1990 EMISSIONS INVENTORY OF FORTY SECTION 112(k) POLLUTANTS

SUPPORTING DATA FOR EPA'S PROPOSED SECTION 112(k) REGULATORY STRATEGY

External Review Draft

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1.0 INTRODUCTION

1.1 Background and Purpose

Under Sections 112(k) and 112(c)(3) of the Clean Air Act (CAA) as amended in 1990, the U.S. Environmental Protection Agency (EPA) is required to identify categories and subcategories of sources of hazardous air pollutants (HAPs) in urban areas that pose a threat to human health. Specifically, the EPA must identify area sources of at least 30 HAPs that present the greatest threat to urban populations, and assure that sources that account for 90 percent or more of the aggregate emissions are subject to regulation. In addition, a national strategy must be developed to reduce cancer incidence attributable to these pollutants by at least 75 percent.

In order to meet the requirements of Sections 112(k) and 112(c)(3), national emissions inventories of toxic pollutants are needed. These inventories will serve as the reference baseline in the development of a national strategy to control the Section 112(k) pollutant emissions.

EPA has identified 40 potential 112(k) HAPs for which a national inventory was prepared. Available toxicity, ambient monitoring, and emissions inventory data, and results from existing exposure and risk assessment studies were used to develop this list. This list is not considered to be final, but rather is considered a starting point for the focus of further analysis under the EPA's Urban Air Toxics Study. The purpose of this report is to present the national inventory of the 40 potential Section 112(k) pollutants.

Three of the HAPs--polycyclic organic matter (POM), dioxins/furans, and mercury compounds--are also included in the EPA inventory report *1990 Emissions Inventory of Section 112(c)(6) Pollutants*: *Polycyclic Organic Matter (POM), 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD)/ 2,3,7,8-Tetrachlorodibenzofuran (TCDF), Polychlorinated Biphenyl Compounds (PCBs), Hexachlorobenzene, Mercury, and Alkylated Lead*. (U.S. EPA, 1997). The definition of POM used in this inventory report is the same definition used in the Section 112(c)(6) report.

Table 1-1.

List of Forty Potential Section 112(k) HAPs

Acetaldehyde	Ethylene Dichloride (1,2-Dichloroethane)
Acrolein	Ethylene Oxide
Acrylamide	Formaldehyde
Acrylonitrile	Hydrazine
Arsenic Compounds	Lead Compounds
Benzene	Manganese Compounds
Beryllium Compounds	Mercury Compounds
Bis(2-ethylhexyl)phthalate	Methyl Chloride (Chloromethane)
1,3-Butadiene	Methylene Chloride (Dichloromethane)
Cadmium Compounds	Methylene Diphenyl Diisocyanate (MDI)
Carbon Tetrachloride	Nickel Compounds
Chloroform	Polycyclic Organic Matter (POM)
Chromium Compounds	Quinoline
Coke Oven Emissions	Styrene
1,4-Dichlorobenzene	1,1,2,2-Tetrachloroethane
1,2-Dichloropropane (Propylene Dichloride)	Tetrachloroethylene (Perchloroethylene)
1,3-Dichloropropene	1,1,2-Trichloroethane
Dioxins/Furans	Trichloroethylene
Ethyl Acrylate	Vinyl Chloride
Ethylene Dibromide (1,2-Dibromoethane)	Vinylidene Chloride

This definition differs from the POM definition contained in the CAA. The POM definition in Section 112(b) of the CAA, which is currently under review by EPA, is based on chemical and structural principles of the subject compounds. The CAA definition leads to there being possibly thousands of compounds that could qualify as POM. From a practical standpoint, it would not be feasible to inventory all of these potential POM species from all sources.

Instead, EPA has opted for a different approach in which specific groups of POM compounds have been listed as surrogates and these groups constitute "POM" for the purposes of this inventory. Two groups have been used, one consisting of 7 polycyclic aromatic hydrocarbons (PAHs) and one consisting of 16 PAHs. In addition, a third approach is also presented in which POM mixtures have been approximated by using the extractable organic matter (EOM) fraction of particulate matter samples. EOM is believed to contain the PAH and substituted-PAH compounds that predict cancer risk better than any individual PAH or any sum of PAH species (Lewtas, 1993). The use of the EOM approach is limited in that data do not exist for many source categories.

The compounds listed below constitute the 7-PAH (marked with asterisks) and the 16-PAH compounds. The 7-PAH compounds have been determined by the International Agency for Research on Cancer (IARC) to be animal carcinogens. The sum of these 7 compounds represents the 7-PAH emission subset that is used in this inventory, and the sum of the 16 compounds represents the 16-PAH emission subset used in this inventory.

Acenaphthene	Chrysene*
Acenaphthylene	Dibenz(a,h)anthracene*
Anthracene	Fluoranthene
Benz(a)anthracene*	Fluorene
Benzo(a)pyrene*	Indeno(1,2,3-cd)pyrene*
Benzo(b)fluoranthene*	Naphthalene
Benzo(ghi)perylene	Phenanthrene
Benzo(k)fluoranthene*	Pyrene

For dioxins/furans, the Section 112(c)(6) report presents emissions as 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF), 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), and 2,3,7,8-TCDD toxic equivalents (TEQs). 2,3,7,8-TCDD TEQs represent a single aggregate measure of all dioxin and furan congeners, considering the relative toxicities of each. For this reason, only 2,3,7,8-TCDD TEQs are used in this Section 112(k) inventory to represent dioxins/furans. Rationale for these choices of surrogates are presented in the 112(c)(6) report (U.S. EPA, 1997).

The EPA selected 1990 as the base year for the Section 112(k) inventory. A 1990 base year was used because this was the year the most recent CAA amendments were enacted and the Section 112(k) requirements became effective. Hence, to the extent practicable, emissions, activity, and control information are presented for 1990 rather than for the present. Any subsequent emission reductions to meet the requirements of Section 112(k) will thus be credited with respect to 1990 base year levels. In a limited number of cases, 1990 base year emission estimate data were not available (either emissions or source activity or both) and, therefore, a different base year (as close to 1990 as the data would allow) had to be used. These cases can be determined from the inventory documentation.

For several of the source categories presented in this inventory, Section 112(k) pollutant emissions from 1990 to the present have been significantly reduced due to the development and promulgation of various National Emission Standards for Hazardous Air Pollutants (NESHAPs), which contain Maximum Achievable Control Technology (MACT) requirements. Therefore, for some source categories, the 1990 emission inventory estimates shown in this document are not representative of current emissions due to significant reductions made by affected industries.

The national inventory presented in this report includes all known sources of each pollutant, both mobile and stationary. All of these sources and emissions may not be subject to the provisions of Section 112(k) (e.g., mobile sources, forest fires, and pesticide application), and

may need to be culled out for strategy development purposes. The provisions of Section 112 focus specifically on stationary sources.

Preparation of this inventory consisted of identifying all sources of emissions of the 40 pollutants, estimating the national emissions for all source categories, distinguishing between emissions from major and area source categories (as defined in Section 112(a) of the CAA and considering the definition of collocated sources in 57 FR 31576) (Federal Register, 1992), and allocating emissions to urban and rural locations. More information on the methods used to accomplish these tasks is provided below.

1.2 Overview of the Inventory Development Process

The purpose of this discussion is to help explain the nature of the data presented in this report and present an overview of the methods used to develop the inventory. Emissions inventory data were primarily obtained from ongoing programs such as EPA's MACT standards programs, EPA Locating and Estimating (L&E) document projects, EPA emission factor development efforts, the Toxics Release Inventory (TRI) program, the Great Waters program, and special studies required under the CAA for utilities and sources of mercury. Because there are multiple programs investigating air toxics emissions in the United States, emissions estimates are constantly in flux. For this reason, it is often very difficult to keep all of the estimates consistent. Applicable emissions data and the associated source activity data are continually changing and being improved. The data presented in this report reflect values that have been developed given the assumptions and input data documented here. They are applicable for a specific time period. They may not necessarily agree with the national estimates from other published estimates due to differences in base years, input emission and activity data, and calculation assumptions. It should be recognized that some of the data presented here as Section 112(k) estimates will likely change as more information and improved estimation approaches are developed.

The majority of the national emission estimates developed for Section 112(k) pollutants are "top-down" estimates. This means they were developed using national-level activity data and some measure of emissions that could be applied to these data. The 112(k) national estimates were determined using existing data; no source testing or industry surveys to gauge activity levels were conducted for the specific purposes of Section 112(k). Surveys conducted in support of MACT rule development were obtained when possible and used in the estimates presented in this report. The bulk of the estimates were developed by applying an emission factor or series of factors (associated with varying source configurations, material/fuel types, and controls) to a set of activity data (e.g., production rate, fuel input rate, waste disposal rate, and vehicle miles traveled rate) that correlate with the surrogate being used to approximate emissions.

Emissions for each source category were then allocated to major/area and urban/rural proportions using available information. For the major/area source allocations, information gathered through the MACT development process was given priority. Other allocations were made based on discussions with industry experts and using engineering judgement. The urban/rural proportions were also developed in several ways. Highest priority was given to facility-specific data that indicated the county and state of each facility in a source category. Other examples of allocation methods used are employment within a Standard Industrial Classification (SIC) code group, population, and fuel consumption by state or region.

1.3 Report Organization

Chapter 2.0 of this report presents a summary of the emission estimates for each potential Section 112(k) HAP. For each HAP, estimates of total national emissions are presented, as well as both urban and rural emission estimates each broken out by major, area, and mobile source categories. Chapter 3.0 describes the general methodologies, approaches, and data sources used to compile the Section 112(k) pollutant national estimates, including the methods used to identify source categories, estimate emissions, and allocate emissions to major/area and urban/rural proportions. Data limitations are identified and discussed in Chapter 4.0. Chapter 5.0 provides

information on the quality assurance/quality control (QA/QC) procedures implemented in the development of this inventory. Chapter 6.0 presents a summary of the emission estimates for each potential Section 112(k) HAP by source category. For each source category, estimates of total national emissions are presented, as well as separate urban and rural emission estimates. References used in this report are listed in Chapter 7.0. Appendix A contains specific documentation for the subject pollutants of each source category; the input data used to calculate emissions are provided, and the algorithms used to estimate national emissions are presented. [NOTE: Appendix A is very large. If accessing this file electronically, it is recommended that only the information for the specific source category or pollutant of interest be printed.] Appendix B presents a summary of the TRI data used, and Appendix C presents information on the major/area and urban/rural allocation schemes used for each source category.

2.0 SUMMARY OF EMISSION ESTIMATES

Table 2-1 presents a summary of the 1990 base year emissions estimates developed for each potential Section 112(k) HAP. To support the requirements of Section 112(k) of the CAA, estimated national emissions for each HAP are presented, and the estimates are presented by their urban/rural and major/area/mobile source proportions. Details on how the estimates and allocations were determined are presented in other chapters of this report as well as in Appendices A, B, and C. Chapter 3.0 briefly discusses how the estimates were developed and explains the methods used to allocate major/area and urban/rural proportions.

More detailed documentation on how the emission estimates were prepared is provided in Appendices A, B, and C. The documentation provided is meant to identify the key input data that were used in the calculation of national emissions. The documentation is <u>not</u> meant to provide an exhaustive analysis on the derivation of all the inputs. For example, an emission factor used for a national estimate may be given in the appendix, but the 10 source tests that were evaluated to obtain this factor are not presented and discussed. The goal of the documentation provided is to show the reader in a brief and concise manner where a given number came from. For example, some estimates are based on data obtained directly from work done by EPA for the development of MACT standards. These estimates may have been the product of several years of work, and may be based upon many complex analyses and data sets. In this case, the documentation provided here will identify the overall methodology and values used to calculate emissions (activity levels, emission factors, etc.) if available, but it will not provide all of the data that the EPA used to develop these final numbers. Adequate references are provided to allow further investigation of any estimate if desired.

Table 2-1. Base Year 1990 National Emission Estimates for Potential 112(k) Pollutants

112(k) Pollutant	Total Emissions (Urban and Rural)	RURAL EMISSIONS				URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
		Major Sources	Area Sources	Mobile Sources	Total Rural	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
1,1,2,2-Tetrachloroethan	82	4	12	0	16	6	44	0	50	7	9	0	16	66
1,1,2-Trichloroethane	752	220	21	0	242	268	66	0	334	158	18	0	176	510
1,2-Dichloropropane	658	54	40	0	94	212	232	0	443	91	30	0	121	564
1,3-Butadiene	79,093	563	14,335	15,150	30,048	3,204	2,259	30,543	36,006	654	3,675	8,710	13,039	49,045
1,3-Dichloropropene	76	18	4	0	23	28	9	0	37	13	3	0	16	53
1,4-Dichlorobenzene	836	109	79	0	187	364	216	0	580	32	36	0	68	648
Acetaldehyde	143,564	5,791	41,844	10,564	58,200	7,489	31,959	20,171	59,618	5,081	14,753	5,911	25,745	85,363
Acrolein	78,582	144	35,157	3,650	38,951	4,735	13,678	8,615	27,028	424	9,926	2,253	12,603	39,631
Acrylamide	117	18	1	0	20	82	6	0	89	8	0.4	0	9	98
Acrylonitrile	2,664	197	120	0	316	1,172	515	0	1,687	550	110	0	660	2,347
Arsenic Compounds	1,212	206	44	0.5	250	679	60	0.7	739	175	48	0.3	223	962
Benzene	462,317	4,347	52,405	84,881	141,632	23,743	53,493	166,704	243,940	5,915	22,565	48,264	76,743	320,683
Beryllium Compounds	17	3	0.8	0	4	6	4	0	10	2	0.9	0	3	13
Bis(2-ethylhexyl)phthala	818	214	29	0	243	371	78	0	449	108	17	0	126	575
Cadmium Compounds	233	21	18	0	39	80	73	0	153	20	21	0	41	194
Carbon Tetrachloride	5,195	1,950	13	0	1,964	1,833	52	0	1,885	1,336	10	0	1,346	3,231
Chloroform	26,470	9,788	169	0	9,957	8,795	564	0	9,360	7,012	141	0	7,153	16,512
Chromium Compounds	1,063	102	62	11	175	363	340	24	727	98	56	6	161	888
Coke Oven Emissions	1,764	61	0	0	61	1,581	0	0	1,581	122	0	0	122	1,703
2,3,7,8-TCDD TEQ	1	0.1	0.2	3.19E-05	0.3	0.2	0.2	4.70E-05	0.4	0.2	0.5	1.61E-05	0.7	1
Ethyl Acrylate	801	19	0.6	0	20	752	5	0	757	23	1	0	24	781
Ethylene Dibromide	77	13	0.7	0	14	51	3	0	54	10	0.4	0	10	64
Ethylene Dichloride	16,151	4,236	144	0	4,381	7,570	411	0	7,981	3,672	119	0	3,790	11,771
Ethylene Oxide	16,623	1,147	713	0	1,860	9,354	3,260	0	12,614	1,547	601	0	2,149	14,763
Formaldehyde	276,230	4,553	91,721	37,339	133,613	5,883	15,950	72,756	94,590	2,898	24,065	21,065	48,027	142,617
Hydrazine	126	10	0.5	0	11	99	5	0	104	11	0.5	0	11	116
Lead Compounds	4,964	281	195	612	1,088	619	608	1,305	2,532	766	224	354	1,344	3,876

Table 2-1. Base Year 1990 National Emission Estimates for Potential 112(k) Pollutants

