

# Environmental Taxes, 1987

By John A. Kozielec\*

Environmental excise tax liabilities of \$800.8 million before adjustments were reported by 681 taxpayers during the first year of the Superfund Amendments and Reauthorization Act of 1986, or SARA. After adjustments, the tax was \$760.1 million. SARA reinstated and amended the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which had expired on September 30, 1985, and re-established the Hazardous Substance Trust Fund, more commonly referred to as the "Superfund." Under SARA, Congress planned to amass \$6.6 billion for the Superfund during the 5-year period beginning January 1, 1987.

## BACKGROUND

To deal with the problems of hazardous substances or wastes, Congress created a major Federal program to clean up the worst abandoned hazardous substance and waste sites in the country by enacting the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Congress intended to amass \$1.4 billion in the Fund through a special environmental tax on petroleum, petrochemicals, and inorganic chemicals. The tax rates for each were formulated so that the tax liability would reflect the respective percentages in which these substances were found in hazardous waste sites [1]. By the time CERCLA expired on September 30, 1985, only about \$1.2 billion in environmental taxes had been reported for the period from April 1981 through September 1985 [2].

When it became clear that the goal of cleaning up the worst abandoned hazardous waste sites would not be met, Congress decided to extend and amend CERCLA by enacting the Superfund Amendments and Reauthorization Act of 1986 (SARA) and re-establishing the Hazardous Substance Trust Fund or Superfund, effective January 1, 1987 through December 31, 1991. However, to encourage dumping at qualified waste disposal facilities and to avoid penalizing those who were already doing so, SARA repealed the hazardous waste tax, a tax on waste received at qualified waste sites.

The Superfund is used to clean up chemical spills and abandoned hazardous waste sites. It relies on an excise tax levied on crude oil used in or exported from the United States, imported crude oil and petroleum products, 11 petrochemicals and 31 inor-

ganic chemicals from which other hazardous substances and wastes are generated. The hazardous chemical substances and wastes which the Fund was designed to deal with were those generated during production of plastics, paints, adhesives, herbicides, fertilizers, and pesticides, or in the production of metals, petroleum products and glass. The Environmental Protection Agency (EPA) estimated that 57 million metric tons of hazardous wastes were being produced annually and that more than 90 percent of this waste was believed to be disposed of in environmentally unsound ways [3].

Under SARA, Congress increased the appropriations for the Superfund to \$8.5 billion. Approximately \$6.6 billion was to be raised through the renewal of the environmental excise taxes on petroleum, petrochemicals, and inorganic chemicals. Another \$1.25 billion was to be appropriated from general tax revenues at the rate of \$250 million per year for 5 years. The remainder was to come from penalties for clean-up costs, punitive damages in responding to an environmental emergency involving a release of hazardous substances, interest earned on the Superfund, amounts recovered in behalf of the Superfund, and moneys recovered or collected under the Clean Water Act.

Expenditures of the \$8.5 billion appropriated or collected were to include but were not limited to the following: 1) costs of responding to the presence of hazardous substances on land or in the water or air, including clean-up and renewal of such substances and remedial action; 2) payment of claims for injury to, or destruction or loss of, natural resources belonging to or controlled by the Federal or State Governments; 3) any costs incurred by the Agency for Toxic Substance and Disease Registry of the U.S. Public Health Service, including costs of epidemiological studies, health assessments, and preparation of toxicological profiles, and 4) certain costs relating to response, including damage assessment and maintenance of emergency response forces.

## TAXES REPORTED FOR 1987

The percentage distribution of environmental taxes attributable to petroleum, petrochemicals, and inorganic chemicals changed considerably in 1987

\*Foreign Special Projects Section. Prepared under the direction of Michael Alexander, Chief

in response to SARA, compared to the distribution for the combined quarters ended June 1981 through September 1985 under CERCLA. Figure A shows that the petrochemical tax was 28.1 percent of total environmental taxes for 1987, a significant decrease from the 66.1 percent for the entire period 1981 through 1985.

In contrast, the percentage of the total that was due to petroleum environmental taxes increased from 15.0 percent to 65.9 percent. This reflected the new, higher, petroleum tax rates under SARA. For 1987, taxes on domestic petroleum, imported crude oil and petroleum products, and petrochemicals were nearly equal, as shown in Figure B.

