Nonferrous Metals

1995 TRI Releases for Nonferrous Metals Facilities (SICS 333 and 334) by Number of Facilities Reporting (pounds/year)*

Chemical Name	# Reporting Chemical	Fugitive Air	Point Air	Water Discharges	Underground Injection	Land Disposal	Total Releases	Avg. Releases Per Facility
Copper[M]	124	167,125	260,728	4,403	0	946,646	1,378,902	11,120
Chlorine	72	169,360	58,326,712	3,865	0	5	58,499,942	812,499
Nickel[C, M]	52	1,981	6,236	1,558	0	31,976	41,751	803
Copper Compounds[M]	51	811,158	419,775	5,906	92,497	38,636,759	39,966,095	783,649
Manganese[M]	47	11,969	8,983	7,641	0	49,401	77,994	1,659
Zinc Compounds[M]	46	318,405	732,115	16,347	963	44,567,486	45,635,316	992,072
Lead Compounds[C, M]	45	226,135	450,896	8,154	912	10,575,038	11,261,135	250,247
Aluminum (Fume or Dust)[M]	44	18,879	268,106	1,722	250	1,041,968	1,330,925	30,248
Lead[C, M]	43	287,346	172,345	939	0	1,730,105	2,190,735	50,947
Chromium[M]	41	1,003	2,819	870	0	4,105	8,797	215
Hydrochloric Acid (1995 and after "Acid Aerosols" Only)	41	183,993	7,888,871	0	0	0	8,072,864	196,899
Sulfuric Acid	35	71,900	1,087,252	171	0	5	1,159,328	33,124
Nitric Acid	31	64,941	47,962	0	5	0	112,908	3,642
Hydrogen Fluoride	27	2,578,811	2,121,089	0	0	0	4,699,900	174,070
Nickel Compounds[C, M]	25	5,949	18,121	3,366	10,690	1,795,198	1,833,324	73,333
Zinc (Fume or Dust)[M]	25	95,834	196,081	9,810	0	4,259,544	4,561,269	182,451
Ammonia	24	2,552,896	3,759,481	390,337	750	53,500	6,756,964	281,540
Chromium Compounds[C, M]	23	1,280	4,120	719	0	260,520	266,639	11,593
Antimony Compounds[M]	21	12,623	10,836	2,534	8,430	1,063,654	1,098,077	52,289
Arsenic Compounds[C, M]	19	68,319	35,448	2,071	54,800	1,303,367	1,464,005	77,053
Manganese Compounds[M]	16	1,135	3,282	2,001	0	2,017,021	2,023,439	126,465
Silver[M]	16	563	1,541	11	0	0	2,115	132
Antimony[M]	14	955	4,597	16	0	7,640	13,208	943
Polycyclic Aromatic Compounds[C]	13	20,913	545,736	72	0	800	567,521	43,655
Silver Compounds[M]	13	1,915	2,791	307	380	26,542	31,935	2,457
Carbonyl Sulfide	13	75,993	5,130,558	0	0	0	5,206,551	400,504
Barium Compounds[M]	12	2,023	1,119	882	0	0	4,024	335
Cadmium Compounds[C, M]	12	4,240	19,997	498	109	48,099	72,943	6,079
Cobalt[C, M]	12	292	521	284	0	0	1,097	91
Arsenic[C, M]	11	1,149	3,518	5	0	24,507	29,179	2,653
Phosphoric Acid	9	20,696	19,690	0	0	0	40,386	4,487
Nitrate Compounds	8	0	0	352	0	17,000	17,352	2,169
Cadmium[C, M]	8	2,392	2,007	253	0	19,196	23,848	2,981
Cyanide Compounds	6	1	516	1,814	0	0	2,331	389
Selenium Compounds[M]	6	559	38,248	251	3,640	110,250	152,948	25,491
Ethylene Glycol	6	40	1,900	0	0	0	1,940	323
Molybdenum Trioxide	6	116,920	5,460	46,863	0	0	169,243	28,207
Xylene (Mixed Isomers)	6	22,345	57,030	0	0	0	79,375	13,229
Cobalt Compounds[C, M]	5	253	1,013	1,275	0	250	2,791	558
Methanol	5	217,938	34,362	13,260	0	0	265,560	53,112
Certain Glycol Ethers	4	13,366	66,208	315	0	0	79,889	19,972
Thiourea[C]	4	60	0	0	5,000	250	5,310	1,328
1,1,1-Trichloroethane[O]	4	88,262	0	0	0	0	88,262	22,066
Toluene	4	34,251	58,137	0	0	0	92,388	23,097
Beryllium[C, M]	4	1	831	17	0	21,244	22,093	5,523
Methyl Ethyl Ketone	3	90,005	46,829	12	0	0	136,846	45,615
Trichloroethylene[C]	3	115,473	269,000	10	0	0	384,483	128,161
Naphthalene	3	6,900	10,454	0	0	0	17,354	5,785
1,2,4-trimethylbenzene	3	23,550	9,750	0	0	0	33,300	11,100
Methyl Isobutyl Ketone	3	506,646	758,346	16,629	0	0	1,281,621	427,207
M-xylene	3	13,050	6,233	0	0	0	19,283	6,428
Mercury Compounds[M]	2	5	390	5	0	0	400	200
Formic Acid	2	11	121	0	0	0	132	66
Hexachloroethane	2	5	250	0	0	0	255	128
N-butyl Alcohol	2	1,700	19,374	3	0	0	21,077	10,539
Chlorodifluoromethane[O]	2	47,300	0	0	0	0	47,300	23,650
Styrene[C]	2	830	5	0	0	0	835	418
Phenol	2	3,015	5	0	0	0	3,020	1,510
Hydrazine[C]	2	5	785	0	0	0	790	395