112(k) Pollutant	Total Emissions (Urban and Rural)	RURAL EMISSIONS				URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
		Major Sources	Area Sources	Mobile Sources	Total Rural	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Manganese Compound	3,751	479	208	13	700	1,591	828	29	2,447	376	220	8	604	3,051
Mercury Compounds	252	34	12	3	49	96	56	6	158	29	14	2	45	203
Methyl Chloride	7,241	1,229	32	0	1,261	4,618	120	0	4,738	1,216	26	0	1,242	5,980
Methylene Chloride	85,166	11,062	2,585	0	13,647	44,605	12,986	0	57,591	11,697	2,232	0	13,928	71,519
Methylene Diphenyl Diisocyanate	314	58	15	0	73	127	42	0	170	54	18	0	72	241
Nickel Compounds	1,519	112	80	6	198	514	561	14	1,089	122	107	4	232	1,321
7-PAH	2,000	44	846	15	905	128	587	34	749	36	301	9	346	1,095
16-PAH	19,688	962	3,830	33	4,825	3,814	7,722	74	11,610	1,029	2,204	20	3,253	14,863
EOM	456,484	34,045	45,985	18,841	98,871	69,185	186,886	27,792	283,862	23,735	40,491	9,524	73,750	357,613
Quinoline	35	3	0.2	0	3	23	4	0	27	4	0.9	0	5	32
Styrene	42,603	4,312	383	5,821	10,516	14,397	1,190	8,885	24,472	4,238	399	2,978	7,616	32,088
Tetrachloroethylene	127,399	3,060	21,070	0	24,130	14,156	67,069	0	81,225	3,189	18,856	0	22,045	103,270
Trichloroethylene	67,088	7,395	2,116	0	9,511	39,060	8,962	0	48,022	7,832	1,723	0	9,555	57,577
Vinyl Chloride	25,799	8,377	100	0	8,477	11,079	417	0	11,496	5,740	86	0	5,825	17,321
Vinylidene Chloride	387	48	25	0	73	123	62	0	185	112	17	0	130	314

3.0 INVENTORY DEVELOPMENT METHODOLOGY

3.1 Source Category Identification

The initial focus of this project was to identify existing national emission estimates for the Section 112(k) pollutants. It was equally important, however, to identify all of the known and suspected emission sources of each Section 112(k) pollutant. Well known and readily available information sources that might provide national emission estimates were examined, and an extensive literature search was conducted to identify emission factors or process information sufficient to identify potential Section 112(k) sources. In addition, other literature sources that have no emission estimates or emission factors were reviewed in order to identify suspect source categories for Section 112(k) pollutants that might not have been identified in other references. The following references were reviewed to identify sources of the Section 112(k) HAPs:

- Numerous documents in the EPA's Locating and Estimating series;
- *Cumulative Air Toxics Exposures Ambient Concentration Modeling* (U.S. EPA, 1995a);
- *Compilation of Air Pollutant Emission Factors* (AP-42) (U.S. EPA, 1996a);
- The EPA's Toxic Release Inventory (TRI) database (U.S. EPA, 1996b);
- The EPA's Factor Information Retrieval (FIRE) database (U.S. EPA, 1995b);
- *National Air Pollutant Emission Trends, 1900-1994* (U.S. EPA, 1995c);
- MACT Background Information Documents (BIDs) and other data gathered in support of MACT rule development;
- *Chemical Origins and Markets* (SRI, 1993);
- *Estimation of Nickel Species in Ambient Air* (U.S. EPA, 1985); and
- Previously developed Section 112 reports.

The references were reviewed to identify as many source categories as possible. If the literature suggested that a source category emits a Section 112(k) pollutant, but there were no readily available emissions data (e.g., emission factor, activity data), the category was still flagged as a suspect source. A matrix was developed from this identification process that linked source categories to emissions data references. This matrix served as the starting point for the inventory development and the foundation for the data management scheme.

3.2 General Description of Emission Estimation Methodologies

As noted above, most of the calculated emission estimates presented in this report are "top-down" estimates. This means they were developed using national level activity data and some measure of emissions that could be applied to these data. Few categories had estimates developed from a true "bottom-up" basis (i.e., estimates developed specifically for individual sources and summed to obtain a national total). In cases where individual facility data were available to inventory a category (e.g., municipal waste combustors), sometimes not all sites or HAPs could be addressed with site-specific data; in these cases default factors and/or activities had to be developed. In such instances the bottom-up estimates are not completely site-specific, but rather are modeled on a sample of facilities.

Most estimates were developed by combining an emission factor with activity data that correlates with the surrogate being used to approximate emissions. As stated in Chapter 1.0, the intent was to obtain activity data that represented 1990 base levels as close as possible. The emission factors were evaluated for age, completeness, representativeness, and overall quality. Acceptable data were used to develop composite emission factors for use in the national estimates. In some cases, the emission factors came from the most current version of EPA's AP-42 document (U.S. EPA, 1996a). If factors for the Section 112(k) HAPs were not available in AP-42, other sources were sought. Source testing was not performed specifically and directly for the Section 112(k) program, but some estimates were based on recent test data; often these

estimates came from standards development programs where EPA, states, and/or industry had conducted recent testing.

Most of the source activity data were obtained from published sources such as government statistical documents and databases (e.g., Energy Information Administration fuel consumption reports, Forest Service reports on fires and burned acreage, and waste disposal reports published by EPA), industry trade publications, and commercially published business directories and journals. For many of the MACT standard-derived estimates, activity data were obtained directly from the affected industry through the EPA's Emission Standards Division.

In addition to the emission factor times activity method, another general approach that was used involved speciating known emissions, production levels, or waste streams for the subject category based on data that indicated the level of the Section 112(k) HAP pollutant in the stream. For example, national particulate matter (PM) emissions from a category may have been known from other studies, and if available data indicated that a known percent of the PM emissions from this category are POM, a national estimate for POM could be determined. In a similar manner, in some cases the emissions of a related form of a Section 112(k) pollutant were known from other studies, and the speciation of the larger pollutant group was known for the Section 112(k) HAP. Emissions for the Section 112(k) HAP could then be determined based on the speciation ratio. An example of this would be the estimation of 2,3,7,8-TCDD emissions based on its contribution to total chlorinated dioxin emissions from a category, when the total dioxin emissions were known. In other cases, the speciation of a product (e.g., pesticide) may have been known, and due to the nature of the product and its associated operation, an estimate could be made that all or some fraction of the material (and the HAP constituent) was lost to the atmosphere. The same approach was used for some cases where the pollutant was a constituent of a waste stream from a category and the total amount of waste and the HAP composition of the waste stream were known. The estimation hierarchies are discussed in Section 3.3.

3.3 Emission Estimation Methodology Hierarchy

An emissions estimation methodology hierarchy was established in order to prepare the Section 112(k) inventory from a variety of data sources. The hierarchy was based on developing the best emission estimates within the time frame and limitations of the inventory effort. Since there was no specific source testing or industry surveying done in direct support of the inventory effort, emissions were estimated using information from existing data resources using the methodologies described in Section 3.2. In some cases, multiple methodologies were available to develop emission estimates for a source category; it is in these cases that a hierarchy of methods was applied in order to select the most appropriate methodology to meet the objectives of the inventory. The estimation hierarchies are discussed in Sections 3.3.1 to 3.3.3.

3.3.1 *Existing Emission Estimates*

It was established early in the inventory planning process that the preferred approach for certain HAPs would be to use national emissions directly from existing inventories prepared in previous EPA studies. The following references were identified for this purpose for the indicated Section 112(k) pollutants:

Section 112(c)(6) Report:	EOM, 7-PAH, 16-PAH (POM)
	Dioxins/Furans
	Mercury Compounds
Previously Developed Section 112 Reports:	Trichloroethylene
	Perchloroethylene
	Methylene Chloride
	Carbon Tetrachloride
	Benzene
	1,3-Butadiene
	Formaldehyde

Locating and Estimating Documents	Lead Compounds Styrene Dioxin/Furans Cadmium Compounds Vinylidene Chloride Chromium Compounds Ethylene Dichloride
National Air Pollutant Emission Trends, 1900-1994	Lead Compounds

Each of the above references contained national emission estimates for a selection of source categories based on the scope of the particular inventory. Since the references had not been through the identical level of external review and comment response at the time this inventory was being prepared, priority use was assigned to those reports that were closer to being designated "final." For example, the national emission estimates for lead compounds that are documented in the EPA's Trends report (U.S. EPA, 1995c) are considered final and were used directly for many reported source categories in that document. All of the estimates for EOM, 7-PAH, 16-PAH, dioxins/furans, and mercury compounds that are documented in the Section 112(c)(6) report (U.S. EPA, 1997) had been through external peer review, with the majority of them being considered final and used directly for this inventory. There were a small number of comments that were being responded to for the Section 112(c)(6) report concurrent to this inventory's preparation; all changes resulting from these responses were incorporated into this inventory where applicable.

National emissions estimates were also available for seven solvents (trichloroethylene, perchloroethylene, methylene chloride, carbon tetrachloride, benzene, formaldehyde, and 1,3-butadiene) from a previously-prepared Section 112(k) report (U.S. EPA, 1996c). Emission estimates for these solvents were considered final; however, for certain source categories where

improved data or methodologies were now available, emissions were recalculated. For pollutants with national estimates available from other reference sources (e.g., MACT BIDS, L&E documents, and TRI) the emission estimates were evaluated for their accuracy, completeness, and reliability. Existing emission estimates that appeared to be reasonable, complete, and which were well documented, were used directly in the inventory. For example, final emission estimates for 1990 from certain EPA studies, MACT BIDs, NESHAPS, and on-going MACT studies were used without further adjustments. Following are some examples of these:

- Oil and Gas Production MACT (Glycol Dehydrators);
- Petroleum Refinery NESHAP;
- Portland Cement NESHAP;
- Secondary Lead Smelters NESHAP;
- Halogenated Solvent Cleaning NESHAP;
- Background information for NESHAP for Dry Cleaning Facilities;
- Background information for proposed NESHAP for Gasoline Distribution Industry (Stage I);
- Consumer Products Survey [pursuant to Section 183(e) of the CAA];
- Utility boiler data from CAA Report to Congress;
- Presumptive MACT for Tire Production; and
- Presumptive MACT for Baker's Yeast.

The estimates obtained from regulatory development programs such as those listed above were generally accepted as the best available data for the inventory. These estimates have the benefit of being based on recent test data, control information, representative modeling scenarios, and input from informed industry and EPA experts. In some instances, these estimates

represented a summation of actual source test data for most or all sources in the category. In other cases, the MACT studies may have focused only on specific processes. These intensive estimates are of significantly higher quality than those derived through the use of an overall emission factor.

Another source used directly for emissions were L&E documents. For example, the Cadmium L&E (U.S. EPA, 1993a) contained base year 1990 national estimates, was a published, final report, contained documented emission calculations, and generally was considered to be prepared under similar guidelines used for the current Section 112(k) inventory. The arsenic, dioxin/furan, and lead L&E documents are currently under revision. Every effort was made to use newly available emission factors and emission estimates under development for these documents for the Section 112(k) inventory.

Other references received lower priority based on the evaluation criteria. One example is the inventory data from additional Section 112(k) support efforts; the original estimates were rapidly assembled, were often not documented to the extent that they could be reproduced, and did not always represent the best estimates that could be constructed. Another example is TRI, which contains national inventory data only for point sources that meet certain criteria (thus not accounting for smaller sources that may fall within an industry group) and for which the emission calculation methods can not be confirmed. While considered a relative low priority reference source, in many cases TRI data were used because they were the only available means to estimate emissions from certain source categories.

3.3.2 *Emission Factor and Activity Level*

When national emissions estimates were not directly available from a preferred reference source, and where there were identified emission factors and activity level data for a source category, emissions were calculated. For example, if the only reference source of existing national emission estimates for a source category was TRI, and there were representative

emission factors and associated activity level data available for that source category, emissions were often calculated using the emission factors and activity data rather than using the TRI data. The biggest influence on the quality of the estimates calculated this way (and the basis for selecting the factor/activity level approach over another) is the validity of the emission factor(s) used, in terms of absolute accuracy as well as representativeness for the processes to which it was applied. The activity data can also affect the quality of an emissions estimate, however, there were many standardized and credible references for activity data that precluded any large margin of error being associated with the activity level. For example, 1990 base year activity data were already available from the Section 112(c)(6) or previous Section 112(k) work for many source categories.

For some source categories, emission factors were obtained from EPA's *Compilation of Air Pollutant Emission Factors* (AP-42) document (U.S. EPA, 1996a). Since the emission factors in AP-42 have a quality rating associated with them, as well as accompanying documentation to describe the processes or units on they are based on, this reference source was given a high priority when using the factor/activity level approach. If the emission factors were rated high (e.g., “A” or “B”) and the associated activity level data were available, national emissions were calculated with the AP-42 data. Many of the emission factors (particularly for combustion sources) used to develop emission estimates were found in AP-42.

Another high priority reference source was the EPA's FIRE System database. This database contains selected rated emission factors originating from AP-42, L&E documents, literature references, and state source test reports (particularly those from the California Air Resources Board [CARB]). These emission factors are rated similar to AP-42 emission factors, however most emission factors in FIRE (besides the ones that are cross-referenced to AP-42) do not have extensive supporting documentation for their derivation. However, because the entries contain a source classification code (SCC) identifier and short process descriptions, FIRE was considered a relatively high priority reference for quality rated emission factor data where a good match with process type and activity data could be made.

Emission factors from other special reports and studies were used extensively in inventory preparation. For example, on-road mobile emission estimates were determined using emission factors from the EPA's Office of Mobile Sources (OMS) 1993 report, *Motor Vehicle-Related Air Toxics Study* (MVRATS) (U.S. EPA, 1993b), and national vehicle miles traveled (VMT) activity data generated by the Federal Highway Administration (FHWA). Since OMS is the recognized authority on mobile source emissions, and has the most extensive database of toxics-related mobile source emission factor data, this specialized approach was selected for the inventory.

The availability and overall quality of the activity data (i.e., throughput, production, fuel use, etc.) varied by source category. Most of the activity data were obtained from published business/manufacturing sources, governmental statistics publications, and background information from EPA regulatory programs. Other sources of activity data were the Department of Transportation and the Department of Energy's Energy Information Administration (EIA).

3.3.3 *Speciation Profiles*

Suitable speciation profiles were not available for most source categories in the inventory and were generally not used. Significant limitations were identified for the use of the speciation profiles, particularly the poor representation of source categories and the age of the data on which most profiles are based. There were some exceptions, however; non-road mobile source emissions were determined using activity data from OMS's *Non-Road Engine Vehicle Emission Study* (NEVES) (U.S. EPA, 1991) and speciated volatile organic compound (VOC) emissions data developed by OMS. Aircraft emissions were determined by using the approach recommended in the *Procedures for Emission Inventory Preparation, Volume IV; Mobile Sources* to estimate total hydrocarbon emissions (U.S. EPA, 1992a). The hydrocarbon emission totals were then speciated using HAP profiles to quantify the toxic components of aircraft emissions.

3.4 Procedures Used to Allocate Emissions

3.4.1 *Method for Urban/Rural Allocations*

Sections 112(k) and 112(c)(6) of the CAA are particularly concerned with HAPs that "present the greatest threat to public health in the largest number of urban areas." However, the CAA does not provide a definition of "urban." Urban areas with populations greater than 250,000 are singled out for air monitoring; however, the possibility of monitoring other urban areas is also mentioned.

To spatially allocate emissions on an urban and rural basis, Bureau of the Census statistical data were used (U.S. Bureau of the Census, 1990). The Bureau of the Census has designated urban and rural areas within every county in the United States. The criteria used include population density and total population. Using population data and urban/rural designations for 1990, every county in the United States was classified as one of the following categories:

- Urban-1 (U1) counties which include a metropolitan statistical area (MSA) with a population greater than 250,000.
- Urban-2 (U2) counties that do not include an MSA with a population greater than 250,000, but the Bureau of the Census designates more than 50 percent of the county population as "urban." These counties include areas which comprise one or more central places and adjacent densely settled surrounding urban fringe. The urban fringe consists of contiguous territory having a density of at least 1,000 persons per square mile.
- Rural (R) counties that do not include an MSA with a population greater than 250,000, and the Bureau of the Census designates more than 50 percent of the county population as "rural."