Figure B shows that under SARA the average tax (for 1987, before adjustments) was \$1.2 million per taxpayer, an increase of over \$85,000 compared to the overall average for the period April 1981 through September 1985 under CERCLA. The resultant total of environmental excise taxes generated for the Superfund amounted to \$800.8 million. This amount is distributed in Figure C by the types of hazardous substances that were taxed and by the quarter of 1987 in which tax was incurred.

The top five companies in 1987, each reporting more than \$35 million in tax, reported more than \$243 million in tax before adjustments. This was over 30 percent of the total tax for 1987. The top 14 companies, those that reported over \$15 million in tax, were responsible for more than half the total tax.

## PETROLEUM

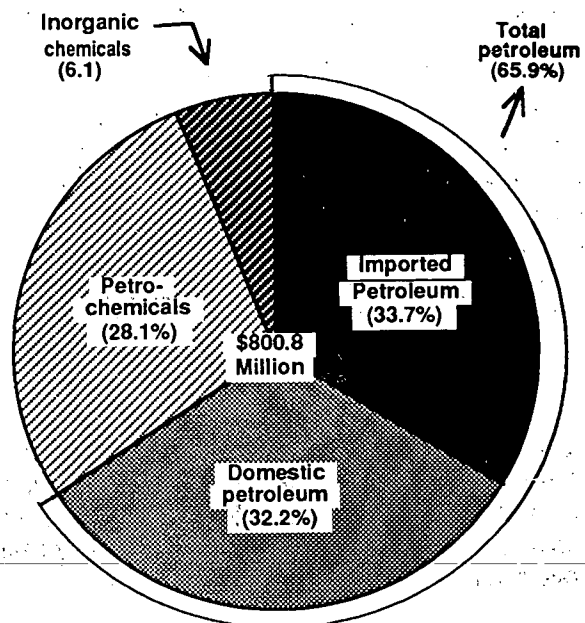
Specifically, the following petroleum and petroleum-related businesses were subject to the environmental excise tax:

- (1) operators of U.S. refineries receiving domestic crude oil;
- (2) importers of crude oil and petroleum products for consumption, or warehousing; and
- (3) users or exporters of crude oil on which the environmental tax had not already been paid.

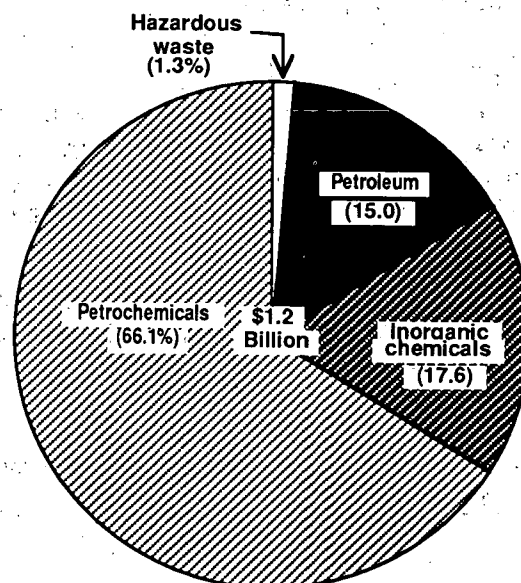
SARA increased the excise tax imposed by CERCLA on crude oil received at a U.S. refinery or exported from the United States, from \$.0079 to \$.0820 per barrel and on crude oil and petroleum products imported into the United States for consumption or warehousing from \$.0079 to \$.1170 per barrel.

As Figure B shows, petroleum environmental taxes reported for 1987 by the companies subject to the tax totalled \$527.4 million, an average tax of \$1.4 million per company, compared to \$176.9 million or

Figure A  
Sources of Environmental Taxes



Quarters Ended March 31, 1987  
Through December 31, 1987



Quarters Ended June 30, 1981  
Through September 30, 1985

**Figure B.—Number of Businesses and Environmental Excise Taxes Before Adjustments and Credits, Quarters Ended March 1987 through December 1987**

[Money amounts are in thousands of dollars]

Type of tax	Number of businesses reporting environmental excise taxes <sup>1</sup>	Tax before adjustments	
		Total tax <sup>2</sup>	Average tax
	(1)	(2)	(3)
Total environmental taxes .....	681	\$800,8330	\$1,176
Taxes on:			
Total petroleum .....	382	527,431	1,381
Domestic petroleum produced.....	174	257,912	1,482
Imported crude oil and petroleum products .....	208	269,519	1,296
Petrochemicals .....	162	224,923	1,388
Inorganic chemicals .....	296	48,479	164

<sup>1</sup> Number of businesses do not add to total because businesses could report a tax on more than one type of substance.

