Suspended solids, unspecified	Emission to water	ocean	mg	633,30	214,20	379,98
t-Butyl methyl ether	Emission to water	ocean	µg	107,16	36,24	64,29
Thorium-228	Emission to water	ocean	Bq	1,91	0,65	1,15
Titanium, ion	Emission to water	ocean	ng	901,52	304,93	540,91
TOC, Total Organic Carbon	Emission to water	ocean	mg	363,04	122,79	217,83
Toluene	Emission to water	ocean	mg	1,41	0,48	0,84
Tributyltin compounds	Emission to water	ocean	µg	89,16	30,16	53,50
Triethylene glycol	Emission to water	ocean	µg	350,73	118,63	210,44
Uranium-238	Emission to water	ocean	Bq	3,82	1,29	2,29
Vanadium, ion	Emission to water	ocean	µg	10,11	3,42	6,06
VOC, volatile organic compounds, unspecified origin	Emission to water	ocean	mg	3,19	1,08	1,91
Xylene	Emission to water	ocean	mg	1,09	0,37	0,66
Zinc, ion	Emission to water	ocean	mg	10,30	3,48	6,18
1-Butanol	Emission to water	river	µg	46,05	15,58	27,63
1-Pentanol	Emission to water	river	ng	1,59	0,54	0,96
1-Pentene	Emission to water	river	ng	1,21	0,41	0,72
1,4-Butanediol	Emission to water	river	ng	58,89	19,92	35,33
2-Aminopropanol	Emission to water	river	pg	184,43	62,38	110,66
2-Methyl-1-propanol	Emission to water	river	ng	3,11	1,05	1,87
2-Methyl-2-butene	Emission to water	river	pg	0,27	0,09	0,16
2-Propanol	Emission to water	river	ng	1,08	0,36	0,65
Acenaphthene	Emission to water	river	ng	164,26	55,56	98,56
Acenaphthylene	Emission to water	river	ng	10,27	3,47	6,16
Acetaldehyde	Emission to water	river	µg	84,28	28,51	50,57
Acetic acid	Emission to water	river	µg	271,19	91,73	162,72

Acetone	Emission to water	river	ng	58,45	19,77	35,07
Acetonitrile	Emission to water	river	pg	580,36	196,30	348,21
Acetyl chloride	Emission to water	river	ng	1,25	0,42	0,75
Acidity, unspecified	Emission to water	river	µg	50,35	17,03	30,21
Acrylate, ion	Emission to water	river	µg	16,73	5,66	10,04
Aluminium	Emission to water	river	mg	35,04	11,85	21,03
Ammonium, ion	Emission to water	river	mg	111,51	37,72	66,91
Aniline	Emission to water	river	ng	11,66	3,95	7,00
Antimony	Emission to water	river	mg	26,76	9,05	16,06
Antimony-122	Emission to water	river	µBq	88,09	29,79	52,85
Antimony-124	Emission to water	river	mBq	43,47	14,70	26,08
Antimony-125	Emission to water	river	mBq	39,67	13,42	23,80
AOX, Adsorbable Organic Halogen as Cl	Emission to water	river	µg	137,52	46,51	82,51
Arsenic, ion	Emission to water	river	mg	6,20	2,10	3,72
Barium	Emission to water	river	mg	23,26	7,87	13,96
Barium-140	Emission to water	river	µBq	385,88	130,52	231,53
Benzene	Emission to water	river	mg	3,27	1,10	1,96
Benzene, 1,2-dichloro-	Emission to water	river	µg	19,70	6,66	11,82
Benzene, chloro-	Emission to water	river	µg	406,60	137,53	243,96
Benzene, ethyl-	Emission to water	river	µg	633,88	214,40	380,33
Beryllium	Emission to water	river	µg	2,22	0,75	1,33
BOD5, Biological Oxygen Demand	Emission to water	river	g	5,20	1,76	3,12
Borate	Emission to water	river	ng	128,23	43,37	76,94
Boron	Emission to water	river	mg	4,16	1,41	2,49
Bromate	Emission to water	river	mg	315,25	106,63	189,15