If any part of a county contained an Urban-1 area, then the whole county was classified as Urban-1. For all remaining counties, if greater than 50 percent of the population was

classified as rural, then that county was considered Rural. Counties not designated as Urban -1 or Rural were classified as Urban-2.

Emissions were assigned to counties by a number of methods. In some cases, such as with TRI estimates and data obtained from MACT studies, emissions could be assigned to individual facilities and then summed up to the county level.

Where facility specific data were not available or could not be provided in a format amendable to SAS® (the software used to perform the spatial allocations) within the time constraints of this project, emissions were assigned to individual counties using surrogate approaches. Some examples of these surrogate approaches include proportioning national non-road vehicle emissions to counties based on population, proportioning emissions from some industrial sectors to counties based on 1990 SIC code employment estimates, and assigning emissions from forest fires to counties based on forested acres. For a complete list of spatial allocation approaches used in this study see Appendix C. The spatial allocation methods used for specific source categories are documented in this appendix.

3.4.2 *Method for Major/Area Source Allocations*

The national emission estimates were also allocated according to whether the emitting source category was classified as “major,” “area,” or could be classified partially as both. As the name implies, major sources are generally larger with greater per source levels of emissions, while area sources have fewer emissions on a per source basis and may be located in a more dispersive manner. According to Title I, Section 112(a) of the CAA, a "major source" is any stationary source (including all emission points and units located within a contiguous area and under common control) of air pollution that has the potential to emit, considering controls, 10 tons or more per year of any HAP or 25 tons or more per year of any combination of HAPs. An "area source" is any stationary source of HAPs which does not qualify as a major source. The reader should refer to the July 16, 1992 Federal Register notice for a more detailed

discussion of the concept of collocation (Federal Register, 1992). The allocation of emissions to a major/area source basis for each source category will be helpful in evaluating the effect of existing and future regulatory programs (e.g., MACT standards) on emissions reductions. For example, most existing MACT standards are more geared towards major sources as opposed to area. If it turns out that area sources constitute a large portion of Section 112(k) emissions, future standards programs may need to consider incorporating more area sources in their applicability determinations.

The major/area allocations that were determined for the purpose of this inventory compilation are presented in Appendix C. The major/area percentages were applied to the total national emissions of each pollutant from each source category to calculate the major and area source emissions for the category. These values take into consideration collocation of processes where data are available. The major/area allocation percentages were derived in a variety of ways. The reader should not treat these percentages and the resulting calculated major/area source emissions as absolutes. The primary goal of this exercise was to get a sense of whether a category was predominantly in one group or the other. The rationale used to make the major/area source determinations varied depending on available information. The EPA report *Documentation for the Development of the Initial Source Category List*, which was used to identify major source categories for standards development purposes, was a key reference (U.S. EPA, 1992b). In other cases, the accepted way that a source category is typically inventoried served as a guide for the classification (e.g., residential wood burning is always assessed as an area source). In other cases, technical analyses were conducted using actual and model plant data to determine typical facility sizes and emissions to see what percent of facilities in a category would likely trip the 10/25 ton per year HAP threshold. Lastly, in cases where no applicable data could be found to base an allocation, engineering judgement was used to assign an allocation.

The percentages shown in Appendix C have no bearing or relevance to major source determinations that states may have for individual facilities as a function of any regulatory activity (e.g., New Source Performance Standard, NESHAP, New Source Review, operating

permit, etc.). The major/area distributions shown in Appendix C are only for the purposes of the Section 112(k) inventory analysis.

4.0 DATA LIMITATIONS

As with any inventory development process, the quality of the final estimate varies considerably from category to category. Given the methods used to calculate the estimates, the biggest influence on the quality of the estimate is the validity of the emission factor(s) used, in terms of absolute accuracy as well as representativeness for the processes to which it was applied. The activity data can also affect the quality of an emissions estimate, but activity data are usually easier to obtain and often have more credibility, especially when trying to determine national scale numbers. Obtaining national scale activity data that are reasonably valid was not that difficult during this inventory development process; however, there were a few categories in which the activity data were highly questionable or practically nonexistent.

Despite the problems with limited data for some source categories, the intent of the Section 112(k) inventory process was satisfied reasonably well by the data in this report. National scale emission estimates were generated that are believed to capture, at a minimum, 90 percent of the aggregate emissions of each potential Section 112(k) HAP. The quality of the estimates for some of the less important (in terms of emissions potential) categories can clearly be questioned due to limits on available input information; however, taken as a whole, the data presented here provide reasonable inputs, and serve as a first step towards a Section 112(k) prioritization process.

The most significant issue that should be noted for this inventory is that the available emission factor data were either old (from the 1980s) and/or very limited in terms of coverage for some source categories. This lack of data may be because the HAPs have not always been viewed as significant; therefore, little testing and emissions characterization work has been performed. This means that a very limited number of data points were available to characterize an entire category, without the benefit of knowing what the variability across the category may be. In some cases, there were no emissions data specific to a category, and surrogate data from a related source category had to be used to estimate emissions. While not optimal, this approach

had to be adopted given the time and resource constraints of the Section 112(k) inventory program. Generally, however, the source categories where this approach was used were not significant emitters of the given HAP.

The estimates that are more than likely the highest quality are those that were obtained from regulatory development programs. These estimates have the benefit of being based on recent test data, up-to-date activity and control information, and input from informed industry experts. In some instances, these estimates represent a summation of actual source test data for most or all sources in the category. These intensive estimates are of significantly higher quality than those derived through the use of an overall emission factor.

The estimates that have come from special intensive EPA studies such as the Reports to Congress on mercury and electric utilities also represent higher quality information due to the quantity and quality of the new research done to support these programs. Estimates based on factors from recent AP-42 updates (especially those with A- or B- rated factors) are also of relatively high quality, since the applied emission factors are more likely to reflect the increased accuracy of recent test data, as well as better source category representation.

Another concern with the development of the inventory estimates for Section 112(k) categories was the lack of emissions data for categories not constituting the top 60-70 percent of total national emissions. For categories that have already been identified as relatively significant sources of a given pollutant, more emphasis has been placed by industry and regulatory agencies on performing testing and deriving good quality emission factors. Less attention and emissions quantification have historically been paid to the remaining categories, which individually may contribute fewer total emissions but may constitute many individual sources. The emission factor data pool for smaller combustion sources (excluding utilities and large industrial sources), some of the waste disposal sources, non-road mobile sources, secondary industrial sources, and biomass burning sources could definitely benefit from more current and expanded information.

To illustrate this point, some of the only POM emissions data that could be identified for small combustion boilers dated back to the late 1970s-early 1980s.

A similar issue regarding the estimation process that was clearly undesirable, but also unavoidable in the context of the Section 112(k) inventory process, was the lack of available emissions data for some pollutant/source category combinations. For example, EOM data were either not available or only one or two data points were available to derive a factor for a category-wide, national emissions estimate. The overall national estimate quality implications for this type of situation are clear. National estimates had to be formulated for several categories from assumptions and factors with only one or two data points.

In this inventory approximately 60 percent of the emission estimates were derived from the 1990 TRI reporting. Facilities are required to report chemical releases data to the TRI database on an annual basis if they are subject to Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act (SARA). The reporting rule appears at 40 CFR Part 372. Under this rule a facility must report emissions if:

- The facility has 10 or more full-time employees;
- The facility is classified under an SIC code between 20 and 39; and
- The facility manufactures or processes more than 12.5 tons per year of a listed chemical or the facility otherwise uses more than 5 tons per year of a listed chemical.

There are important limitations in using the TRI data. For instance, it is possible that a facility could avoid TRI data reporting requirements based on the chemical threshold criterion, but still be a HAP-emitting stationary source. For example, if a facility processes only 12 tons per year of a listed toxic chemical, that facility is not required to report to the TRI database, such that many area sources would not be included in the TRI database.

One of the most significant problems with using TRI data concerns the SIC codes assigned to facilities. A facility may include multiple establishments that have different SIC codes. TRI allows up to three SIC code identifications per database record. Because of the SIC code criterion for TRI reporting, a major stationary source may perform activities in connection with a given SIC code, but not be identified under that SIC code in the TRI database. For example, a facility may be comprised of two establishments, one classified under an SIC code between 20 and 39, the other classified under a SIC code outside of the 20-39 range. According to the SIC code criterion for TRI reporting requirements, if the establishment classified under an SIC code between 20 and 39 produces or ships products whose value is less than the value of the other establishment's products and services, that facility is not required to report to the TRI database. Furthermore, if a facility reports under multiple SIC codes, it is not possible to determine which portion of the emissions should be assigned to each SIC code. For this inventory, the primary SIC code was used to avoid double counting of emissions.

Because a combination of data sources were used that have different source category classifications, it was not always possible to directly match the source categories for which the estimates were developed. For example, where MACT data for a primary metal industry were provided and TRI data for the whole primary metal category were used to estimate emissions from the other primary metal groups, double counting between the MACT and TRI data may have occurred. On the other hand, if MACT data replaced the TRI data, emissions from the other primary metals group reported in TRI would not be included in this inventory. These types of issues were evaluated on a case-by-case basis, and where the estimate may be an under estimation or may be double counted, it was noted in the emissions estimation in Appendix A methodology information.

Another factor that limits the quality and completeness of the final inventory is the fact that in some cases categories were suspected or known to be emitters of Section 112(k) pollutants, but it was not possible to develop emission estimates. At this time the expected relative magnitude of these sources as Section 112(k) emitters is unknown, but it is hoped that

the majority of these sources are relatively insignificant sources of the potential Section 112(k) HAPs.

Because of the magnitude of this inventory in terms of number of pollutants and number of source categories, it is not possible to identify the categories for which estimates could not be developed in a concise manner. The majority of sources of Section 112(k) pollutants for which estimates could not be developed are chemical manufacturing sources. While emissions of potential Section 112(k) HAPs could be quantified for a large number of chemical manufacturing sources, many could not. For example, esters production is thought to be a source of ethyl acrylate, but an emissions estimate could not be developed. Sources of individual suspect HAPs may have been included in the inventory, but estimates could not be quanitified for all of the HAPs thought to be emitted. For example, a number of metal production sources such as secondary copper smelting and secondary zinc production are thought to emit more Section 112(k) HAPs than are presented in this inventory.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

Preparation of the Section 112(k) emissions inventory consisted of more than just conducting literature searches, reviewing data to identify emission sources and emission estimation methods, and developing emissions estimates. A key part of the inventory development process also included review of the emission estimates and methods. The following discussion summarizes the QA/QC procedures implemented during the inventory development process.

Inventory development team members were required to provide internal technical reviewers with the a printout of the appropriate spreadsheet, database, or text discussion for each emission estimate developed. The internal technical reviewers were members of the inventory development team, and were responsible for developing emission estimates for source categories other than the ones they were reviewing. Included in the information provided to the reviewers were copies of the reference materials used in developing the emissions estimates. In cases where spreadsheets were used extensively, the reviewers were also given an electronic copy of the file.

To expedite the inventory development process, a coding system was used for each HAP, source category, and source category group. The review process therefore included verification that the correct codes were used for each HAP, source category, and source category group. It was particularly important that the source category group and source category were correctly assigned; for example, an estimate that was developed for “coke oven door leaks” should not be reported under the name “coke ovens- all processes.” To determine if the source category group and source category were correctly assigned, it was often necessary to review the reference source of the emission factor used (if that is how the estimate was derived). The review process also included verification that the base year and number of facilities (if available) were in agreement with the references for each estimate and source category.

To check the inventory for completeness, the reviewers determined if estimates for all source categories included in a source category group had been developed using all available information. Prior to review, gaps in the data were flagged by the inventory development team and an explanation for an excluded source category was provided to the reviewers (e.g., the activity data needed to develop the estimates were not available). For each source category, the reviewers determined if estimates for all pollutants emitted by the category had been developed, assuming the information was available. For the most part this determination was made by reviewing the emission estimate or emission factor data and verifying that an estimate was shown for each Section 112(k) HAP for which there was information.

Two approaches were used to review the emission estimation methodology. The first pertained to the direct use of a previously-developed national emissions estimate. When existing estimates were used in the Section 112(k) inventory, the reviewers determined if the estimate was correctly transcribed by reviewing the original data source. For estimates prepared by the inventory development team, the reviewers first determined if the activity data and emission factors used were compatible. For example, if the activity data were presented in units of material produced and the emission factor was in units of material consumed, the two would not be compatible. The reviewers also checked to see that the activity data and emission factors were correctly copied from original references. At least 20 percent of the calculations were checked to assess whether any computational errors were made. In most cases all of the calculations were checked.

The reviewers also determined if the references were cited for all of the information used to develop the estimate. This part of the review also included verifying that copies of the reference materials had been submitted to the project file.

The overall observations of the reviewer were then recorded on a *Source Category Review Form* (Figure 5-1). The individual responsible for the estimate then provided a written response to the each of the reviewer's comments.

Figure 5-1.

Section 112(k) Inventory QA/QC Source Category Review Form

Category Description:
Name (person responsible for calculations):
Signature of Reviewer:
Date:

Checklist	Yes	No	Could not be determined
Were pollutant, source category group, and source category codes appropriate for the estimates?			
Is the base year correct?			
Are the number of facilities correct?			
For Existing Estimates			
Is the source of the emission estimate clearly referenced and a copy provided in the docket file?			
Were the estimates correctly transcribed?			
For New Estimates			
Were all speciation profiles and emission factors clearly referenced and copies provided in the docket file?			
Were all speciation profiles and emission factors correctly transcribed in the calculation?			
Were all activity data clearly referenced and copies provided in the docket file?			
Were all activity data correctly transcribed?			
Are the activity data appropriate for the emission factors used?			

Note: Check at least 20 percent of calculations for computational errors.

Comments:

The second phase of the QA/QC process was performed by another individual. This review step was not necessarily a duplication of the earlier review, but was a review of the data from a different perspective. The following items were considered in this second review stage:

- Methodology--Was an acceptable methodology used to estimate emissions?
- Completeness--Have estimates been developed where information to do so is sufficient? For example, if an emission factor was identified for a source category/pollutant during the data collection phase and an estimate was not developed, verify that there are no activity data available. Verify that sources that one would expect to be significant, are included in the inventory. If these sources are insignificant sources in the 112(k) inventory, try to determine why.
- Allocations--Are the major/area and urban/rural proportions appropriate for the source category (group)?

6.0 BASE YEAR 1990 NATIONAL EMISSIONS BY POLLUTANT

In this chapter, the 1990 base year emissions estimates are presented for each potential Section 112(k) pollutant by source category. It is important to note that in many cases the source categories shown on Tables 6-1 through 6-40 are actually aggregates of many individual source categories. The aggregation of source categories was necessary because of the extensive number of individual source categories for which estimates were developed. Details on emissions and emission estimation methods for the individual source categories can be found in Appendices A and B. To best fulfill the requirements of Section 112(k) of the CAA, the total emissions are delineated into the urban/rural and major/area/mobile proportions.