<sup>2</sup> Detail may not add to total due to rounding.

an average of under \$0.4 million per company for the 1981-85 period. The 1987 petroleum tax liability alone was thus almost three times greater than the amount for the entire 5-years of the previous petroleum tax under CERCLA.

The 208 companies with imported petroleum had an average tax for 1987 of \$1.3 million, while the average tax for the 174 companies with domestic petroleum was \$1.5 million. Data for domestic and imported petroleum businesses were not separately tabulated for 1981 through 1985 because the tax rate per barrel was the same for each.

**CHEMICALS**

The requirements for filing and reporting the tax on chemicals applied to any manufacturer, producer, or importer that sold or used the taxable chemicals listed in Table 1. The following petrochemicals and inorganic chemicals were exempted from tax:

- (1) methane or butane used as a fuel, unless a business used the chemical in the manufacture of another taxable chemical;

- (2) nitric acid, sulfuric acid, ammonia, and also methane if used in the production of ammonia that was used for fertilizer or animal feed substances;
- (3) sulfuric acid produced solely as a by-product of, and on the same site as, air pollution control equipment;
- (4) any substance to the extent it was derived from coal;
- (5) chemicals used in the manufacture or production of any motor, diesel, or aviation fuel;
- (6) chemicals because of their transitory presence during smelting, refining, or extracting any substance not subject to the tax;
- (7) chromium, cobalt, or nickel that was recycled; and
- (8) taxable chemicals sold for export.

**PETROCHEMICALS**

The tax rate of \$4.87 per ton for nine of the 10 petrochemicals taxed at this rate under CERCLA was not changed by SARA; however, SARA increased the rate on xylene from \$4.87 to \$10.13 per ton. The tax on the eleventh petrochemical, methane, remained unchanged at \$3.44 per ton; this was the lowest rate applicable to any petrochemical (see Table 2). For 1987, petrochemicals were reported by one-fourth of the companies reporting an environmental tax. They accounted for only 28 percent of the total tax, an average tax of nearly \$1.4 million per taxpayer, compared to the period 1981-1985 when petrochemicals accounted for 66 percent of the total tax and nearly \$3 million per taxpayer. For 1987, ethylene, the highest revenue-producing petrochemical, was reported by 31 businesses for a total of over \$87 million in tax. This was approximately 40 percent of the total tax on petrochemicals. For the period 1981 through 1985, ethylene was also the highest revenue-producing petrochemical. It was reported by 47 businesses and accounted for a total of \$311 million in tax during this period. This was the same proportion of total petrochemical taxes (40 percent)

**Figure C.—Environmental Taxes Before Adjustments by Quarter, Quarters Ended March 1987 through December 1987**

[Money amounts are in millions of dollars]

Quarter ended	Total	Domestic petroleum	Imported crude oil and petroleum products	Petrochemicals	Inorganic chemicals
	(1)	(2)	(3)	(4)	(5)
All quarters .....	\$800.8	\$257.9	\$269.5	\$224.9	\$48.5
March .....	186.3	63.3	57.3	53.8	12.0
June .....	197.4	66.0	62.5	56.7	12.1
September .....	208.0	64.7	75.6	56.9	10.8
December .....	209.1	64.0	74.1	57.5	13.6

NOTE: Detail may not add to the total due to rounding.

as in 1987. The combined tax on benzene, propylene, xylene, plus ethylene amounted to almost \$193 million. This was nearly 86 percent of the total tax for petrochemicals. During 1981 through 1985, the tax reported for these same four chemicals totalled \$627 million. This total was not that much different, percentage-wise, from 1987-80 percent.

### INORGANIC CHEMICALS

SARA did not change the tax imposed by CERCLA on 31 inorganic chemicals. The rates continued to vary from \$0.22 to \$4.45 per ton. A total of \$48.5 million in tax was reported in 1987 by 296 taxpayers, for an average of \$164,000 per taxpayer. Although more than 40 percent of the businesses with an environmental tax reported a tax on inorganic chemicals, the total amount of tax incurred was only slightly over 6 percent of the total environmental tax for the tax year. For the period 1981-85, the percentage of businesses with inorganic chemical taxes was about the same as 1987; although the total number was greater at 439. This was 48 percent more than for 1987. However, the amount of inorganic taxes for the period 1981-1985 comprised a larger part of the total, 18 percent. The average tax for inorganic chemicals during the earlier period (1981-1985) was \$475,000 per business or almost three times greater than that in 1987.