Bromide	Emission to water	river	µg	8,08	2,73	4,85
Bromine	Emission to water	river	mg	122,50	41,43	73,50
Butene	Emission to water	river	µg	11,98	4,05	7,19
Butyl acetate	Emission to water	river	µg	59,87	20,25	35,92
Butyrolactone	Emission to water	river	ng	101,63	34,38	60,98
Cadmium, ion	Emission to water	river	µg	342,47	115,83	205,48
Calcium, ion	Emission to water	river	g	71,13	24,06	42,68
Carbon disulfide	Emission to water	river	ng	73,22	24,77	43,93
Carbonate	Emission to water	river	mg	6,40	2,16	3,84
Carboxylic acids, unspecified	Emission to water	river	mg	97,19	32,87	58,31

Cerium-141	Emission to water	river	µBq	154,28	52,18	92,57
Cerium-144	Emission to water	river	µBq	46,97	15,89	28,18
Cesium	Emission to water	river	µg	26,41	8,93	15,85
Cesium-134	Emission to water	river	mBq	36,41	12,32	21,85
Cesium-136	Emission to water	river	µBq	27,38	9,26	16,43
Cesium-137	Emission to water	river	mBq	121,92	41,24	73,15
Chloramine	Emission to water	river	ng	22,19	7,51	13,32
Chlorate	Emission to water	river	g	2,42	0,82	1,45
Chloride	Emission to water	river	g	348,44	117,85	209,06
Chlorinated solvents, unspecified	Emission to water	river	µg	693,33	234,51	416,00
Chlorine	Emission to water	river	µg	80,51	27,23	48,31
Chloroacetic acid	Emission to water	river	µg	11,97	4,05	7,18
Chloroacetyl chloride	Emission to water	river	pg	245,96	83,19	147,58
Chloroform	Emission to water	river	ng	935,85	316,54	561,51
Chlorosulfonic acid	Emission to water	river	ng	2,11	0,71	1,27
Chromium-51	Emission to water	river	mBq	47,67	16,12	28,60
Chromium VI	Emission to water	river	mg	7,92	2,68	4,75
Chromium, ion	Emission to water	river	µg	449,12	151,91	269,47
Cobalt	Emission to water	river	µg	229,67	77,68	137,80
Cobalt-57	Emission to water	river	µBq	869,20	293,99	521,52
Cobalt-58	Emission to water	river	mBq	351,03	118,73	210,62
Cobalt-60	Emission to water	river	mBq	275,50	93,18	165,30
COD, Chemical Oxygen Demand	Emission to water	river	g	5,99	2,03	3,59
Copper, ion	Emission to water	river	mg	1,95	0,66	1,17
Cumene	Emission to water	river	mg	1,50	0,51	0,90
Cyanide	Emission to water	river	mg	4,63	1,57	2,78
Dichromate	Emission to water	river	µg	64,65	21,87	38,79
Diethylamine	Emission to water	river	ng	5,25	1,78	3,15
Dimethylamine	Emission to water	river	ng	7,61	2,58	4,57
Dipropylamine	Emission to water	river	ng	3,25	1,10	1,95
DOC, Dissolved Organic Carbon	Emission to water	river	g	1,65	0,56	0,99
Ethane, 1,2-dichloro-	Emission to water	river	µg	127,60	43,16	76,56
Ethanol	Emission to water	river	µg	106,14	35,90	63,68
Ethene	Emission to water	river	µg	330,47	111,78	198,28
Ethene, chloro-	Emission to water	river	µg	1,47	0,50	0,88

Ethyl acetate	Emission to water	river	ng	12,71	4,30	7,63
Ethylamine	Emission to water	river	ng	2,55	0,86	1,53
Ethylene diamine	Emission to water	river	ng	40,60	13,73	24,36
Ethylene oxide	Emission to water	river	µg	7,91	2,68	4,75
Fluoride	Emission to water	river	mg	167,68	56,72	100,61
Fluosilicic acid	Emission to water	river	µg	331,18	112,02	198,71
Formaldehyde	Emission to water	river	µg	25,11	8,49	15,07