Table 6-1. Base Year 1990 National Emission Estimates for 1,1,2,2-Tetrachloroethane

Pollutant: 1,1,2,2-Tetrachloroethane

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Landfills: Chemical Waste Emissions	42.770	52.273	0	29.674	N/A	29.674	0	6.056	N/A	6.056	35.730
Chemical Manufacturing: Alkalies and chlorine	16.344	19.975	2.723	6.353	N/A	9.076	0.870	2.030	N/A	2.899	11.975
Sewage Sludge Incineration	9.632	11.772	0	7.420	N/A	7.420	0	0.843	N/A	0.843	8.262
Tire Manufacturing	6.210	7.590	2.108	0.021	N/A	2.129	2.493	0.025	N/A	2.518	4.648
Rubber and plastic hose and belting manufacturing	5.000	6.111	0.385	0.004	N/A	0.389	3.696	0.037	N/A	3.733	4.122
Secondary Lead Smelting	0.517	0.632	0.190	0.175	N/A	0.364	0.037	0.034	N/A	0.071	0.436
Miscellaneous Organic Chemical Processes (SICs combined)	0.515	0.629	0.384	0	N/A	0.384	0.064	0	N/A	0.064	0.448
Industrial organic chemicals manufacturing	0.351	0.429	0.244	0	N/A	0.244	0.045	0	N/A	0.045	0.289
Plastics materials and resins manufacturing	0.250	0.306	0.156	0	N/A	0.156	0.063	0	N/A	0.063	0.219
Minerals, ground or treated production	0.106	0.129	0.001	0.010	N/A	0.011	0.001	0.019	N/A	0.020	0.031
Medical Waste Incineration	0.094	0.115	0.010	0.059	N/A	0.069	0.002	0.012	N/A	0.014	0.084
Petroleum Refining: Cyclic Crude and Intermediate Production	0.019	0.023	0.011	0	N/A	0.011	0.004	0	N/A	0.004	0.014
Hazardous Waste Incineration: Dedicated HWIs	0.009	0.011	0.006	0	N/A	0.006	0.001	0	N/A	0.001	0.007
Chemical Preparations (SICs combined)	0.005	0.006	0.004	0.0002	N/A	0.004	0.0001	0.00001	N/A	0.0001148	0.004
Portland Cement Manufacture: All Fuels	0.001	0.001	0.0005	0.0001	N/A	0.0006	0.0002	0.00003	N/A	0.0002	0.0008

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-2. Base Year 1990 National Emission Estimates for 1,1,2-Trichloroethane

Pollutant: 1,1,2-Trichloroethane

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Pulp and Paper: Non-Combustion Sources	376.00	50.00	108.51	0	N/A	108.51	105.81	0	N/A	105.81	214.32
Industrial Machinery and Electrical Equipment (SICs	134.00	17.82	53.67	17.89	N/A	71.56	24.74	8.25	N/A	32.99	104.55
Miscellaneous Organic Chemical Processes (SICs combined)	67.30	8.95	50.12	0	N/A	50.12	8.37	0	N/A	8.37	58.48
Chemical Manufacturing: Alkalies and chlorine	51.49	6.85	8.58	20.01	N/A	28.59	2.74	6.39	N/A	9.13	37.73
Utility Boilers: Coal Combustion, All Types	40.00	5.32	15.43	0	N/A	15.43	10.00	0	N/A	10.00	25.43
Industrial organic chemicals manufacturing	22.55	3.00	15.64	0	N/A	15.64	2.91	0	N/A	2.91	18.56
Instruments and Related Products (SICs combined)	17.74	2.36	0	15.40	N/A	15.40	0	0.95	N/A	0.95	16.36
Landfills: Chemical Waste Emissions	17.00	2.26	0	11.79	N/A	11.79	0	2.41	N/A	2.41	14.20
Chemical Preparations (SICs combined)	15.01	2.00	11.02	0.58	N/A	11.60	0.33	0.02	N/A	0.34	11.95
Tire Manufacturing	6.85	0.91	2.33	0.02	N/A	2.35	2.75	0.03	N/A	2.78	5.13
Paints and allied products	2.23	0.30	1.89	0	N/A	1.89	0.15	0	N/A	0.15	2.04
Iron and Steel Foundries: Steel Investment Foundries	1.04	0.14	0.44	0.54	N/A	0.98	0.01	0.01	N/A	0.02	1.00
Chemicals and allied products	0.51	0.07	0.41	0.02	N/A	0.44	0.06	0	N/A	0.06	0.50
Minerals, ground or treated production	0.16	0.02	0	0.02	N/A	0.02	0	0.03	N/A	0.03	0.05
Petroleum Refining: Cyclic Crude and Intermediate Production	0.08	0.01	0.04	0	N/A	0.04	0.01	0	N/A	0.01	0.06
Food Products (SICs combined)	0.04	0.01	0	0.02	N/A	0.02	0	0.02	N/A	0.02	0.04
Hazardous Waste Incineration: Dedicated HWIs	0.01	0	0.01	0	N/A	0.01	0	0	N/A	0.00	0.01

Table 6-2. Base Year 1990 National Emission Estimates for 1,1,2-Trichloroethane

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Other Miscellaneous (SICs combined)	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Portland Cement Manufacture: All Fuels	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-3. Base Year 1990 National Emission Estimates for 1,2-Dichloropropane

Pollutant: 1,2-Dichloropropane

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Instruments and Related Products (SICs combined)	195	29.65	0	169	N/A	169	0	10.49	N/A	10.49	180
Chemical Preparations (SICs combined)	139	21.20	102	5.39	N/A	108	3.04	0.16	N/A	3.20	111
Miscellaneous Organic Chemical Processes (SICs combined)	107	16.28	79.75	0	N/A	79.75	13.31	0	N/A	13.31	93.06
Chemical Manufacturing: Alkalies and chlorine	102	15.57	17.05	39.79	N/A	56.85	5.45	12.71	N/A	18.16	75.01
Gum and wood chemical	66.50	10.11	0.24	0.01	N/A	0.25	62.30	3.28	N/A	65.58	65.83
Landfills: Chemical Waste Emissions	24.47	3.72	0	16.98	N/A	16.98	0	3.46	N/A	3.46	20.44
Plastics materials and resins manufacturing	13.00	1.98	8.09	0	N/A	8.09	3.27	0	N/A	3.27	11.37
Tire Manufacturing	6.85	1.04	2.33	0.02	N/A	2.35	2.75	0.03	N/A	2.78	5.13
Industrial organic chemicals manufacturing	2.30	0.35	1.60	0	N/A	1.60	0.30	0	N/A	0.30	1.89
Petroleum Refining: (ALL PROCESSES)	0.67	0.10	0.49	0	N/A	0.49	0.14	0	N/A	0.14	0.63
Agricultural Chemicals	0.03	0	0.01	0	N/A	0.01	0.02	0	N/A	0.02	0.03

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-4. Base Year 1990 National Emission Estimates for 1,3-Butadiene

Pollutant: 1,3-Butadiene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Mobile Sources: On-Road Vehicles	36,920	47.06	N/A	N/A	18,272	18,272	N/A	N/A	6261.62	6,262	24,533
Mobile Sources: Non-Road Vehicles and Equipment - Other	16,628	21.19	N/A	N/A	11,537	11,537	N/A	N/A	2,355	2,355	13,891
Open Burning: Forest and Wildfires	10,733	13.68	0	665	N/A	665	1	1,566	N/A	1,566	2,231
Open Burning: Prescribed Burnings	9,198	11.72	0	1,354	N/A	1,354	2	2,067	N/A	2,067	3,421
Industrial organic chemicals manufacturing	1,069	1.36	741	1	N/A	741	138	0.00	N/A	138	879
Miscellaneous Organic Chemical Processes (SICs combined)	1,008	1.28	750	1	N/A	750	125	0.00	N/A	125	876
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	854	1.09	N/A	N/A	734	734	N/A	N/A	93.94	93.94	828
Synthetic rubber manufacturing	634	0.81	544	1	N/A	544	80.47	0.00	N/A	80.47	625
Secondary Lead Smelting	530	0.68	194	179	N/A	374	37.90	34.98	N/A	72.88	446
Plastics materials and resins manufacturing	522	0.67	325	0	N/A	325	131.41	0	N/A	131	456
Petroleum Refining: (ALL PROCESSES)	177	0.23	130	0	N/A	130	38.18	0	N/A	38.18	168
Agricultural Chemicals	106	0.13	40.82	0	N/A	40.82	64.92	0	N/A	64.92	106
Petroleum Refining: Cyclic Crude and Intermediate Production	35.95	0	20.41	0	N/A	20.41	6.99	0	N/A	6.99	27.39
Chemical Manufacturing: Alkalies and chlorine	23.80	0	3.96	9.25	N/A	13.22	1.27	2.96	N/A	4.22	17.44
Industrial inorganic chemical	8.36	0	6.04	0	N/A	6.04	0.25	0	N/A	0.25	6.29
Tire Manufacturing	6.04	0	2.05	0.02	N/A	2.07	2.42	0.02	N/A	2.45	4.52
Food Products (SICs combined)	2.90	0	0.07	1.38	N/A	1.45	0.07	1.25	N/A	1.31	2.76

Table 6-4. Base Year 1990 National Emission Estimates for 1,3-Butadiene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Electronic and other electric equipment manufacturing (SICs combined)	0.88	0	0.36	0.12	N/A	0.48	0.16	0.05	N/A	0.21	0.69
Chemical Preparations (SICs combined)	0.85	0	0.62	0.03	N/A	0.65	0.02	97006.00	N/A	0.02	0.67
Stationary Reciprocating IC Engines: Diesel - fired	0.72	0	0.34	0.14	N/A	0.48	0.07	0.03	N/A	0.11	0.59
Industrial gases manufacturing	0.25	0	0.22	0.01	N/A	0.23	0	0	N/A	0	0.23
Coke Ovens: By-product Recovery Plants	0.13	0	0.12	0	N/A	0.12	0.01	0	N/A	0.01	0.13

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-5. Base Year 1990 National Emission Estimates for 1,3-Dichloropropene

Pollutant: 1,3-Dichloropropene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Utility Boilers: Coal Combustion, All Types	40.00	52.75	15.43	0	N/A	15.43	10.00	0	N/A	10.00	25.43
Chemical Manufacturing: Alkalies and chlorine	22.75	30.00	3.79	8.84	N/A	12.63	1.21	2.83	N/A	4.04	16.67
Miscellaneous Organic Chemical Processes (SICs combined)	5.31	7.00	3.95	0	N/A	3.95	0.66	0	N/A	0.66	4.61
Industrial organic chemicals manufacturing	4.75	6.26	3.30	0	N/A	3.30	0.61	0	N/A	0.61	3.91
Industrial inorganic chemical	1.57	2.06	1.13	0	N/A	1.13	0.05	0	N/A	0.05	1.18
Secondary Lead Smelting	0.79	1.04	0.29	0.27	N/A	0.55	0.06	0.05	N/A	0.11	0.66
Agricultural Chemicals	0.43	0.57	0.17	0	N/A	0.17	0.26	0	N/A	0.26	0.43
Plastics materials and resins manufacturing	0.24	0.32	0.15	0	N/A	0.15	0.06	0	N/A	0.06	0.21

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-6. Base Year 1990 National Emission Estimates for 1,4-Dichlorobenzene

Pollutant: 1,4-Dichlorobenzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: p-Dichlorobenzene (1,4-)	294	35.17	228	0	N/A	228	0	0	N/A	0	228
Abrasive Grain (Media) Manufacturing	183	21.83	6.35	121	N/A	127	0.61	11.58	N/A	12.19	139
Chemical Manufacturing: Alkalies and chlorine	173	20.70	28.82	67.25	N/A	96.07	9.21	21.48	N/A	30.69	127
Miscellaneous Organic Chemical Processes (SICs combined)	70.75	8.46	52.68	0	N/A	52.68	8.79	0.00	N/A	8.79	61.48
Petroleum Refining: Cyclic Crude and Intermediate Production	42.36	5.07	24.05	0	N/A	24.05	8.23	0	N/A	8.23	32.28
Sewage Sludge Incineration	36.31	4.34	0	27.97	N/A	27.97	0	3.18	N/A	3.18	31.15
Chemical Manufacturing: p-Dichlorobenzene (Storage Emissions)	17.65	2.11	13.68	0	N/A	13.68	0	0	N/A	0	13.68
Cleaning Products (SICs combined)	7.75	0.93	5.18	0.27	N/A	5.45	1.63	0.09	N/A	1.72	7.17
Tire Manufacturing	6.62	0.79	2.25	0.02	N/A	2.27	2.66	0.03	N/A	2.68	4.95
Industrial organic chemicals manufacturing	3.43	0.41	2.38	0	N/A	2.38	0.44	0.00	N/A	0.44	2.82
Industrial Boilers: Bituminous and Lignite Coal Combustion	1.26	0.15	0.59	0.25	N/A	0.85	0.13	0.06	N/A	0.19	1.04
Structural Clay Products, Nec	0.23	0.03	0	0	N/A	0.00	0	0	N/A	0	0.00
Portland Cement Manufacture: All Fuels	0.02	0	0.01	0	N/A	0.01	0	0	N/A	0	0.01
Agricultural Chemicals	0.00	0	0	0	N/A	0.00	0	0	N/A	0	0.00
Industrial Boilers: Waste Oil Combustion	0.00	0	0	0	N/A	0.00	0	0	N/A	0	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-7. Base Year 1990 National Emission Estimates for Acetaldehyde

Pollutant: Acetaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers: Wood/Wood Residue Combustion	38,580	27.23	0	26,701	N/A	26,701	0	5,625	N/A	5,625	32,326
Mobile Sources: On-Road Vehicles	28,163	19.88	N/A	N/A	13,938	13,938	N/A	N/A	4,776	4,776	18,714
Open Burning: Forest and Wildfires	27,560	19.45	0	1,709	N/A	1,709	0	4,021	N/A	4,021	5,730
Open Burning: Prescribed Burnings	21,840	15.42	0	3,215	N/A	3,215	0	4,907	N/A	4,907	8,122
Pulp and Paper: Non-Combustion Sources	8,950	6.32	2,583	0	N/A	2,583	2,519	0	N/A	2,519	5,102
Mobile Sources: Non-Road Vehicles and Equipment - Other	6,394	4.51	N/A	N/A	4,436	4,436	N/A	N/A	905	905	5,342
Miscellaneous Organic Chemical Processes (SICs combined)	2,326	1.64	1,732	0	N/A	1,732	289	0	N/A	289	2,021
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	2,090	1.48	N/A	N/A	1,797	1,797	N/A	N/A	230	230	2,027
Formaldehyde, Acrolein, Acetaldehyde, Butyraldehyde	1,404	0.99	249	0	N/A	249	1,155	0	N/A	1,155	1,404
Industrial organic chemicals manufacturing	1,271	0.90	882	0	N/A	882	164	0	N/A	164	1,046
Plastics materials and resins manufacturing	964	0.68	600	0	N/A	600	243	0	N/A	243	843
Organic fibers, non-cellulosic manufacturing	831	0.59	485	25.53	N/A	511	34.70	1.83	N/A	36.53	547
Baker's Yeast Production	209	0.15	5.47	103.86	N/A	109	4.96	94.31	N/A	99.27	209
Food Products (SICs combined)	206	0	5.15	97.89	N/A	103	4.66	88.63	N/A	93.29	196
Industrial Boilers: Wood/Wood Residue Combustion	174	0	85.51	21.38	N/A	107	21.96	5.49	N/A	27.45	134

Table 6-7. Base Year 1990 National Emission Estimates for Acetaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining: Cyclic Crude and Intermediate Production	156	0	88.59	0	N/A	88.59	30.32	0	N/A	30.32	119
Industrial inorganic chemical	88.69	0	64.12	0	N/A	64.12	2.63	0	N/A	2.63	66.75
Pulp and Paper: Semichemical Recovery	84.00	0	6.46	0	N/A	6.46	12.92	0	N/A	12.92	19.38
Pulp and Paper: Sulfite Recovery	81.00	0	27.00	0.00	N/A	27.00	40.50	0	N/A	40.50	67.50
Instruments and Related Products (SICs combined)	70.50	0	0.00	61.22	N/A	61.22	0.00	3.79	N/A	3.79	65.01
Utility Boilers: Coal Combustion, All Types	58.00	0	22.37	0	N/A	22.37	14.50	0	N/A	14.50	36.87
Chemical Manufacturing: Organic Acid	53.39	0	53.39	0	N/A	53.39	0	0	N/A	0.00	53.39
Industrial Boilers: Bituminous and Lignite Coal Combustion	32.72	0	15.37	6.59	N/A	21.96	3.42	1.46	N/A	4.88	26.84
Unsupported plastics film and sheet manufacturing	27.05	0	14.94	0.15	N/A	15.09	5.03	0.05	N/A	5.08	20.17
Stationary Reciprocating IC Engines: Natural gas - fired	24.02	0	9.67	6.45	N/A	16.12	2.15	1.43	N/A	3.58	19.70
Stationary Reciprocating IC Engines: Diesel - fired	7.26	0	3.41	1.46	N/A	4.87	0.76	0.32	N/A	1.08	5.95
Utility Boilers: Oil Combustion, All Types	5.00	0	2.06	2.06	N/A	4.12	0.34	0.34	N/A	0.69	4.80
Reconstituted wood products (1987)	4.68	0	0.20	0	N/A	0.20	0.79	0	N/A	0.79	0.99
Chemical Manufacturing: Phenol Manufacturing	3.66	0	2.66	0	N/A	2.66	0.00	0	N/A	0.00	2.66
Industrial Turbines: Natural gas - fired	3.35	0	1.35	0.90	N/A	2.25	0.30	0.20	N/A	0.50	2.75
Chemical Preparations (SICs combined)	3.28	0	2.41	0.13	N/A	2.54	0.07	0	N/A	0.08	2.61
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	2.90	0	0.44	1.78	N/A	2.22	0.08	0.32	N/A	0.40	2.61