Sulfuric acid was the most frequently reported inorganic chemical in 1987, with 77 businesses accounting for \$1.5 million in tax liability, which represented only 3 percent of the tax reported for all inorganic chemicals. Chlorine, reported by 48 businesses, accounted for more than half of the inorganic chemical tax and over 3 percent of the total environmental tax. For 1981 through 1985, sulfuric acid was also the most frequently reported inorganic chemical tax. The 114 businesses with sulfuric acid tax liabilities reported \$10.5 million or 5 percent of the total inorganic tax.

### HAZARDOUS WASTE

CERCLA had established the Post-closure Liability Trust Fund financed by a tax levied on hazardous waste received at a qualified hazardous waste disposal facility. This Fund was to pay for the costs of managing closed hazardous waste disposal facilities. The tax of \$2.13 per dry weight ton of hazardous waste was repealed under SARA. The tax on waste received at these sites totalled \$15.6 million over the 1981-1985 period.

### ADJUSTMENTS

A business could adjust, i.e., reduce, its total tax if a chemical on which tax was previously paid was

later used to manufacture or produce another substance subject to the environmental excise tax. The taxpayer could reduce current tax by either claiming a credit for taxes previously paid, paying the total but filing a claim for a refund of these taxes, or applying the previously paid amount toward the next quarter's tax if no tax was due currently. A credit or refund was also allowed if a tax were later paid on a chemical such as nitric acid; sulfuric acid; or ammonia which was used to produce fertilizer; methane used to produce ammonia; or a chemical used to produce animal feed. Each of these was considered to be a nontaxable use. Credits or refunds could also be claimed for taxes paid on crude oil removed from a pipeline and later returned to the same pipeline.

SARA retroactively repealed the tax on xylene for the quarters ending before October 1, 1985. Thus, taxpayers could also claim a credit for the tax previously paid (including interest, and additions to tax, such as from IRS examination activities) on xylene, or file a claim for a refund. Many, but not all, taxpayers claimed the adjustment to their xylene tax for 1981-1985 on their returns for the first quarter under SARA, which ended March 1987. For 1981-1985, there were 92 businesses that reported \$72.7 million of excise taxes on xylene.

Total adjustments reported for 1987 were \$40.8 million. Almost 60 percent was claimed in the quarter ending March 1987. Although xylene was the most obvious chemical that could give rise to tax adjustments, it was not the only one. However, the adjustments for other types of chemicals were not tabulated separately.

### DATA SOURCES AND LIMITATIONS

Form 6627, Environmental Taxes, is used to compute the tax liability for petroleum and chemicals. The data shown in this study are taken from the Form 6627. Since products could only be taxed once, if an environmental tax was already paid on an item, tax could not be reimposed on a subsequent person who would otherwise be liable for the tax. As a result, taxpayers are not double counted in the statistics. Returns are due to be filed with the Internal Revenue Service (IRS) within 1 month after the end of the quarter in which the business is liable for an environmental tax. Data in this article reflect information reported on unaudited returns filed for the quarters ending March 31, 1987 through December 31, 1987.

IRS also releases environmental tax statistics in a separate quarterly report on excise taxes [4]. The figures, taken from the Form 720, the Quarterly Excise Tax Return, rather than Form 6627, show the total tax collected, after adjustments, based on

returns recorded on the IRS Business Master File as part of routine tax administrative processing. The data, however, are not classified by type of chemical. Because returns are due 1 month after the end of the calendar quarter in which tax was incurred, the tax reflected in the collection statistics is for the quarter in which the returns were filed and processed. In contrast, for this article, taxes represent the amounts reported on the return rather than the amounts actually collected. Moreover, the statistics are shown for the quarter in which the tax liability was actually incurred. The tax collection statistics also include amounts paid with returns filed after the 1-month period because of routine filing extensions and other reasons. For *Statistics of Income*, the tax for these returns was included in the quarter representing the quarter for which the tax was due. In summary, the collection statistics cover whatever tax was recorded during a quarter, regardless of when it was incurred. Consequently, the two series of data are not directly comparable.