Formamide	Emission to water	river	ng	2,92	0,99	1,75
Formate	Emission to water	river	ng	201,30	68,09	120,78
Formic acid	Emission to water	river	pg	846,63	286,36	507,98
Heat, waste	Emission to water	river	MJ	18,73	6,34	11,24
Hydrocarbons, aliphatic, alkanes, unspecified	Emission to water	river	mg	3,43	1,16	2,06
Hydrocarbons, aliphatic, unsaturated	Emission to water	river	µg	316,91	107,19	190,15
Hydrocarbons, aromatic	Emission to water	river	mg	13,97	4,73	8,38
Hydrocarbons, unspecified	Emission to water	river	mg	1,23	0,41	0,74
Hydrogen-3, Tritium	Emission to water	river	kBq	6,76	2,29	4,06
Hydrogen peroxide	Emission to water	river	µg	168,95	57,15	101,37
Hydrogen sulfide	Emission to water	river	µg	115,05	38,91	69,03
Hydroxide	Emission to water	river	µg	529,69	179,16	317,82
Hypochlorite	Emission to water	river	mg	1,84	0,62	1,10
Iodide	Emission to water	river	mg	2,83	0,96	1,70
Iodine-131	Emission to water	river	mBq	7,91	2,68	4,75
Iodine-133	Emission to water	river	µBq	242,24	81,94	145,35
Iron-59	Emission to water	river	µBq	66,60	22,53	39,96
Iron, ion	Emission to water	river	mg	58,06	19,64	34,84
Isopropylamine	Emission to water	river	pg	466,56	157,81	279,94
Lactic acid	Emission to water	river	ng	2,55	0,86	1,53
Lanthanum-140	Emission to water	river	µBq	410,99	139,01	246,59
Lead	Emission to water	river	mg	2,74	0,93	1,64
Lead-210	Emission to water	river	mBq	381,27	128,96	228,76
Lithium, ion	Emission to water	river	ng	55,63	18,82	33,38
m-Xylene	Emission to water	river	ng	3,12	1,05	1,87
Magnesium	Emission to water	river	mg	283,33	95,83	170,00
Manganese	Emission to water	river	mg	5,42	1,83	3,25
Manganese-54	Emission to water	river	mBq	21,58	7,30	12,95

Mercury	Emission to water	river	µg	257,86	87,22	154,72
Methane, dichloro-, HCC-30	Emission to water	river	µg	442,84	149,78	265,70
Methanol	Emission to water	river	µg	297,48	100,62	178,49
Methyl acetate	Emission to water	river	pg	70,45	23,83	42,27
Methyl acrylate	Emission to water	river	µg	156,72	53,01	94,03
Methyl amine	Emission to water	river	ng	38,07	12,88	22,84
Methyl formate	Emission to water	river	ng	12,55	4,24	7,53
Molybdenum	Emission to water	river	mg	2,17	0,73	1,30
Molybdenum-99	Emission to water	river	µBq	141,70	47,93	85,02
Nickel, ion	Emission to water	river	mg	2,49	0,84	1,50
Niobium-95	Emission to water	river	mBq	3,33	1,13	2,00
Nitrate	Emission to water	river	mg	657,55	222,41	394,53
Nitrite	Emission to water	river	mg	5,37	1,82	3,22
Nitrobenzene	Emission to water	river	ng	26,35	8,91	15,81
Nitrogen	Emission to water	river	mg	62,85	21,26	37,71
Nitrogen, organic bound	Emission to water	river	mg	12,36	4,18	7,42
Oils, unspecified	Emission to water	river	g	1,60	0,54	0,96
PAH, polycyclic aromatic hydrocarbons	Emission to water	river	µg	149,34	50,51	89,61
Phenol	Emission to water	river	mg	2,36	0,80	1,42
Phosphate	Emission to water	river	mg	28,92	9,78	17,35
Phosphorus	Emission to water	river	mg	2,80	0,95	1,68
Polonium-210	Emission to water	river	mBq	381,27	128,96	228,76