Table 6-7. Base Year 1990 National Emission Estimates for Acetaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutional Boilers: POTW Digester Gas Combustion	2.80	0	0	1.94	N/A	1.94		0.40	N/A	0.40	2.34
Secondary Lead Smelting	2.80	0	1.03	0.95	N/A	1.97	0.20	0.18	N/A	0.39	2.36
Tire Manufacturing	2.07	0	0.70	0.01	N/A	0.71	0.83	0.01	N/A	0.84	1.55
Chemical Manufacturing: Alkalies and chlorine	1.72	0	0.29	0.67	N/A	0.96	0.09	0.21	N/A	0.31	1.26
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	1.02	0	0.16	0.64	N/A	0.80	0.03	0.10	N/A	0.13	0.93
Sewage Sludge Incineration	0.13	0	0	0.10	N/A	0.10	0.00	0.01	N/A	0.01	0.11
Other Biological Incineration	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Municipal Waste Combustion	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-8. Base Year 1990 National Emission Estimates for Acrolein

Pollutant: Acrolein

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Open Burning: Forest and Wildfires	27,560	35.25	0	1,709	N/A	1,709	0	4,021	N/A	4,021	5,730
Open Burning: Prescribed Burnings	17,693	22.63	0	2,604	N/A	2,604	0	3,976	N/A	3,976	6,580
Structure Fires	9,563	12.23	0	6,634	N/A	6,634	0	1,354	N/A	1,354	7,989
Mobile Sources: On-Road Vehicles	8,152	10.43	N/A	N/A	4,034	4,034	N/A	N/A	1,383	1,383	5,417
Mobile Sources: Non-Road Vehicles and Equipment - Other	5,376	6.88	N/A	N/A	3,730	3,730	N/A	N/A	761	761	4,491
Chemical Manufacturing: Organic Acid	4,538	5.80	4,538	0	N/A	4,538	0	0	N/A	0	4,538
Residential Boilers: Wood/Wood Residue Combustion	3,927	5.02	0	2,718	N/A	2,718	0	573	N/A	573	3,290
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	989	1.26	N/A	N/A	851	851	N/A	N/A	109	109	959
Pulp and Paper: Non-Combustion Sources	283	0.36	81.67	0	N/A	81.67	79.64	0	N/A	79.64	161
Utility Boilers: Coal Combustion, All Types	28.00	0	10.80	0	N/A	10.80	7.00	0	N/A	7.00	17.80
Tire Manufacturing	19.05	0	6.47	0.07	N/A	6.53	7.65	0.08	N/A	7.72	14.26
Industrial Boilers: Bituminous and Lignite Coal Combustion	16.65	0	7.82	3.35	N/A	11.17	1.74	0.74	N/A	2.48	13.65
Stationary Reciprocating IC Engines: Natural gas - fired	14.57	0	5.87	3.91	N/A	9.78	1.30	0.87	N/A	2.17	11.95
Secondary Lead Smelting	11.10	0	4.07	3.76	N/A	7.82	0.79	0.73	N/A	1.53	9.35
Industrial organic chemicals manufacturing	8.67	0	6.02	0	N/A	6.02	1.12	0	N/A	1.12	7.14
Miscellaneous Organic Chemical Processes (SICs combined)	2.48	0	1.85	0	N/A	1.85	0.31	0	N/A	0.31	2.16

Table 6-8. Base Year 1990 National Emission Estimates for Acrolein

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining: Cyclic Crude and Intermediate Production	2.17	0	1.23	0	N/A	1.23	0.42	0	N/A	0.42	1.65
Commercial/Institutional Boilers: POTW Digester Gas Combustion	1.68	0	0	1.17	N/A	1.17	0	0.24	N/A	0.24	1.40
Stationary Reciprocating IC Engines: Diesel - fired	0.92	0	0.43	0.19	N/A	0.62	0.10	0.04	N/A	0.14	0.75
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.52	0	0.08	0.33	N/A	0.41	0.01	0.05	N/A	0.07	0.47
Industrial Boilers: Wood/Wood Residue Combustion	0.36	0	0.18	0.04	N/A	0.22	0.05	0.01	N/A	0.06	0.28
Industrial inorganic chemical	0.13	0	0.09	0	N/A	0.09	0	0	N/A		0.09
Chemical Manufacturing: Alkalies and chlorine	0.05	0	0.01	0.02	N/A	0.03	0	0.01	N/A	0.01	0.03
Plastics materials and resins manufacturing	0.01	0	0	0	N/A	0	0	0	N/A	0	0.01
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.01	0	0	0	N/A	0	0	0	N/A	0	0.01
Chemical Preparations (SICs combined)	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-9. Base Year 1990 National Emission Estimates for Acrylamide

Pollutant: Acrylamide

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Other Miscellaneous (SICs combined)	82.14	69.92	57.59	6.40	N/A	63.99	3.43	0.38	N/A	3.81	67.79
Industrial organic chemicals manufacturing	18.98	16.16	13.17	0	N/A	13.17	2.45	0	N/A	2.45	15.62
Miscellaneous Organic Chemical Processes (SICs combined)	10.91	9.29	8.12	0	N/A	8.12	1.36	0	N/A	1.36	9.48
Plastics materials and resins manufacturing	4.04	3.44	2.52	0	N/A	2.52	1.02	0	N/A	1.02	3.53
Chemical Preparations (SICs combined)	0.73	0.62	0.54	0.03	N/A	0.57	0.02	0	N/A	0.02	0.58
Synthetic rubber manufacturing	0.25	0.21	0.21	0	N/A	0.21	0.03	0	N/A	0.03	0.25
Industrial inorganic chemical	0.17	0.14	0.12	0	N/A	0.12	0	0	N/A	0.00	0.12
Paints and allied products	0.13	0.11	0.11	0	N/A	0.11	0.01	0	N/A	0.01	0.11
Fabricated metal products manufacturing (SICs	0.13	0.11	0.06	0.02	N/A	0.08	0.02	0.01	N/A	0.02	0.10
Petroleum Refining: Cyclic Crude and Intermediate Production	0.01	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Adhesives and Sealants (SICs combined)	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Paper coated and laminated, packaging	0.00	0	0	0	N/A	0.00	0	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-10. Base Year 1990 National Emission Estimates for Acrylonitrile

Pollutant: Acrylonitrile

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Plastics materials and resins manufacturing	728	27.32	453	0	N/A	453.12	183.26	0	N/A	183.26	636.38
Landfills: Chemical Waste Emissions	511	19.19	0	355	N/A	354.62	0	72.37	N/A	72.37	426.99
Miscellaneous Organic Chemical Processes (SICs combined)	475	17.83	354	0	N/A	353.64	59.03	0	N/A	59.03	412.66
Agricultural Chemicals	249	9.34	95.92	0	N/A	95.92	152.56	0	N/A	152.56	248.48
Publicly owned treatment works (POTWs)	201	7.53	0	139	N/A	139.19	0.00	28.41	N/A	28.41	167.60
Acrylic and Modacrylic Fiber Production	150	5.62	66.29	7.37	N/A	73.65	68.52	7.61	N/A	76.14	149.79
Industrial organic chemicals manufacturing	99.88	3.75	69.30	0	N/A	69.30	12.89	0	N/A	12.89	82.19
Synthetic rubber manufacturing	81.89	3.07	70.28	0	N/A	70.28	10.39	0	N/A	10.39	80.68
Nitrogenous fertilizers	49.00	1.84	1.93	0	N/A	1.93	45.99	0	N/A	45.99	47.92
Petroleum Refining: Cyclic Crude and Intermediate Production	46.36	1.74	26.31	0	N/A	26.31	9.01	0	N/A	9.01	35.32
Industrial inorganic chemical	25.39	0.95	18.36	0	N/A	18.36	0.75	0	N/A	0.75	19.11
Tire Manufacturing	15.01	0.56	5.10	0.05	N/A	5.15	6.03	0.06	N/A	6.09	11.23
Sewage Sludge Incineration	13.65	0.51	0	10.51	N/A	10.51	0	1.19	N/A	1.19	11.70
Ship Building & Repair (Surface Coating)	5.13	0.19	3.13	1.04	N/A	4.17	0.10	0.03	N/A	0.14	4.30
Industrial gases manufacturing	3.19	0.12	2.80	0.15	N/A	2.95	0	0	N/A	0	2.95
Surface active agents manufacturing	2.40	0.09	1.93	0.10	N/A	2.03	0.28	0.01	N/A	0.29	2.33
Plastics foam products manufacturing	1.87	0.07	0.98	0.01	N/A	0.99	0.56	0.01	N/A	0.56	1.56
Paints and allied products	1.74	0.07	1.48	0	N/A	1.48	0.12	0	N/A	0.12	1.60
Instruments and Related Products (SICs combined)	1.69	0.06	0	1.47	N/A	1.47	0	0.09	N/A	0.09	1.56

Table 6-10. Base Year 1990 National Emission Estimates for Acrylonitrile

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Alkalies and chlorine	0.67	0.03	0.11	0.26	N/A	0.37	0.04	0.08	N/A	0.12	0.49
Secondary Lead Smelting	0.63	0.02	0.23	0.21	N/A	0.44	0.04	0.04	N/A	0.09	0.53
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.62	0.02	0.50	0.03	N/A	0.53	0.05	0	N/A	0.05	0.58
Chemical Preparations (SICs combined)	0.41	0.02	0.30	0.02	N/A	0.32	0.01	0	N/A	0.01	0.33
Industrial Organic Chemicals	0.41	0.02	0.28	0	N/A	0.28	0.05	0	N/A	0.05	0.33
Fabricated rubber products	0.25	0.01	0.25	0	N/A	0.25	0	0	N/A	0	0.25
Fabricated metal products manufacturing (SICs	0.13	0	0.06	0.02	N/A	0.08	0.02	0.01	N/A	0.02	0.10
Plastics products manufacturing	0.13	0	0.07	0	N/A	0.07	0.03	0	N/A	0.03	0.10
Unsupported plastics film and sheet manufacturing	0.13	0	0.07	0	N/A	0.07	0.02	0	N/A	0.02	0.09
Structural Clay Products, Nec	0.01	0	0	0	N/A	0.00	0	0	N/A	0	0.00
Portland Cement Manufacture: All Fuels	0.00	0	0	0	N/A	0.00	0	0	N/A	0	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-11. Base Year 1990 National Emission Estimates for Arsenic Compounds (inorganic including arsine)

Pollutant: Arsenic & Compounds (inorganic including arsine)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Hazardous Waste Incineration: Dedicated HWIs	906	74.71	608	0	N/A	608	135	0	N/A	135	743
Primary Copper Smelting	76.55	6.31	3.19	9.56	N/A	12.75	10.69	32.08	N/A	42.77	55.51
Utility Boilers: Coal Combustion, All Types	54.00	4.45	20.83	0	N/A	20.83	13.50	0.00	N/A	13.50	34.33
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	27.63	2.28	4.32	17.27	N/A	21.59	0.70	2.81	N/A	3.51	25.10
Industrial Boilers: Bituminous and Lignite Coal Combustion	23.54	1.94	11.06	4.74	N/A	15.80	2.46	1.05	N/A	3.51	19.31
Primary nonferrous metals production	22.81	1.88	4.75	5.81	N/A	10.56	2.54	3.11	N/A	5.65	16.21
Industrial Boilers: Waste Oil Combustion	16.96	1.40	7.97	3.42	N/A	11.38	1.77	0.76	N/A	2.53	13.91
Pulp and Paper: Kraft Recovery Furnaces	14.00	1.15	4.04	0	N/A	4.04	3.94	0	N/A	3.94	7.98
Food and Agricultural Products: Cotton Ginning	12.94	1.07	0.00	0	N/A	0.00	0	0	N/A	0.00	0.00
Commercial/Institutional Boilers: Residual Oil Combustion	12.47	1.03	1.95	7.80	N/A	9.75	0.32	1.27	N/A	1.58	11.33
Pressed and blown glass and glassware manufacturing	9.48	0.78	0.09	1.62	N/A	1.70	0.20	3.78	N/A	3.98	5.69
Industrial Boilers: Wood/Wood Residue Combustion	7.73	0.64	3.80	0.95	N/A	4.75	0.98	0.24	N/A	1.22	5.97
Secondary Lead Smelting	5.53	0.46	2.03	1.87	N/A	3.90	0.40	0.36	N/A	0.76	4.66
Utility Boilers: Oil Combustion, All Types	5.00	0.41	2.06	2.06	N/A	4.12	0.34	0.34	N/A	0.69	4.80
Wood Treatment/Wood Preserving	3.45	0.28	0.00	1.33	N/A	1.33	0	0.72	N/A	0.72	2.04
Agricultural Chemicals	1.93	0.16	0.75	0	N/A	0.75	1.19	0.00	N/A	1.19	1.93
Other Secondary Nonferrous Metals Recovery	1.90	0.16	0.77	0.94	N/A	1.71	0.03	0.04	N/A	0.07	1.78

Table 6-11. Base Year 1990 National Emission Estimates for Arsenic Compounds (inorganic including arsine)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Residual Oil Combustion	1.83	0.15	0.86	0.37	N/A	1.23	0.19	0.08	N/A	0.27	1.50
Mobile Sources: On-Road Vehicles	1.51	0.12	N/A	N/A	0.75	0.75	N/A	N/A	0.26	0.26	1.00
Food Products (SICs combined)	1.43	0.12	0.04	0.68	N/A	0.71	0.03	0.61	N/A	0.65	1.36
Industrial inorganic chemical	1.19	0.10	0.86	0	N/A	0.86	0.04	0	N/A	0.04	0.90
Commercial/Institutional Boilers: Distillate Oil Combustion	1.02	0.08	0.16	0.64	N/A	0.80	0.03	0.10	N/A	0.13	0.93
Industrial Boilers: Natural Gas Combustion	0.89	0.07	0.42	0.18	N/A	0.60	0.09	0.04	N/A	0.13	0.73
Industrial Boilers: Distillate Oil Combustion	0.48	0.04	0.23	0.10	N/A	0.32	0.05	0.02	N/A	0.07	0.39
Sewage Sludge Incineration	0.26	0.02	0.00	0.20	N/A	0.20	0	0.02	N/A	0.02	0.23
Structural Clay Products, Nec	0.26	0.02	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Blast furnaces and steel mills	0.25	0.02	0.09	0.11	N/A	0.20	0.02	0.02	N/A	0.04	0.24
Primary smelting and refining of zinc	0.25	0.02	0.06	0.07	N/A	0.12	0.06	0.07	N/A	0.13	0.25
Medical Waste Incineration	0.21	0.02	0.02	0.13	N/A	0.15	0	0.03	N/A	0.03	0.19
Municipal Waste Combustion	0.19	0.02	0.14	0.01	N/A	0.15	0.02	0	N/A	0.02	0.17
Utility Turbines: Diesel - Fired	0.17	0.01	0.08	0.03	N/A	0.11	0.02	0.01	N/A	0.03	0.14
Utility Boilers: Natural Gas Combustion	0.16	0.01	0	0.09	N/A	0.09	0	0.04	N/A	0.04	0.13
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.13	0.01	0.02	0.08	N/A	0.10	0	0.01	N/A	0.02	0.12
Primary metal products manufacturing (SICs combined)	0.13	0.01	0.04	0.05	N/A	0.08	0.01	0.01	N/A	0.02	0.10
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.13	0.01	0.10	0.01	N/A	0.11	0.01	0	N/A	0.01	0.12
Commercial/Institutional Boilers: Anthracite Coal Combustion	0.05	0.00	0.01	0.03	N/A	0.04	0	0	N/A	0.01	0.04