Since no statistical sampling was involved, the data presented here are not subject to sampling error, but may be subject to nonsampling error. For example, although efforts were made to secure all returns, because of time and resource constraints, information from returns for prior quarters for the same businesses were used as the basis for estimating data for returns unavailable for the statistics.

## NOTES AND REFERENCES

- [1] U.S. Senate, *Report of the Committee on Finance on S.51*, Report 99-73, May 23, 1985.
- [2] For prior years, see Barnhardt, Janet, "Superfund for Environmental Taxes," *Statistics of Income Bulletin*, Fall 1982, Volume 2, Number 2; Belal, Rashida, "Superfund for Environmental Taxes, 1981 and 1982," *Statistics of Income Bulletin*, Fall 1983, Volume 3, Number 2; "Environmental Taxes 1981-83," *Statistics of Income Bulletin*, Spring 1985 Volume 4, Number 4; "Environmental Taxes, 1981-84," *Statistics of Income Bulletin*, Spring 1986, Volume 5, Number 4; "Superfund for Environmental Taxes, 1981-85," *Statistics of Income Bulletin*, Spring 1987, Volume 6, Number 4.
- [3] Environment and Natural Resources Policy Division, Congressional Research Service, Library of Congress, *A Legislative History of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)*, Public Law 96-510, 1983.
- [4] U.S. Department of the Treasury, Internal Revenue Service, *Internal Revenue Report of Excise Taxes*, issued quarterly.

## Environmental Taxes, 1987

Table 1.—Environmental Excise Taxes by Type of Substance and Quarters Ended March 1987 to December 1987

[Money amounts are in thousands of dollars]

Type of substance	Total	Quarter ended			
		March 1987	June 1987	September 1987	December 1987
	(1)	(2)	(3)	(4)	(5)
<b>Total</b> .....	<b>800,833</b>	<b>186,356</b>	<b>197,389</b>	<b>207,957</b>	<b>209,131</b>
<b>Petroleum, total</b> .....	<b>527,431</b>	<b>120,574</b>	<b>128,526</b>	<b>140,230</b>	<b>138,102</b>
Imported crude oil and petroleum products .....	269,519	57,313	62,523	75,556	74,128
Domestic petroleum .....	257,912	63,261	66,003	64,674	63,974
<b>Petrochemicals, total</b> .....	<b>224,923</b>	<b>53,836</b>	<b>56,739</b>	<b>56,902</b>	<b>57,457</b>
Acetylene .....	726	162	175	197	192
Benzene .....	29,676	6,862	7,793	7,648	7,732
Butane .....	3,622	650	1,131	1,228	613
Butylene .....	4,457	1,448	929	1,111	970
Butadiene .....	6,296	1,170	1,624	1,501	2,001
Ethylene .....	87,161	20,512	21,239	22,572	22,839
Methane .....	7,462	1,998	1,941	1,705	1,818
Naphthalene .....	125	25	24	55	21
Propylene .....	41,566	9,813	10,186	10,547	11,021
Toluene .....	9,352	2,807	2,534	1,986	2,025
Xylene .....	34,479	8,380	9,163	8,353	8,584
<b>Inorganic chemicals, total</b> .....	<b>48,479</b>	<b>11,957</b>	<b>12,125</b>	<b>10,826</b>	<b>13,572</b>
Ammonia .....	9,451	2,121	2,286	2,394	2,650
Antimony .....	23	3	4	10	6
Antimony trioxide .....	99	25	25	22	28
Arsenic .....	3	( <sup>1</sup> )	2	( <sup>1</sup> )	( <sup>1</sup> )
Arsenic trioxide .....	68	13	23	16	17
Barium sulfide .....	2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Bromine .....	732	144	161	214	213
Cadmium .....	9	2	3	3	1
Chlorine .....	27,836	7,195	7,096	5,615	7,930
Chromium .....	35	9	9	8	10
Chromite .....	480	120	107	95	158
Potassium dichromate .....	1	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Sodium dichromate .....	82	1	77	2	2
Cobalt .....	20	3	4	5	8
Cupric sulphate .....	72	17	22	18	16
Cupric oxide .....	52	13	15	14	10
Cuprous oxide .....	19	6	5	4	4
Hydrochloric acid .....	232	57	63	59	53
Hydrogen fluoride .....	1,281	308	327	355	291
Lead oxide .....	1,433	374	361	329	368
Mercury .....	91	25	23	41	1
Nickel .....	402	91	95	93	124
Phosphorus .....	1,592	375	406	358	453
Stannous chloride .....	4	1	1	1	1
Stannic chloride .....	23	5	5	6	6
Zinc chloride .....	35	8	9	9	9
Zinc sulfate .....	38	11	11	6	10
Potassium hydroxide .....	56	13	14	13	16
Sodium hydroxide .....	2,502	608	556	681	657
Sulfuric acid .....	1,454	335	331	354	434
Nitric acid .....	356	74	84	100	98

<sup>1</sup> Less than \$500, however, the data are included in the totals.