Potassium-40	Emission to water	river	mBq	478,62	161,89	287,17
Potassium, ion	Emission to water	river	mg	358,52	121,27	215,11
Propanal	Emission to water	river	ng	2,31	0,78	1,39
Propanol	Emission to water	river	ng	2,96	1,00	1,78
Propene	Emission to water	river	mg	1,22	0,41	0,73
Propionic acid	Emission to water	river	ng	1,57	0,53	0,94
Propylamine	Emission to water	river	pg	923,59	312,39	554,15
Propylene oxide	Emission to water	river	µg	463,94	156,92	278,36
Protactinium-234	Emission to water	river	mBq	410,28	138,77	246,17
Radioactive species, alpha emitters	Emission to water	river	mBq	22,33	7,55	13,40
Radioactive species, Nuclides, unspecified	Emission to water	river	mBq	492,46	166,57	295,47
Radium-224	Emission to water	river	Bq	1,32	0,45	0,79
Radium-226	Emission to water	river	Bq	257,54	87,11	154,53

Radium-228	Emission to water	river	Bq	2,64	0,89	1,58
Rubidium	Emission to water	river	µg	264,09	89,32	158,45
Ruthenium-103	Emission to water	river	µBq	29,90	10,11	17,94
Scandium	Emission to water	river	µg	176,11	59,57	105,67
Selenium	Emission to water	river	mg	1,83	0,62	1,10
Silicon	Emission to water	river	mg	287,99	97,41	172,79
Silver-110	Emission to water	river	mBq	257,01	86,93	154,21
Silver, ion	Emission to water	river	µg	31,27	10,58	18,76
Sodium-24	Emission to water	river	mBq	1,07	0,36	0,64
Sodium formate	Emission to water	river	µg	17,62	5,96	10,57
Sodium, ion	Emission to water	river	g	9,79	3,31	5,88
Solids, inorganic	Emission to water	river	g	3,70	1,25	2,22
Solved solids	Emission to water	river	g	1,74	0,59	1,05
Strontium	Emission to water	river	mg	48,03	16,24	28,82
Strontium-89	Emission to water	river	mBq	4,63	1,57	2,78
Strontium-90	Emission to water	river	Bq	223,58	75,62	134,15
Sulfate	Emission to water	river	g	916,65	310,04	549,99
Sulfide	Emission to water	river	µg	317,09	107,25	190,25
Sulfite	Emission to water	river	mg	10,22	3,46	6,13
Sulfur	Emission to water	river	mg	5,38	1,82	3,23
Suspended solids, unspecified	Emission to water	river	g	1,89	0,64	1,13
t-Butyl methyl ether	Emission to water	river	ng	88,46	29,92	53,08
t-Butylamine	Emission to water	river	ng	1,57	0,53	0,94
Technetium-99m	Emission to water	river	mBq	3,28	1,11	1,97
Tellurium-123m	Emission to water	river	mBq	4,71	1,59	2,82
Tellurium-132	Emission to water	river	µBq	8,20	2,78	4,92
Thallium	Emission to water	river	µg	20,35	6,88	12,21
Thorium-228	Emission to water	river	Bq	5,28	1,79	3,17
Thorium-230	Emission to water	river	Bq	55,98	18,93	33,59
Thorium-232	Emission to water	river	mBq	89,23	30,18	53,54
Thorium-234	Emission to water	river	mBq	410,33	138,79	246,20
Tin, ion	Emission to water	river	µg	41,14	13,91	24,68
Titanium, ion	Emission to water	river	µg	726,59	245,76	435,96
TOC, Total Organic Carbon	Emission to water	river	g	1,66	0,56	1,00
Toluene	Emission to water	river	mg	3,16	1,07	1,89

Toluene, 2-chloro-	Emission to water	river	ng	4,23	1,43	2,54
Trimethylamine	Emission to water	river	pg	125,79	42,55	75,47
Tungsten	Emission to water	river	µg	162,14	54,84	97,28
Uranium-234	Emission to water	river	mBq	492,34	166,53	295,40