Table 6-11. Base Year 1990 National Emission Estimates for Arsenic Compounds (inorganic including arsine)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Anthracite Coal Combustion	0.04	0.00	0.02	0.01	N/A	0.02	0	0	N/A	0.01	0.03
Storage batteries manufacturing	0.02	0.00	0	0.01	N/A	0.01	0	0.01	N/A	0.01	0.02
Pulp and Paper: Sulfite Recovery	0.01	0.00	0	0	N/A	0.00	0.01	0	N/A	0.01	0.01
Open Burning: Scrap Tires	0.01	0.00	0	0.01	N/A	0.01	0	0	N/A	0.00	0.01
Plastics products manufacturing	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.01
Miscellaneous Manufacturing (SICs combined)	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Custom compound purchased resins manufacturing	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Porcelain electrical supplies	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Converted paper and paperboard products, nec (disc)	0.01	0.00	0	0	N/A	0.01	0	0	N/A	0.00	0.01
Fabricated metal products manufacturing (SICs	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Miscellaneous Organic Chemical Processes (SICs combined)	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Gray and ductile iron foundries	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Softwood veneer and plywood	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Chromium Plating: Chromic Anodizing	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Sawmills and planing mills, general	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Petroleum Refining: (ALL PROCESSES)	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Industrial organic chemicals manufacturing	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Crematories	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-12. Base Year 1990 National Emission Estimates for Benzene

Pollutant: Benzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Mobile Sources: On-Road Vehicles	208,740	45.151	N/A	N/A	103,305	103,305	N/A	N/A	35,402	35,402	138,707
Mobile Sources: Non-Road Vehicles and Equipment - Other	89,998	19.467	N/A	N/A	62,441	62,441	N/A	N/A	12,744	12,744	75,184
Residential Boilers: Wood/Wood Residue Combustion	48,496	10.490	0	33,564	N/A	33,564	0	7,071	N/A	7,071	40,635
Open Burning: Forest and Wildfires	29,932	6.474	0	1,856	N/A	1,856	0	4,367	N/A	4,367	6,223
Open Burning: Prescribed Burnings	25,685	5.556	0	3,781	N/A	3,781	0	5,771	N/A	5,771	9,552
Oil and Gas Production: Glycol Dehydrators	18,200	3.937	4,174	5,764	N/A	9,937	2,072	2,862	N/A	4,934	14,871
Petroleum Refining: (ALL PROCESSES)	6,283	1.359	4,592	0	N/A	4,592	1,353	0	N/A	1,353	5,945
Blast furnaces and steel mills	5,768	1.248	2,095	2,560	N/A	4,655	440	538	N/A	978	5,633
Gasoline Distribution Stage II	5,579	1.207	387	3,484	N/A	3,871	79.0	711	N/A	790	4,661
Gasoline Distribution Stage I	5,184	1.121	210	1,894	N/A	2,104	121	1,090	N/A	1,212	3,316
Coke Ovens: Emergency Releases	4,250	0.919	3,811	0	N/A	3,811	293	0	N/A	293	4,104
Coke Ovens: Pushing, Quenching, and Battery Stacks	2,820	0.610	2,528	0	N/A	2,528	195	0	N/A	195	2,723
Miscellaneous Organic Chemical Processes (SICs combined)	2,053	0.444	1,529	0	N/A	1,529	255	0	N/A	255	1,784
Industrial organic chemicals manufacturing	1,915	0.414	1,328	0	N/A	1,328	247	0	N/A	247	1,576
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	1,110	0.240	N/A	N/A	958	958	N/A	N/A	118	118	1,076
Pulp and Paper: Kraft Recovery Furnaces	936	0.202	270	0	N/A	270	263	0	N/A	263	534
Industrial Boilers: Wood/Wood Residue Combustion	901	0.195	443	111	N/A	554	114	28.5	N/A	142	696

Table 6-12. Base Year 1990 National Emission Estimates for Benzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Marine Cargo Handling (disc. 1987, 4491)	651	1.41E-01	560	0	N/A	560	70.0	0	N/A	70.0	630
Pulp and Paper: Semichemical Recovery	637	1.38E-01	49.0	0	N/A	49.0	98.0	0	N/A	98.0	147
Petroleum Refining: Cyclic Crude and Intermediate Production	631	1.37E-01	358	0	N/A	358	123	0	N/A	123	481
Coke Ovens: Charging, Topside, & Door Leaks	396	8.56E-02	355	0	N/A	355	27.3	0	N/A	27.3	382
Stationary Reciprocating IC Engines: Natural gas - fired	280	6.05E-02	113	75.0	N/A	188	25.0	16.7	N/A	41.7	229
Cellulosic man-made fibers	264	5.72E-02	264	0	N/A	264	0	0	N/A	0	264
Coke Ovens: By-product Recovery Plants	237	5.12E-02	212	0	N/A	212	16.3	0	N/A	16.3	229
Landfills: Chemical Waste Emissions	224	4.84E-02	0	155	N/A	155	0	31.7	N/A	31.7	187
Secondary Lead Smelting	178	3.85E-02	65.2	60.2	N/A	125	12.7	11.7	N/A	24.5	150
Chemical Manufacturing: Alkalies and chlorine	170	3.68E-02	28.3	66.1	N/A	94.4	9.0	21.1	N/A	30.2	125
Plastics materials and resins manufacturing	99.1	2.14E-02	61.7	0	N/A	61.7	25.0	0	N/A	25.0	86.6
Other Miscellaneous (SICs combined)	83.7	1.81E-02	58.7	6.52	N/A	65.2	3.5	0.388	N/A	3.88	69.0
Synthetic rubber manufacturing	83.3	1.80E-02	71.5	0	N/A	71.5	10.6	0	N/A	10.6	82.0
Commercial/Institutional Boilers: POTW Digester Gas Combustion	75.6	1.64E-02	0	52.5	N/A	52.5	0	10.7	N/A	10.7	63.2
Organic fibers, non-cellulosic manufacturing	66.6	1.44E-02	38.9	2.05	N/A	41.0	2.78	0.146	N/A	2.93	43.9
Pulp and Paper: Non-Combustion Sources	62.0	1.34E-02	17.9	0	N/A	17.9	17.4	0	N/A	17.4	35.3
Transportation Equipment Manufacture (SICs	45.2	9.79E-03	22.4	7.48	N/A	29.9	5.99	2.00	N/A	7.99	37.9

Table 6-12. Base Year 1990 National Emission Estimates for Benzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Carbon Black Manufacture	35.9	7.77E-03	2.19	5.11	N/A	7.30	6.28	14.7	N/A	20.9	28.2
Industrial Boilers: Coal, All Types	34.7	7.50E-03	16.3	6.98	N/A	23.3	3.62	1.55	N/A	5.17	28.4
Stationary Reciprocating IC Engines: Diesel - fired	21.6	4.68E-03	10.2	4.35	N/A	14.5	2.26	0.967	N/A	3.22	17.7
Utility Boilers: Coal Combustion, All Types	21.0	4.54E-03	8.10	0	N/A	8.10	5.25	0	N/A	5.25	13.3
Food Products (SICs combined)	20.4	4.42E-03	0.511	9.70	N/A	10.2	0.462	8.79	N/A	9.25	19.5
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	15.0	3.25E-03	2.30	9.20	N/A	11.5	0.410	1.64	N/A	2.05	13.6
Structural Clay Products, Nec	14.5	3.14E-03	0	0	N/A	0	0	0	N/A	0	0
Paints and allied products	9.50	2.05E-03	8.07	0	N/A	8.07	0.642	0	N/A	0.642	8.71
Chemicals and allied products	8.50	1.84E-03	6.85	0.360	N/A	7.21	0.973	0.0512	N/A	1.02	8.23
Sewage Sludge Incineration	8.26	1.79E-03	0	6.36	N/A	6.36	0	0.723	N/A	0.723	7.08
Ship Building & Repair (Surface Coating)	8.13	1.76E-03	4.95	1.65	N/A	6.60	0.162	0.054	N/A	0.216	6.82
Lubricating oils and greases	7.72	1.67E-03	7.18	0	N/A	7.18	0.432	0	N/A	0.432	7.61
Agricultural Chemicals	7.29	1.58E-03	2.81	0	N/A	2.81	4.47	0	N/A	4.47	7.28
Construction (SICs combined)	7.13	1.54E-03	2.30	0	N/A	2.30	0	0	N/A	0	2.30
Chemical Preparations (SICs combined)	6.99	1.51E-03	5.14	0.270	N/A	5.41	0.153	8.03E-03	N/A	0.161	5.57
Paper coated and laminated, packaging	5.51	1.19E-03	3.74	0.370	N/A	4.11	1.23	0.122	N/A	1.35	5.46
Paper coating and glazing manufacturing	5.50	1.19E-03	3.61	0.357	N/A	3.97	1.40	0.138	N/A	1.54	5.50
Tire Manufacturing	4.95	1.07E-03	1.68	0.0170	N/A	1.70	1.99	0.0201	N/A	2.01	3.70
Medical Waste Incineration	4.26	9.21E-04	0.47	2.66	N/A	3.14	0.096	0.545	N/A	0.641	3.78
Industrial inorganic chemical	4.14	8.96E-04	3.00	0	N/A	3.00	0.123	0	N/A	0.123	3.12
Utility Turbines: Diesel - Fired	3.35	7.25E-04	1.57	0.674	N/A	2.25	0.350	0.150	N/A	0.499	2.75
Industrial Turbines: Natural gas - fired	3.30	7.14E-04	1.33	0.886	N/A	2.21	0.295	0.197	N/A	0.492	2.71

Table 6-12. Base Year 1990 National Emission Estimates for Benzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Iron and Steel Foundries: All Processes	3.00	6.49E-04	0	0	N/A	0	2.85	0	N/A	2.85	2.85
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	2.32	5.02E-04	0.363	1.45	N/A	1.81	0.0589	0.236	N/A	0.295	2.11
Industrial Machinery and Electrical Equipment (SICs	2.10	4.53E-04	0.839	0.280	N/A	1.12	0.387	0.129	N/A	0.516	1.64
Miscellaneous Manufacturing (SICs combined)	2.05	4.44E-04	1.14	0.201	N/A	1.34	0.241	0.0425	N/A	0.284	1.63
Utility Boilers: Natural Gas Combustion	1.80	3.89E-04	0	1.01	N/A	1.01	0	0.492	N/A	0.492	1.50
Petroleum Refining: Other Petroleum Products	1.57	3.40E-04	0.785	0.785	N/A	1.57	0	0	N/A	0	1.57
Asphalt paving mixtures and blocks	1.41	3.04E-04	1.41	0	N/A	1.41	0	0	N/A	0	1.41
Commercial/Institutional Boilers: Residual Oil Combustion	1.38	2.98E-04	0.216	0.863	N/A	1.08	0.0351	0.140	N/A	0.175	1.25
Wood Treatment/Wood Preserving	1.38	2.97E-04	0	0.529	N/A	0.529	0	0.285	N/A	0.285	0.814
Electronic and other electric equipment manufacturing (SICs combined)	1.21	2.63E-04	0.502	0.167	N/A	0.669	0.215	0.0718	N/A	0.287	0.957
Hazardous Waste Incineration: Dedicated HWIs	0.881	1.91E-04	0.591	0	N/A	0.591	0.131	0	N/A	0.131	0.723
Utility Boilers: Oil Combustion, All Types	0.880	1.90E-04	0.362	0.362	N/A	0.725	0.0604	0.0604	N/A	0.121	0.846
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.850	1.84E-04	0.685	0.0360	N/A	0.721	0.0682	3.59E-03	N/A	0.0717	0.793
Asphalt Production - Other	0.342	7.40E-05	0.332	0	N/A	0.332	3.45E-03	0	N/A	3.45E-03	0.335
Industrial Boilers: Residual Oil Combustion	0.296	6.41E-05	0.139	0.0597	N/A	0.199	0.0309	0.013	N/A	0.0442	0.243
Minerals, ground or treated production	0.278	6.01E-05	1.43E-03	0.027	N/A	0.0286	2.65E-03	0.0503	N/A	0.0530	0.0816

Table 6-12. Base Year 1990 National Emission Estimates for Benzene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Office furniture, except wood manufacturing	0.250	5.41E-05	0.0909	0	N/A	0.0909	0.157	0	N/A	0.157	0.247
Utility Turbines: Natural gas - fired	0.180	3.89E-05	0.0725	0.0483	N/A	0.121	0.0161	0.0107	N/A	0.0268	0.148
Portland Cement Manufacture: All Fuels	0.148	3.19E-05	0.073	0.0128	N/A	0.0855	0.0234	4.14E-03	N/A	0.0276	0.113
Fabricated metal products manufacturing (SICs	0.135	2.92E-05	0.064	0.0212	N/A	0.0848	0.0173	5.75E-03	N/A	0.0230	0.108
Primary metal products manufacturing (SICs combined)	0.125	2.70E-05	0.0358	0.044	N/A	0.0797	7.43E-03	9.08E-03	N/A	0.0165	0.0962
Landfills: Gas Flares	0.0550	1.19E-05	0	0.0382	N/A	0.0382	0	7.79E-03	N/A	7.79E-03	0.0459
Nonmetallic mineral products	2.50E-03	5.41E-07	2.32E-05	4.40E-04	N/A	4.63E-04	1.66E-05	3.16E-04	N/A	3.33E-04	7.96E-04
Gray and ductile iron foundries	2.50E-03	5.41E-07	4.79E-04	5.85E-04	N/A	1.06E-03	2.13E-04	2.61E-04	N/A	4.74E-04	1.54E-03
Folding paperboard boxes (1987)	5.00E-04	1.08E-07	2.26E-04	2.24E-05	N/A	2.49E-04	1.69E-04	1.67E-05	N/A	1.86E-04	4.35E-04

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-13. Base Year 1990 National Emission Estimates for Beryllium Compounds

Pollutant: Beryllium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Utility Boilers: Coal Combustion, All Types	6.600	37.822	2.55	0	N/A	2.546	2	0	N/A	1.650	4.196
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	3.760	21.547	0.588	2.351	N/A	2.938	0	0.382	N/A	0.478	3.416
Industrial Boilers: Bituminous and Lignite Coal Combustion	1.206	6.909	0.566	0.243	N/A	0.809	0	0.054	N/A	0.180	0.989
Industrial Boilers: Wood/Wood Residue Combustion	1.036	5.934	0.509	0.127	N/A	0.636	0	0.033	N/A	0.163	0.800
Commercial/Institutional Boilers: Residual Oil Combustion	0.790	4.527	0.123	0.494	N/A	0.617	0	0.080	N/A	0.100	0.718
Commercial/Institutional Boilers: Distillate Oil Combustion	0.609	3.490	0.0952	0.381	N/A	0.476	0	0.062	N/A	0.077	0.553
Pulp and Paper: Kraft Recovery Furnaces	0.600	3.438	0.173	0	N/A	0.173	0	0	N/A	0.169	0.342
Primary nonferrous metals production	0.553	3.166	0.115	0.141	N/A	0.256	0	0.075	N/A	0.137	0.393
Industrial Boilers: Waste Oil Combustion	0.531	3.043	0.249	0.107	N/A	0.356	0	0.024	N/A	0.079	0.436
Utility Boilers: Oil Combustion, All Types	0.450	2.579	0.185	0.185	N/A	0.371	0	0.0309	N/A	0.0618	0.432
Primary Copper Smelting	0.350	2.006	0.0146	0.0437	N/A	0.0583	0	0.147	N/A	0.196	0.254
Industrial Boilers: Distillate Oil Combustion	0.287	1.643	0.135	0.058	N/A	0.192	0	0.0128	N/A	0.0427	0.235
Primary metal products manufacturing (SICs combined)	0.237	1.355	0.0678	0.0829	N/A	0.151	0	0.0172	N/A	0.0312	0.182
Utility Boilers: Coke	0.210	1.203	0.188	0	N/A	0.188	0	0	N/A	0.0145	0.203
Commercial/Institutional Boilers: Anthracite Coal Combustion	0.0760	0.436	0.0119	0.0475	N/A	0.0594	0	7.72E-03	N/A	9.65E-03	0.0690
Industrial Boilers: Anthracite Coal Combustion	0.0605	0.346	0.0284	0.0122	N/A	0.0406	0	2.70E-03	N/A	9.01E-03	0.0496