1995 TRI Releases for Nonferrous Metals Facilities (SICS 333 and 334) by Number of Facilities Reporting (pounds/year)*

Chemical Name	# Reporting Chemical	Fugitive Air	Point Air	Water Discharges	Underground Injection	Land Disposal	Total Releases	Avg. Releases Per Facility
Lithium Carbonate	2	505	267	0	0	0	772	386
Aluminum Oxide (Fibrous Forms)[M]	2	0	138	0	0	0	138	69
Titanium Tetrachloride	2	3,250	250	0	0	0	3,500	1,750
Phosphorus (Yellow or White)	2	0	0	250	0	0	250	125
Formaldehyde[C]	1	7,000	140	0	0	0	7,140	7,140
Dichloromethane[C]	1	4,265	2,768	0	0	0	7,033	7,033
Dichlorodifluoromethane[O]	1	22,000	0	0	0	0	22,000	22,000
Dibutyl Phthalate	1	0	1	0	0	0	1	1
Phenanthrene	1	0	24,296	1	0	0	24,297	24,297
Cumene	1	840	970	0	0	0	1,810	1,810
Acetophenone	1	500	15,000	13	0	0	15,513	15,513
Ethylbenzene	1	590	520	0	0	0	1,110	1,110
Anthracene	1	0	3,612	0	0	0	3,612	3,612
Triethylamine	1	0	41,000	29	0	0	41,029	41,029
Tetrachloroethylene[C]	1	891	183,000	0	0	0	183,891	183,891
Sodium Dimethyldithiocarbamate	1	250	250	0	0	0	500	500
Calcium Cyanamide	1	0	0	0	0	0	0	0
Decabromodiphenyl Oxide	1	0	250	0	0	0	250	250
Cresol (Mixed Isomers)	1	250	0	250	0	750	1,250	1,250
Asbestos (Friable)[C]	1	0	0	0	0	0	0	0
Thallium[M]	1	5	250	0	0	755	1,010	1,010
Barium[M]	1	84	24	0	0	0	108	108
Vanadium (Fume or Dust)[M]	1	0	0	0	0	0	0	0
Sodium Nitrite	1	0	0	0	0	0	0	0
Selenium[M]	1	0	0	0	0	0	0	0
	282**	9,125,094	83,211,316	546,091	178,426	108,613,581	201,674,508	715,158

[C] Known or suspect carcinogens [M] Metals and metal compounds [O] Ozone depleters

* Refer to Section III for a discussion of the TRI data and its limitations, methodology used to obtain this data, definitions of the column headings, and the definitions of carcinogens, metals, and ozone depleters.