Uranium-235	Emission to water	river	mBq	812,36	274,77	487,42
Uranium-238	Emission to water	river	Bq	1,43	0,48	0,86
Uranium alpha	Emission to water	river	Bq	23,64	8,00	14,18
Urea	Emission to water	river	ng	2,72	0,92	1,63
Vanadium, ion	Emission to water	river	mg	1,08	0,37	0,65
VOC, volatile organic compounds, unspecified origin	Emission to water	river	mg	10,27	3,47	6,16
Xylene	Emission to water	river	mg	2,51	0,85	1,51
Zinc-65	Emission to water	river	mBq	14,54	4,92	8,72
Zinc, ion	Emission to water	river	mg	12,38	4,19	7,43
Zirconium-95	Emission to water	river	µBq	168,33	56,93	101,00
Benzene, chloro-	Emission to water	river, long-term	ng	2,92	0,99	1,75
Chloride	Emission to water	river, long-term	µg	21,66	7,33	13,00
Boron	Emission to soil		µg	413,69	139,93	248,22
Cadmium	Emission to soil		µg	1,56	0,53	0,93
Chloride	Emission to soil		g	1,63	0,55	0,98
Chromium	Emission to soil		µg	7,42	2,51	4,45
Chromium VI	Emission to soil		mg	2,34	0,79	1,40
Copper	Emission to soil		mg	1,56	0,53	0,94
Fluoride	Emission to soil		mg	1,58	0,53	0,95
Heat, waste	Emission to soil		kJ	242,56	82,04	145,54
Iron	Emission to soil		mg	86,40	29,22	51,84
Lead	Emission to soil		µg	64,03	21,66	38,42
Nickel	Emission to soil		µg	20,11	6,80	12,06
Oils, biogenic	Emission to soil		µg	475,47	160,82	285,28
Oils, unspecified	Emission to soil		mg	10,47	3,54	6,28
Sodium	Emission to soil		mg	6,97	2,36	4,18
Zinc	Emission to soil		mg	4,39	1,49	2,64
2,4-D	Emission to soil	agricultural	µg	1,23	0,42	0,74
Aclonifen	Emission to soil	agricultural	µg	1,05	0,35	0,63
Aldrin	Emission to soil	agricultural	ng	181,86	61,51	109,11
Aluminium	Emission to soil	agricultural	mg	12,43	4,20	7,46

Antimony	Emission to soil	agricultural	ng	20,72	7,01	12,43
Arsenic	Emission to soil	agricultural	µg	3,51	1,19	2,11
Atrazine	Emission to soil	agricultural	ng	47,71	16,14	28,62
Barium	Emission to soil	agricultural	ng	751,36	254,14	450,82
Benomyl	Emission to soil	agricultural	ng	7,78	2,63	4,67
Bentazone	Emission to soil	agricultural	ng	533,61	180,48	320,16
Boron	Emission to soil	agricultural	ng	135,66	45,89	81,40
Cadmium	Emission to soil	agricultural	µg	6,08	2,06	3,65
Calcium	Emission to soil	agricultural	mg	83,02	28,08	49,81
Carbetamide	Emission to soil	agricultural	ng	205,80	69,61	123,48
Carbofuran	Emission to soil	agricultural	µg	4,27	1,44	2,56
Carbon	Emission to soil	agricultural	mg	101,41	34,30	60,84
Chloride	Emission to soil	agricultural	µg	614,04	207,69	368,42
Chlorothalonil	Emission to soil	agricultural	µg	16,70	5,65	10,02
Chromium	Emission to soil	agricultural	µg	74,91	25,34	44,95
Cobalt	Emission to soil	agricultural	µg	8,00	2,71	4,80
Copper	Emission to soil	agricultural	µg	224,66	75,99	134,80
Cypermethrin	Emission to soil	agricultural	ng	607,25	205,39	364,35
Fenpiclonil	Emission to soil	agricultural	ng	693,32	234,51	415,99
Glyphosate	Emission to soil	agricultural	µg	47,25	15,98	28,35
Iron	Emission to soil	agricultural	mg	80,65	27,28	48,39
Lead	Emission to soil	agricultural	µg	61,24	20,71	36,74