Table 6-13. Base Year 1990 National Emission Estimates for Beryllium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Residual Oil Combustion	0.0385	0.221	0.0181	7.75E-03	N/A	0.0258	0	1.72E-03	N/A	5.74E-03	0.0316
Municipal Waste Combustion	0.0169	0.097	0.0124	6.52E-04	N/A	0.0130	0	1.07E-04	N/A	2.13E-03	0.0152
Structural Clay Products, Nec	0.0140	0.080	0	0	N/A	0	0	0	N/A	0	0
Utility Turbines: Diesel - Fired	0.0120	0.069	5.64E-03	2.42E-03	N/A	8.05E-03	0	5.37E-04	N/A	1.79E-03	0.0098
Medical Waste Incineration	5.78E-03	0.033	6.39E-04	3.62E-03	N/A	4.26E-03	0	7.40E-04	N/A	8.71E-04	5.13E-03
Sewage Sludge Incineration	4.04E-03	0.023	0	3.11E-03	N/A	3.11E-03	0	3.54E-04	N/A	3.54E-04	3.47E-03
Electronic and other electric equipment manufacturing (SICs combined)	3.00E-03	0.017	1.24E-03	4.14E-04	N/A	1.65E-03	0	1.77E-04	N/A	7.10E-04	2.36E-03
Blast furnaces and steel mills	2.00E-03	0.011	7.26E-04	8.88E-04	N/A	1.61E-03	0	1.87E-04	N/A	3.39E-04	1.95E-03
Miscellaneous Organic Chemical Processes (SICs combined)	5.00E-04	0.003	3.72E-04	0	N/A	3.72E-04	0	0	N/A	6.22E-05	4.35E-04
Crematories	1.50E-07	8.60E-07	0	1.04E-07	N/A	1.04E-07	0	2.12E-08	N/A	2.12E-08	1.25E-07

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-14. Base Year 1990 National Emission Estimates for Bis(2-ethylhexyl)phthalate

Pollutant: Bis(2-ethylhexyl)phthalate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Transportation Equipment Manufacture (SICs	255	31.2	127	42.204	N/A	169	33.79	11.262	N/A	45.050	213.866
Wood household furniture manufacturing	127	15.5	21.8	0	N/A	21.835	8.01	0	N/A	8.007	29.842
Plastics products manufacturing	58.4	7.133	32.8	0.332	N/A	33.180	13.0	0.131	N/A	13.106	46.286
Unsupported plastics film and sheet manufacturing	56.1	6.855	31.0	0.313	N/A	31.288	10.4	0.105	N/A	10.538	41.825
Miscellaneous Manufacturing (SICs combined)	38.4	4.688	21.3	3.763	N/A	25.086	4.51	0.795	N/A	5.300	30.386
Utility Boilers: Coal Combustion, All Types	35.0	4.278	13.5	0	N/A	13.500	8.75	0	N/A	8.750	22.250
Secondary Lead Smelting	34.9	4.266	12.8	11.808	N/A	24.601	2.50	2.303	N/A	4.799	29.400
Other Miscellaneous (SICs combined)	31.5	3.844	22.0	2.450	N/A	24.500	1.31	0.146	N/A	1.458	25.958
Commercial printing, lithographic	25.0	3.060	19.0	1.883	N/A	20.920	3.74	0.370	N/A	4.113	25.033
Fabricated metal products, nec	23.9	2.927	15.1	5.025	N/A	20.100	1.44	0.480	N/A	1.921	22.020
Miscellaneous Plastics Products	16.5	2.021	6.57	0.066	N/A	6.639	6.44	0.065	N/A	6.502	13.142
Structural Clay Products, Nec	9.70	1.186	0	0	N/A	0	0	0	N/A	0	0
Textiles (SICs combined)	9.60	1.173	1.99	1.992	N/A	3.985	0.39	0.393	N/A	0.786	4.771
Industrial organic chemicals manufacturing	7.51	0.917	5.21	0	N/A	5.208	0.97	0	N/A	0.969	6.177
Wood office furniture	7.50	0.917	0.13	0	N/A	0.134	0.04	0	N/A	0.038	0.171
Unsupported plastics profile shapes (1987)	7.35	0.898	6.85	0.069	N/A	6.918	0.02	0.000	N/A	0.019	6.937
Sewage Sludge Incineration	6.43	0.786	0	4.951	N/A	4.951	0	0.562	N/A	0.562	5.514
Wood Products	6.39	0.781	0.47	0	N/A	0.471	3.05	0	N/A	3.047	3.518
Plastics foam products manufacturing	6.21	0.759	3.26	0.033	N/A	3.293	1.85	0.019	N/A	1.868	5.161
Synthetic rubber manufacturing	6.03	0.738	5.18	0	N/A	5.179	0.77	0	N/A	0.766	5.945

Table 6-14. Base Year 1990 National Emission Estimates for Bis(2-ethylhexyl)phthalate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Upholstered household furniture	5.92	0.724	0	0	N/A	0	0.00	0	N/A	0.001	0.001
Paints and allied products	5.79	0.708	4.92	0	N/A	4.916	0.39	0	N/A	0.391	5.307
Pharmaceuticals Preparations and Manufacturing (SICs combined)	4.73	0.579	3.81	0.201	N/A	4.014	0.38	0.020	N/A	0.400	4.414
Fabricated metal products manufacturing (SICs	4.47	0.546	2.10	0.702	N/A	2.806	0.57	0.190	N/A	0.761	3.568
Fabricated rubber products	4.40	0.538	4.36	0.044	N/A	4.401	0	0	N/A	0	4.401
Rubber and plastic hose and belting manufacturing	4.36	0.533	0.34	0.003	N/A	0.339	3.22	0.033	N/A	3.253	3.592
Industrial Boilers: Bituminous and Lignite Coal Combustion	4.19	0.512	1.97	0.844	N/A	2.812	0.44	0.187	N/A	0.625	3.437
Plastics materials and resins manufacturing	3.64	0.445	2.27	0	N/A	2.267	0.92	0	N/A	0.917	3.183
Organic fibers, non-cellulosic manufacturing	3.26	0.399	1.91	0.100	N/A	2.005	0.14	0.007	N/A	0.143	2.149
Custom compound purchased resins manufacturing	1.59	0.195	1.19	0.012	N/A	1.201	0.13	0.001	N/A	0.128	1.329
Electronic and other electric equipment manufacturing (SICs combined)	1.25	0.153	0.5169	0.172	N/A	0.689	0.22	0.074	N/A	0.296	0.985
Tire Manufacturing	1.13	0.138	0.3836	0.004	N/A	0.387	0.45	0.005	N/A	0.458	0.846
Industrial Boilers: Waste Oil Combustion	0.649	0.079	0.3049	0.131	N/A	0.436	0.0677	0.0290	N/A	0.0968	0.532
Instruments and Related Products (SICs combined)	0.635	0.078	0	0.551	N/A	0.551	0	0.0342	N/A	0.0342	0.586
Adhesives and Sealants (SICs combined)	0.442	0.054	0.3972	0.0209	N/A	0.418	7.52E-03	0.000	N/A	7.91E-03	0.426
Rubber and plastic footwear	0.375	0.046	0.2475	2.50E-03	N/A	0.250	0	0	N/A	0	0.250
Paper Coated & Laminated, Packaging	0.375	0.046	0.1794	0.0177	N/A	0.197	0.1619	0.0160	N/A	0.178	0.375
Electrical industrial apparatus, nec	0.270	0.033	1.86E-05	6.20E-06	N/A	2.48E-05	8.12E-03	2.71E-03	N/A	0.0108	0.0108

Table 6-14. Base Year 1990 National Emission Estimates for Bis(2-ethylhexyl)phthalate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Primary metal products manufacturing (SICs combined)	0.260	0.032	0.0746	0.0911	N/A	0.166	0.0155	0.0189	N/A	0.0343	0.200
Agricultural Chemicals	0.250	0.031	0.0964	0	N/A	0.096	0.1533	0	N/A	0.153	0.250
Wood kitchen cabinets	0.250	0.031	0.0121	0	N/A	0.012	0.0191	0	N/A	0.0191	0.0312
Converted paper and paperboard products, nec (disc)	0.250	0.031	0.2275	0.0225	N/A	0.250	0	0	N/A	0	0.250
Millwork	0.230	0.028	0.0245	0	N/A	0.025	0.1987	0	N/A	0.199	0.223
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.130	0.016	0.0203	0.0813	N/A	0.102	3.30E-03	0.0132	N/A	0.0165	0.118
Commercial printing, gravure	0.125	0.015	0.109	0.0108	N/A	0.120	4.76E-03	4.71E-04	N/A	5.23E-03	0.125
Industrial inorganic chemical	0.125	0.015	0.0904	0	N/A	0.0904	3.71E-03	0	N/A	3.71E-03	0.0941
Abrasive Grain (Media) Manufacturing	0.125	0.015	4.35E-03	0.083	N/A	0.0870	4.18E-04	7.93E-03	N/A	8.35E-03	0.0954
Rubber and plastic footwear	0.125	0.015	0	0	N/A	0	0	0	N/A	0	0
Concrete products	0.119	0.014	5.81E-03	0.110	N/A	0.116	6.42E-05	1.22E-03	N/A	1.28E-03	0.118
Industrial Machinery and Electrical Equipment (SICs	0.024	2.87E-03	9.41E-03	3.14E-03	N/A	0.0125	4.34E-03	1.45E-03	N/A	5.79E-03	0.0183
Mechanical rubber goods manufacturing	1.95E-02	2.38E-03	0.0137	1.38E-04	N/A	0.0138	0	0	N/A	0	0.0138
Converted Paper Products	1.85E-02	2.26E-03	0.0168	1.67E-03	N/A	0.0185	0	0	N/A	0	0.0185
Commercial printing, letterpress, and screen (disc	8.00E-03	9.78E-04	7.28E-03	7.20E-04	N/A	8.00E-03	0	0	N/A	0	8.00E-03
Plastics products inc. plastic bottles	5.00E-03	6.11E-04	4.95E-03	5.00E-05	N/A	5.00E-03	0	0	N/A	0	5.00E-03
Chemical Preparations (SICs combined)	3.50E-03	4.28E-04	2.57E-03	1.35E-04	N/A	2.71E-03	7.63E-05	4.02E-06	N/A	8.04E-05	2.79E-03
Nonmetallic mineral products	2.50E-03	3.06E-04	2.32E-05	4.40E-04	N/A	4.63E-04	1.66E-05	3.16E-04	N/A	3.33E-04	7.96E-04
Paper coated and laminated, packaging	2.50E-03	3.06E-04	1.70E-03	1.68E-04	N/A	1.87E-03	5.58E-04	5.52E-05	N/A	6.13E-04	2.48E-03
Paper coating and glazing manufacturing	2.50E-03	3.06E-04	1.64E-03	1.62E-04	N/A	1.80E-03	6.35E-04	6.28E-05	N/A	6.98E-04	2.50E-03
Asphalt paving mixtures and blocks	2.50E-03	3.06E-04	2.50E-03	0	N/A	2.50E-03	0	0	N/A	0	2.50E-03

Table 6-14. Base Year 1990 National Emission Estimates for Bis(2-ethylhexyl)phthalate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Gaskets, packing and sealing devices manufacturing	2.50E-03	3.06E-04	1.24E-03	1.25E-05	N/A	1.25E-03	1.47E-06	1.48E-08	N/A	1.48E-06	1.26E-03
Petroleum Refining: Cyclic Crude and Intermediate Production	2.00E-03	2.44E-04	1.14E-03	0	N/A	1.14E-03	3.89E-04	0	N/A	3.89E-04	1.52E-03
Chemicals and allied products	5.00E-04	6.11E-05	4.03E-04	2.12E-05	N/A	4.24E-04	5.72E-05	3.01E-06	N/A	6.03E-05	4.84E-04

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-15. Base Year 1990 National Emission Estimates for Cadmium Compounds

Pollutant: Cadmium & Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Secondary Lead Smelting	89.8	38.547	32.9	30.4	N/A	63.3	6.42	5.93	N/A	12.3	75.6
Commercial/Institutional Boilers: Residual Oil Combustion	21.3	9.135	3.33	13.3	N/A	16.6	0.541	2.16	N/A	2.70	19.3
Primary nonferrous metals production	21.2	9.102	4.42	5.40	N/A	9.816	2.37	2.89	N/A	5.26	15.1
Primary Copper Smelting	16.2	6.958	0.67	2.02	N/A	2.699	2.26	6.79	N/A	9.06	11.8
Municipal Waste Combustion	5.60	2.403	4.10	0.216	N/A	4.318	0.672	0.035	N/A	0.707	5.03
Medical Waste Incineration	4.83	2.072	0.533	3.02	N/A	3.556	0.109	0.618	N/A	0.727	4.28
Secondary Copper Smelting	4.80	2.060	1.94	2.37	N/A	4.318	0.0818	0.100	N/A	0.182	4.50
Cadmium Refining and Cadmium Oxide Production	4.66	1.998	1.98	2.42	N/A	4.405	0.113	0.138	N/A	0.250	4.66
Industrial inorganic chemical	4.62	1.985	3.34	0	N/A	3.343	0.137	0	N/A	0.137	3.48
Cadmium Stabilizers Production	3.67	1.575	3.67	0	N/A	3.670	0	0	N/A	0	3.67
Industrial organic chemicals manufacturing	3.54	1.521	2.46	0	N/A	2.458	0.457	0	N/A	0.457	2.92
Portland Cement Manufacture: All Fuels	3.30	1.417	1.63	0.287	N/A	1.912	0.524	0.093	N/A	0.617	2.53
Pulp and Paper: Kraft Recovery Furnaces	3.30	1.417	0.95	0	N/A	0.952	0.929	0	N/A	0.929	1.88
Industrial Boilers: Bituminous and Lignite Coal Combustion	2.93	1.257	1.38	0.589	N/A	1.965	0.306	0.131	N/A	0.437	2.40
Commercial/Institutional Boilers: Distillate Oil Combustion	2.68	1.150	0.419	1.676	N/A	2.094	0.0681	0.272	N/A	0.340	2.43
Custom compound purchased resins manufacturing	2.29	0.981	1.70	0.017	N/A	1.721	0.181	0.002	N/A	0.183	1.90
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	2.20	0.944	0.344	1.375	N/A	1.719	0.0559	0.224	N/A	0.279	2.00
Inorganic Pigments: Cadmium Pigments in Plastics	2.16	0.927	1.91	0	N/A	1.91	2.59E-03	0	N/A	2.59E-03	1.91