NOTE: Detail may not add to total because of rounding.

# Environmental Taxes, 1987

**Table 2.—Environmental Excise Taxes, by Type of Substance, Aggregate for the Quarters Ended March 1987 to December 1987**

[Money amounts are in thousands of dollars]

Type of substance	Number of businesses reporting environmental excise taxes <sup>1</sup>	Number of tons (000's)	Tax rate per barrel or ton (dollars)	Average tax per business (dollars)
	(1)	(2)	(3)	(4)
		<b>Barrels</b>		
<b>Petroleum, total</b> .....	<b>382</b>	<b>5,448,854</b>	<b>N/A</b>	<b>1,380,711</b>
Domestic petroleum .....	174	3,145,268	.082	1,482,253
Imported crude oil and petroleum products .....	208	2,303,585	.117	1,295,767
		<b>Tons</b>		
<b>Petrochemicals, total</b> .....	<b>162</b>	<b>43,147</b>	<b>N/A</b>	<b>1,388,411</b>
<b>Acetylene</b> .....	<b>33</b>	<b>149</b>	<b>4.87</b>	<b>22,014</b>
Benzene .....	47	6,094	4.87	631,398
Butane .....	16	744	4.87	226,364
Butylene .....	14	915	4.87	318,379
Butadiene* .....	24	1,293	4.87	262,335
Ethylene .....	31	17,898	4.87	2,811,656
Methane .....	24	2,169	3.44	310,913
Naphthalene .....	5	26	4.87	24,915
Propylene .....	48	8,535	4.87	865,965
Toluene .....	54	1,920	4.87	173,184
Xylene .....	49	3,404	10.13	703,659
<b>Inorganic chemicals, total</b> .....	<b>296</b>	<b>32,768</b>	<b>N/A</b>	<b>163,781</b>
Ammonia .....	73	3,580	2.64	129,461
Antimony .....	9	5	4.45	2,506
Antimony trioxide .....	19	26	3.75	5,222
Arsenic .....	7	1	4.45	358
Arsenic trioxide .....	10	20	3.41	6,790
Barium sulfide .....	(*)	(*)	2.30	(*)
Bromine .....	6	164	4.45	121,985
Cadmium .....	13	2	4.45	678
Chlorine .....	48	10,310	2.70	579,926
Chromium .....	12	8	4.45	2,956
Chromite .....	9	316	1.52	53,306
Potassium dichromate .....	(*)	(*)	1.69	(*)
Sodium dichromate .....	9	44	1.87	9,060
Cobalt .....	12	4	4.45	1,627
Cupric sulfate .....	22	39	1.87	3,284
Cupric oxide .....	12	14	3.59	4,315
Cuprous oxide .....	5	5	3.97	3,797
Hydrochloric acid .....	45	800	.29	5,154
Hydrogen fluoride .....	15	303	4.23	85,380
Lead oxide .....	28	346	4.14	51,161
Mercury .....	9	20	4.45	10,066
Nickel .....	14	90	4.45	28,727
Phosphorus .....	6	358	4.45	265,362
Stannous chloride .....	4	1	2.85	936
Stannic chloride .....	6	11	2.12	3,899
Zinc chloride .....	18	16	2.22	1,930
Zinc sulfate .....	19	20	1.90	1,991
Potassium hydroxide .....	26	256	0.22	2,167
Sodium hydroxide .....	66	8,935	0.28	37,905
Sulfuric acid .....	77	5,592	0.26	18,881
Nitric acid .....	26	1,482	0.24	13,676

<sup>1</sup> Number of businesses do not add to total because businesses could report a tax on more than one type of substance.

\* This figure is not shown to avoid disclosure of information for specific businesses. However, the data are included in the appropriate tables.

N/A — Not applicable.

NOTE: Detail may not add to total because of rounding.