Linuron	Emission to soil	agricultural	µg	8,09	2,74	4,86
Magnesium	Emission to soil	agricultural	mg	9,36	3,17	5,62
Mancozeb	Emission to soil	agricultural	µg	21,69	7,34	13,01
Manganese	Emission to soil	agricultural	mg	3,99	1,35	2,39
Mercury	Emission to soil	agricultural	ng	819,31	277,12	491,58
Metaldehyde	Emission to soil	agricultural	ng	43,03	14,55	25,82
Metolachlor	Emission to soil	agricultural	µg	58,30	19,72	34,98
Metribuzin	Emission to soil	agricultural	ng	763,68	258,30	458,21
Molybdenum	Emission to soil	agricultural	µg	3,40	1,15	2,04
Napropamide	Emission to soil	agricultural	ng	76,12	25,75	45,67
Nickel	Emission to soil	agricultural	µg	44,48	15,04	26,69
Orbencarb	Emission to soil	agricultural	µg	4,12	1,39	2,47
Phosphorus	Emission to soil	agricultural	mg	1,88	0,64	1,13

Pirimicarb	Emission to soil	agricultural	ng	50,48	17,07	30,29
Potassium	Emission to soil	agricultural	mg	10,46	3,54	6,27
Silicon	Emission to soil	agricultural	mg	32,71	11,06	19,63
Strontium	Emission to soil	agricultural	µg	1,31	0,44	0,78
Sulfur	Emission to soil	agricultural	mg	10,55	3,57	6,33
Sulfuric acid	Emission to soil	agricultural	ng	9,17	3,10	5,50
Tebutam	Emission to soil	agricultural	ng	180,37	61,01	108,22
Teflubenzuron	Emission to soil	agricultural	ng	50,91	17,22	30,55
Thiram	Emission to soil	agricultural	ng	13,80	4,67	8,28
Tin	Emission to soil	agricultural	µg	11,35	3,84	6,81
Titanium	Emission to soil	agricultural	µg	264,81	89,57	158,88
Vanadium	Emission to soil	agricultural	µg	7,58	2,56	4,55
Zinc	Emission to soil	agricultural	µg	757,50	256,21	454,50
Oils, biogenic	Emission to soil	forestry	mg	2,70	0,91	1,62
Oils, unspecified	Emission to soil	forestry	g	1,95	0,66	1,17
Aluminium	Emission to soil	industrial	mg	17,49	5,92	10,50
Arsenic	Emission to soil	industrial	µg	7,00	2,37	4,20
Barium	Emission to soil	industrial	mg	8,75	2,96	5,25
Boron	Emission to soil	industrial	µg	174,92	59,16	104,95
Calcium	Emission to soil	industrial	mg	69,97	23,67	41,98
Carbon	Emission to soil	industrial	mg	52,48	17,75	31,49
Chloride	Emission to soil	industrial	mg	61,22	20,71	36,73
Chromium	Emission to soil	industrial	µg	87,46	29,58	52,48
Copper	Emission to soil	industrial	µg	2,71	0,92	1,62
Fluoride	Emission to soil	industrial	µg	874,59	295,82	524,76
Glyphosate	Emission to soil	industrial	µg	44,20	14,95	26,52
Heat, waste	Emission to soil	industrial	kJ	3,54	1,20	2,12
Iron	Emission to soil	industrial	mg	34,98	11,83	20,99
Magnesium	Emission to soil	industrial	mg	13,99	4,73	8,40
Manganese	Emission to soil	industrial	µg	699,67	236,65	419,80
Oils, unspecified	Emission to soil	industrial	mg	26,29	8,89	15,77
Phosphorus	Emission to soil	industrial	µg	874,59	295,82	524,76
Potassium	Emission to soil	industrial	mg	6,12	2,07	3,67
Silicon	Emission to soil	industrial	mg	1,75	0,59	1,05
Sodium	Emission to soil	industrial	mg	34,98	11,83	20,99

Strontium	Emission to soil	industrial	µg	174,92	59,16	104,95
Sulfur	Emission to soil	industrial	mg	10,50	3,55	6,30
Zinc	Emission to soil	industrial	µg	262,38	88,75	157,43