**Total number of facilities (not chemical reports) reporting to TRI in this industry sector.

1995 TRI Transfers for Nonferrous Metals Facilities (SICs 333 and 334) by Number of Facilities Reporting (pounds/year)

Chemical Name	# Reporting Chemical	Potw Transfers	Disposal Transfers	Recycling Transfers	Treatment Transfers	Energy Recovery Transfers	Total Transfers	Avg Transfer Per Facility
Copper[M]	124	4,449	1,063,810	17,930,376	142,772	1,445	19,142,852	154,378
Chlorine	72	19	46	17,623	.	.	17,688	246
Nickel[C, M]	52	541	237,646	887,140	22,664	.	1,147,991	22,077
Copper Compounds[M]	51	2,654	3,546,621	25,112,251	109,601	.	28,771,127	564,140
Manganese[M]	47	258	170,868	413,064	1,519	.	585,709	12,462
Zinc Compounds[M]	46	26,827	27,129,255	8,359,752	1,822,798	.	37,338,632	811,709
Lead Compounds[C, M]	45	2,499	9,897,630	16,612,431	3,791,330	.	30,303,890	673,420
Aluminum (Fume or Dust)[M]	44	1,255	3,034,888	2,914,423	760	.	5,951,326	135,257
Lead[C, M]	43	1,593	515,174	2,970,376	90,493	250	3,577,891	83,207
Chromium[M]	41	34	64,984	314,078	47,226	.	426,322	10,398
Hydrochloric Acid (1995 and after "Acid Aerosols" Only)	41	184	21,385	37,996	30,453	.	90,018	2,196
Sulfuric Acid	35	5	3,000,500	319,044	35,250	.	3,354,799	95,851
Nitric Acid	31	255	280	63,036	153,833	.	217,404	7,013
Hydrogen Fluoride	27	0	.	.	84,442	.	84,442	3,127
Nickel Compounds[C, M]	25	306	954,973	2,388,518	64,221	.	3,408,018	136,321
Zinc (Fume or Dust)[M]	25	250	134,258	2,472,155	372,821	.	2,979,484	119,179
Ammonia	24	52,200	153,161	.	440	.	205,801	8,575
Chromium Compounds[C, M]	23	54	917,451	520,450	9,325	.	1,447,280	62,925
Antimony Compounds[M]	21	1,291	1,704,673	1,677,611	254,782	.	3,638,357	173,255
Arsenic Compounds[C, M]	19	117	403,626	352,573	1,169,665	.	1,925,981	101,367
Manganese Compounds[M]	16	7	3,790,791	670,953	751	.	4,462,502	278,906
Silver[M]	16	84	5,705	286,155	.	.	291,944	18,247
Antimony[M]	14	687	31,730	4,064,663	.	.	4,097,085	292,649
Polycyclic Aromatic Compounds[C]	13	0	945,420	.	22	.	945,442	72,726
Silver Compounds[M]	13	48	2,289	212,919	14,217	.	229,473	17,652
Carbonyl Sulfide	13	0	.	.	.	.	0	0
Barium Compounds[M]	12	10	223,455	214,595	224,535	.	662,595	55,216
Cadmium Compounds[C, M]	12	560	1,424,643	692,581	70,410	.	2,188,194	182,350
Cobalt[C, M]	12	10	28,594	96,856	0	.	125,460	10,455
Arsenic[C, M]	11	54	15,163	149,760	37,422	.	202,399	18,400
Phosphoric Acid	9	112	.	.	.	.	112	12
Nitrate Compounds	8	1,582,229	0	.	.	.	1,582,229	197,779
Cadmium[C, M]	8	15	11,667	138,215	12,259	.	162,156	20,270
Cyanide Compounds	6	2	84,054	.	3,791	.	87,847	14,641
Selenium Compounds[M]	6	1	52,297	38	6,478	.	58,814	9,802
Ethylene Glycol	6	15,000	.	4,595	5,647	2,270	27,512	4,585
Molybdenum Trioxide	6	0	68,896	174,275	.	.	243,171	40,529
Xylene (Mixed Isomers)	6	0	.	152,904	1,703	161,440	316,047	52,675
Cobalt Compounds[C, M]	5	250	17,739	36,798	.	.	54,787	10,957
Methanol	5	2,270,000	848	.	26,860	31,315	2,329,023	465,805
Certain Glycol Ethers	4	7,386	.	.	1,272	4,223	12,881	3,220
Thiourea[C]	4	0	.	.	.	.	0	0
1,1,1-Trichloroethane[O]	4	0	.	.	160	.	160	40
Toluene	4	0	.	9,618	7,617	50,334	67,569	16,892
Beryllium[C, M]	4	0	6,943	7,977	377	.	15,297	3,824
Methyl Ethyl Ketone	3	10	.	51,234	6,800	234,070	292,114	97,371
Trichloroethylene[C]	3	82	.	256,000	1,246	17,491	274,819	91,606
Naphthalene	3	0	.	.	150	5,476	5,626	1,875
1,2,4-trimethylbenzene	3	0	.	.	300	5,750	6,050	2,017
Methyl Isobutyl Ketone	3	0	4,779	.	690	15,000	20,469	6,823
M-xylene	3	0	.	22	.	9,502	9,524	3,175
Mercury Compounds[M]	2	0	187,000	.	1,340	.	188,340	94,170
Formic Acid	2	0	0	.	.	.	0	0
Hexachloroethane	2	0	.	.	.	.	0	0
N-butyl Alcohol	2	0	.	.	60	7,785	7,845	3,923
Chlorodifluoromethane[O]	2	0	.	.	.	.	0	0
Styrene[C]	2	0	80	.	.	.	80	40
Phenol	2	5	0	.	.	.	5	3

1995 TRI Transfers for Nonferrous Metals Facilities (SICs 333 and 334) by Number of Facilities Reporting (pounds/year)

Chemical Name	# Reporting Chemical	Potw Transfers	Disposal Transfers	Recycling Transfers	Treatment Transfers	Energy Recovery Transfers	Total Transfers	Avg Transfer Per Facility
Hydrazine[C]	2	0	.	.	.	.	0	0
Lithium Carbonate	2	0	.	.	.	.	0	0
Aluminum Oxide (Fibrous Forms)[M]	2	0	.	.	.	.	0	0
Titanium Tetrachloride	2	0	.	.	.	.	0	0
Phosphorus (Yellow or White)	2	250	.	620	.	.	870	435
Formaldehyde[C]	1	33,700	.	.	.	.	33,700	33,700
Dichloromethane[C]	1	763	.	159,388	19	.	160,170	160,170
Dichlorodifluoromethane[O]	1	0	.	.	.	.	0	0
Dibutyl Phthalate	1	0	.	643	.	169	812	812
Phenanthrene	1	0	26,743	.	2	.	26,745	26,745
Cumene	1	0	.	.	30	510	540	540
Acetophenone	1	180	2,474	.	.	.	2,654	2,654
Ethylbenzene	1	0	.	.	21	350	371	371
Anthracene	1	0	11,542	.	1	.	11,543	11,543
Triethylamine	1	0	.	.	.	.	0	0
Tetrachloroethylene[C]	1	0	.	.	84,411	.	84,411	84,411
Sodium Dimethyldithiocarbamate	1	0	.	.	.	.	0	0
Calcium Cyanamide	1	0	.	.	.	.	0	0
Decabromodiphenyl Oxide	1	0	2,409	.	.	.	2,409	2,409
Cresol (Mixed Isomers)	1	0	.	.	.	.	0	0
Asbestos (Friable)[C]	1	0	18,000	.	.	.	18,000	18,000
Thallium[M]	1	5	.	3,852	190	.	4,047	4,047
Barium[M]	1	250	31,000	.	.	.	31,250	31,250
Vanadium (Fume or Dust)[M]	1	0	.	.	.	.	0	0
Sodium Nitrite	1	0	.	.	.	.	0	0
Selenium[M]	1	0	.	.	.	.	0	0
	282**	4,006,491	59,945,490	90,747,558	8,713,176	547,380	163,960,105	581,419

[C] Known or suspect carcinogens [M] Metals and metal compounds [O] Ozone depleters

* Refer to Section III for a discussion of the TRI data and its limitations, methodology used to obtain this data, definitions of the column headings, and the definitions of carcinogens, metals, and ozone depleters.

**Total number of facilities (not chemical reports) reporting to TRI in this industry sector.

Ten Largest Volume TRI Releasing Nonferrous Metals Facilities Reporting Only SIC 333 and 334*		
Rank	**Facility[1]**	**Total TRI Releases in Pounds**
1	Magnesium Corp. Of America, Rowley, Utah	64,339,080
2	Asarco Inc., East Helena, Montana	39,517,514
3	Asarco Inc., Hayden, Arizona	18,310,475
4	Phelps Dodge Hidalgo Inc., Playas, New Mexico	10,346,210
5	Doe Run Co., Herculaneum, Missouri	8,106,633
6	Chino Mines Co., Hurley, New Mexico	7,094,737
7	Asarco Inc., Annapolis, Missouri	6,525,797
8	Kennecott Utah Copper, Magna, Utah	5,990,210
9	Climax Molybdenum Co., Fort Madison, Iowa	3,354,639
10	U.S. Vanadium Corp., Hot Springs, Arkansas	1,537,510

Source: *US EPA 1995 Toxics Release Inventory Database*.
*Refer to Section III for a general discussion of TRI data and its limitations. A discussion of the methodology used to develop this table can be found under the heading *Ten Largest Volume TRI Releasing Facilities*.

Ten Largest Volume TRI Releasing Facilities Reporting Only SIC 333 and 334 or SIC 333 and 334 and Other SIC Codes*			
Rank	**Facility[1]**	**SIC Codes Reported in TRI**	**Total TRI Releases in Pounds**
1	Magnesium Corp. Of America, Rowley, Utah	3339	64,339,080
2	Asarco Inc., East Helena, Montana	3339	39,517,514
3	Asarco Inc., Hayden, Arizona	3331	18,310,475
4	Cyprus Miami Mining Corp., Claypool, Arizona	1021, 3331, 3351	10,857,552
5	Phelps Dodge Hidalgo Inc., Playas, New Mexico	3331	10,346,210
6	Doe Run Co., Herculaneum, Missouri	3339	8,106,633
7	Chino Mines Co., Hurley, New Mexico	3331	7,094,737
8	Asarco Inc., Annapolis, Missouri	3339	6,525,797
9	Kennecott Utah Copper, Magna, Utah	3331	5,990,210
10	Climax Molybdenum Co., Fort Madison, Iowa	2819, 3339	3,495,280

Source: *US EPA Toxics Release Inventory Database, 1995*.
*Refer to Section III for a general discussion of TRI data and its limitations. A discussion of the methodology used to develop this table can be found under the heading *Ten Largest Volume TRI Releasing Facilities*.

[1] Being included on this list does not mean that the release is associated with non-compliance with environmental laws.

Source Reduction and Recycling Activity for Non-Ferrous Metals (SICs 333 and 334) as Reported within TRI*

A	B	C	On-Site			Off-Site			J
			D	E	F	G	H	I	
Year	Quantity of Production-Related Waste (10^6 lbs.)[a]	% Released and Transferred[b]	% Recycled	% Energy Recovery	% Treated	% Recycled	% Energy Recovery	% Treated	% Released and Disposed[c] Off-site
1994	1,744	22%	66%	1%	14%	5%	0%	0%	18%
1995	1,884	19%	64%	1%	16%	5%	0%	1%	16%
1996	1,946	---	66%	1%	16%	4%	0%	1%	13%
1997	1,975	---	66%	1%	16%	4%	0%	1%	13%

Source: *1995 Toxics Release Inventory Database*.
* Refer to Section III for a general discussion of TRI data and its limitations. A discussion of the methodology used to develop this table can be found under the heading *Source Reduction and Recycling Activity*.
[a] Within this industry sector, non-production related waste < 1% of production related wastes for 1995.
[b] Total TRI transfers and releases as reported in Section 5 and 6 of Form R as a percentage of production related wastes.
[c] Percentage of production related waste released to the environment and transferred off-site for disposal.

Five-Year Enforcement and Compliance Summary for the Nonferrous Metals Industry*									
A	B	C	D	E	F	G	H	I	J
Region	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	10	7	17	35	3	5	40%	60%	0.29
II	14	11	99	8	6	10	90%	10%	0.10
III	21	18	249	5	7	15	69%	31%	0.06
IV	30	24	377	5	10	23	87%	13%	0.06
V	61	47	346	11	13	23	83%	17%	0.07
VI	19	15	177	6	7	27	56%	44%	0.15
VII	11	10	118	6	5	11	82%	18%	0.09
VIII	7	6	42	10	4	10	70%	30%	0.24
IX	16	12	72	13	5	11	100%	0%	0.15
X	14	11	143	6	8	39	85%	15%	0.27
TOTAL	203	161	1,640	7	68	174	78%	22%	0.11

*Data obtained from EPA's Integrated Data for Enforcement Analysis (IDEA) System. For a description of IDEA and the methods used to obtain this data, refer to Section II.C. A discussion of this table can be found under the heading, *Five-Year Enforcement and Compliance Summary*, in Section III.