Table 6-15. Base Year 1990 National Emission Estimates for Cadmium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Waste Oil Combustion	2.11	0.905	0.991	0.425	N/A	1.416	0.220	0.094	N/A	0.314	1.73
Primary metal products manufacturing (SICs combined)	2.05	0.882	0.589	0.720	N/A	1.309	0.122	0.149	N/A	0.271	1.58
Industrial Boilers: Wood/Wood Residue Combustion	1.92	0.824	0.944	0.236	N/A	1.180	0.242	0.061	N/A	0.303	1.48
Utility Boilers: Coal Combustion, All Types	1.90	0.816	0.733	0	N/A	0.733	0.475	0	N/A	0.475	1.21
Chromium Plating: Chromic Anodizing	1.78	0.763	0.0759	1.443	N/A	1.519	4.93E-03	0.094	N/A	0.0986	1.62
Inorganic Pigments Manufacturing	1.71	0.734	1.46	0	N/A	1.460	0.250	0	N/A	0.250	1.71
Utility Boilers: Oil Combustion, All Types	1.70	0.730	0.700	0.700	N/A	1.400	0.117	0.117	N/A	0.233	1.63
Secondary Zinc Production	1.65	0.708	0.668	0.816	N/A	1.484	0.028	0.034	N/A	0.063	1.55
Residential Boilers: Bituminous and Lignite Coal Combustion	1.65	0.706	0	1.142	N/A	1.142	0	0.233	N/A	0.233	1.37
Sewage Sludge Incineration	1.58	0.679	0	1.218	N/A	1.218	0	0.138	N/A	0.138	1.36
Iron and Steel Production	1.52	0.654	0	0	N/A	0	1.445	0	N/A	1.445	1.44
Fabricated metal products manufacturing (SICs	1.38	0.593	0.651	0.217	N/A	0.868	0.177	0.0589	N/A	0.235	1.10
Industrial Boilers: Distillate Oil Combustion	1.26	0.541	0.593	0.254	N/A	0.846	0.132	0.0564	N/A	0.188	1.03
Primary smelting and refining of zinc	1.20	0.514	0.267	0.326	N/A	0.593	0.272	0.332	N/A	0.605	1.20
Industrial Turbines: Natural gas - fired	1.17	0.502	0.471	0.314	N/A	0.785	0.105	0.0698	N/A	0.174	0.960
Cadmium Stabilizers for Plastics	1.15	0.494	0.767	0	N/A	0.767	0	0	N/A	0	0.767
Blast furnaces and steel mills	1.01	0.435	0.368	0.450	N/A	0.818	0.0774	0.095	N/A	0.172	0.990
Utility Boilers: Coke	0.970	0.416	0.870	0	N/A	0.870	0.0669	0	N/A	0.0669	0.937
Other Secondary Nonferrous Metals Recovery	0.949	0.407	0.384	0.469	N/A	0.854	0.0162	0.0198	N/A	0.0359	0.890
Industrial Boilers: Residual Oil Combustion	0.551	0.237	0.259	0.111	N/A	0.370	0.0575	0.0246	N/A	0.0822	0.452

Table 6-15. Base Year 1990 National Emission Estimates for Cadmium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers: Wood/Wood Residue Combustion	0.372	0.160	0	0.258	N/A	0.258	0	0.0543	N/A	0.0543	0.312
Storage batteries manufacturing	0.348	0.149	0.0106	0.202	N/A	0.212	0.005	0.102	N/A	0.107	0.319
Plastics products manufacturing	0.260	0.112	0.146	1.48E-03	N/A	0.148	0.0578	5.84E-04	N/A	0.0584	0.206
Miscellaneous Organic Chemical Processes (SICs combined)	0.260	0.112	0.194	0	N/A	0.194	0.0323	0	N/A	0.0323	0.226
Paints and allied products	0.256	0.110	0.217	0	N/A	0.217	0.0173	0	N/A	0.0173	0.235
Pressed and blown glass and glassware manufacturing	0.255	0.109	2.29E-03	0.044	N/A	0.046	5.35E-03	0.102	N/A	0.1071	0.153
Electronic and other electric equipment manufacturing (SICs combined)	0.255	0.109	0.105	0.035	N/A	0.141	0.0452	0.0151	N/A	0.0603	0.201
Transportation Equipment Manufacture (SICs	0.255	0.109	0.126	0.042	N/A	0.169	0.034	0.0113	N/A	0.0450	0.214
Other Miscellaneous (SICs combined)	0.250	0.107	0.175	0.019	N/A	0.195	0.0104	1.16E-03	N/A	0.0116	0.206
Miscellaneous Manufacturing (SICs combined)	0.250	0.107	0.139	0.025	N/A	0.164	0.0294	5.18E-03	N/A	0.0346	0.198
Fabricated metal products, nec	0.250	0.107	0.157	0.052	N/A	0.210	0.0150	5.01E-03	N/A	0.0201	0.230
Unsupported plastics film and sheet manufacturing	0.171	0.073	0.0944	9.54E-04	N/A	0.095	0.0318	3.21E-04	N/A	0.0321	0.128
Residential Boilers: Anthracite Coal Combustion	0.152	0.065	0	0.105	N/A	0.105	0	0.0215	N/A	0.0215	0.127
Utility Turbines: Diesel - Fired	0.150	0.064	0.0705	0.030	N/A	0.101	0.0157	6.71E-03	N/A	0.0224	0.123
Gray and ductile iron foundries	0.143	0.061	0.0274	3.35E-02	N/A	0.061	0.0122	0.0149	N/A	0.0271	0.0879
Miscellaneous Plastics Products	0.128	0.055	0.0507	5.12E-04	N/A	0.051	0.0496	5.01E-04	N/A	0.0501	0.101
Commercial printing, letterpress, and screen (disc	0.125	0.054	0.114	0.011	N/A	0.125	0	0	N/A	0	0.125
Unsupported plastics profile shapes (1987)	0.125	0.054	0.116	1.18E-03	N/A	0.118	3.23E-04	3.27E-06	N/A	3.27E-04	0.118

Table 6-15. Base Year 1990 National Emission Estimates for Cadmium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Machinery and Electrical Equipment (SICs	0.125	0.054	0.0501	0.017	N/A	0.0668	0.0231	7.69E-03	N/A	0.0308	0.0975
Tire Manufacturing	0.120	0.052	0.0407	4.11E-04	N/A	0.0411	0.0482	4.87E-04	N/A	0.0487	0.0898
Structural Clay Products, Nec	0.0940	0.040	0	0	N/A	0	0	0	N/A	0	0
Carbon Black Manufacture	0.0803	0.034	4.90E-03	0.0114	N/A	0.0163	0.0141	0.0328	N/A	0.0468	0.0632
Utility Boilers: Natural Gas Combustion	0.0540	0.023	0	0.0303	N/A	0.0303	0	0.0148	N/A	0.0148	0.0451
Plastics materials and resins manufacturing	0.0480	0.021	0.0299	0	N/A	0.0299	0.0121	0	N/A	0.0121	0.0420
Pulp and Paper: Sulfite Recovery	0.0300	0.013	1.00E-02	0	N/A	0.0100	0.0150	0	N/A	0.0150	0.0250
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.0300	0.013	4.59E-03	0.0184	N/A	0.0230	8.18E-04	3.27E-03	N/A	4.09E-03	0.0271
Secondary Aluminum Smelting	0.0230	0.010	9.31E-03	0.0114	N/A	0.0207	3.92E-04	4.79E-04	N/A	8.71E-04	0.0216
Petroleum Refining: Cyclic Crude and Intermediate Production	0.0230	0.010	0.0131	0	N/A	0.0131	4.47E-03	0	N/A	4.47E-03	0.0175
Commercial/Institutional Boilers: Anthracite Coal Combustion	0.0175	7.51E-03	2.74E-03	0.0109	N/A	0.0137	4.45E-04	1.78E-03	N/A	2.22E-03	0.0159
Industrial Boilers: Anthracite Coal Combustion	0.0138	5.94E-03	6.50E-03	2.79E-03	N/A	9.29E-03	1.45E-03	6.19E-04	N/A	2.06E-03	0.0114
Textiles (SICs combined)	5.00E-03	2.15E-03	1.04E-03	1.04E-03	N/A	2.08E-03	2.05E-04	2.05E-04	N/A	4.10E-04	2.49E-03
Plastics foam products manufacturing	5.00E-03	2.15E-03	2.62E-03	2.65E-05	N/A	2.65E-03	1.49E-03	1.50E-05	N/A	1.50E-03	4.15E-03
Chemical Preparations (SICs combined)	5.00E-03	2.15E-03	3.67E-03	1.93E-04	N/A	3.87E-03	1.09E-04	5.74E-06	N/A	1.15E-04	3.98E-03
Other Cadmium Compound Production	2.50E-03	1.07E-03	0	0	N/A	0	0	0	N/A	0	0
Primary batteries, dry and wet,	1.00E-03	4.29E-04	4.84E-04	1.61E-04	N/A	6.45E-04	7.44E-05	2.48E-05	N/A	9.92E-05	7.44E-04
Other Biological Incineration	5.50E-06	2.36E-06	0	3.19E-06	N/A	3.19E-06	0	8.99E-07	N/A	8.99E-07	4.09E-06
Crematories	1.25E-06	5.37E-07	0	8.67E-07	N/A	8.67E-07	0	1.77E-07	N/A	1.77E-07	1.04E-06

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-16. Base Year 1990 National Emission Estimates for Carbon Tetrachloride

Pollutant: Carbon Tetrachloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Pulp and Paper: Non-Combustion Sources	4270	82.197	1232	0	0	1232	1202	0	0	1202	2434
Miscellaneous Organic Chemical Processes (SICs combined)	282	5.42	210	0	0	210	35.0	0	0	35.0	245
Industrial inorganic chemical	106	2.03	76.3	0	0	76.288	3.13	0	0	3.13	79.4
Other Miscellaneous (SICs combined)	84.13	1.62	59.0	6.553	0	65.533	3.51	0.390	0	3.90	69.4
Synthetic rubber manufacturing	84.00	1.62	72.1	0	0	72.097	10.7	0	0	10.7	82.8
Agricultural Chemicals	73.40	1.41	28.3	0	0	28.302	45.0	0	0	45.0	73.3
Industrial organic chemicals manufacturing	57.97	1.12	40.2	0	0	40.223	7.48	0	0	7.48	47.7
Publicly owned treatment works (POTWs)	52.8	1.02	0	36.633	0	36.633	0	7.476	0	7.48	44.1
Chemicals and allied products	49.9	0.961	40.2	2.12	0	42.329	5.71	0.301	0	6.01	48.3
Utility Boilers: Coal Combustion, All Types	28.0	0.539	10.8	0	0	10.800	7.00	0	0	7.00	17.8
Petroleum Refining: Cyclic Crude and Intermediate Production	27.5	0.530	16	0	0	15.632	5.35	0	0	5.35	21.0
Petroleum Refining: (ALL PROCESSES)	22.9	0.442	17	0	0	16.761	4.94	0	0	4.94	21.7
Pharmaceuticals Preparations and Manufacturing (SICs combined)	20.5	0.395	17	0.869	0	17.386	1.64	0.087	0	1.73	19.1
Chemical Manufacturing: Alkalies and chlorine	13.0	0.250	2.17	5.05	0	7.22	0.69	1.614	0	2.31	9.525
Tire Manufacturing	8.6	0.166	2.93	0.0296	0	2.96	3.46	0.0350	0	3.50	6.451
Industrial gases manufacturing	5.00	0.096	4.40	0.231	0	4.63	0	0	0	0	4.627
Organic fibers, non-cellulosic manufacturing	4.50	0.087	2.63	0.138	0	2.77	0	9.90E-03	0	0.198	2.967

Table 6-16. Base Year 1990 National Emission Estimates for Carbon Tetrachloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Portland Cement Manufacture: All Fuels	2.50	0.048	1.23	0.217	0	1.45	0	0.0701	0	0.467	1.916
Chemical Preparations (SICs combined)	1.46	0.028	1.07	0.0564	0	1.13	0	1.68E-03	0	0.0335	1.162
Biological products (disc.198,2835or2836)	1.21	0.023	1.15	0.0604	0	1.21	0	0	0	0	1.208
Minerals, ground or treated production	0.125	2.41E-03	6.43E-04	0.0122	0	0.0129	0	0.0226	0	0.0238	0.0367
Medical Waste Incineration	0.0497	9.56E-04	5.49E-03	0.0311	0	0.0366	1.12E-03	6.36E-03	0	7.48E-03	0.0441
Hazardous Waste Incineration: Dedicated HWIs	0.0310	5.96E-04	0.0208	0	0	0.0208	4.62E-03	0	0	4.62E-03	0.0254
Sewage Sludge Incineration	0.0259	4.98E-04	0	0.0199	0	0.0199	0	2.27E-03	0	2.27E-03	0.0222
Landfills: Gas Flares	5.50E-03	1.06E-04	0	3.82E-03	0	3.82E-03	0	7.79E-04	0	7.79E-04	4.59E-03
Fabricated metal products manufacturing (SICs	2.50E-03	4.81E-05	1.18E-03	3.93E-04	0	1.57E-03	3.20E-04	1.07E-04	0	4.26E-04	2.00E-03
Primary metal products manufacturing (SICs combined)	2.50E-03	4.81E-05	7.17E-04	8.76E-04	0	1.59E-03	1.49E-04	1.82E-04	0	3.30E-04	1.92E-03
Paints and allied products	2.50E-03	4.81E-05	2.12E-03	0	0	2.12E-03	1.69E-04	0	0	1.69E-04	2.29E-03
Textiles (SICs combined)	2.50E-03	4.81E-05	5.19E-04	5.19E-04	0	1.04E-03	1.02E-04	1.02E-04	0	2.05E-04	1.24E-03
Structural Clay Products, Nec	1.40E-04	2.69E-06	0	0	0	0	0	0	0	0	0

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-17. Base Year 1990 National Emission Estimates for Chloroform

Pollutant: Chloroform

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Pulp and Paper: Non-Combustion Sources	18,500	69.892	5,339	0	N/A	5,339	5,206	0	N/A	5,206	10,545
Chemical Manufacturing: Ethylene Dichloride	4,651	17.570	2,146	0	N/A	2,146	1,061	0	N/A	1,061	3,207
Publicly owned treatment works (POTWs)	484	1.828	0	336	N/A	336	0	69	N/A	69	404
Sawmills and planing mills, general	452	1.708	0	0	N/A	0	439	0	N/A	439	439
Chemical Manufacturing: Alkalies and chlorine	415	1.568	69	161	N/A	230	22.1	51.529	N/A	73.6	304
Pharmaceuticals Preparations and Manufacturing (SICs combined)	398	1.503	321	17	N/A	337	31.9	1.679	N/A	33.6	371
Chemical Manufacturing: Chloroform Production (storage emissions)	352	1.330	235	0	N/A	235	0	0	N/A	0	235
Industrial organic chemicals manufacturing	260	0.983	181	0	N/A	181	33.6	0	N/A	33.6	214
Miscellaneous Organic Chemical Processes (SICs combined)	224	0.847	167	0	N/A	167	27.9	0	N/A	27.9	195
Formaldehyde, Acrolein, Acetaldehyde, Butyraldehyde	125	0.472	22.2	0	N/A	22.2	103	0	N/A	103	125
Chemical Manufacturing: Chloroform Production	119	0.450	79.4	0	N/A	79.4	0	0	N/A	0	79.4
Chemical Manufacturing: Chloromethanes Production	77.3	0.292	22.8	0	N/A	22.8	12.8	0	N/A	12.8	35.6
Fluorocarbon Production	45.9	0.173	43.0	0	N/A	43.0	0	0	N/A	0	43.0
Landfills: Chemical Waste Emissions	41.1	0.155	0	28.494	N/A	28.5	0	5.816	N/A	5.82	34.3

Table 6-17. Base Year 1990 National Emission Estimates for Chloroform

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Agricultural Chemicals	37.6	0.142	14.5	0	N/A	14.5	23.1	0	N/A	23.1	37.6
Plastics materials and resins manufacturing	37.5	0.142	23.3	0	N/A	23.3	9.43	0	N/A	9.43	32.8
Organic fibers, non-cellulosic manufacturing	36.5	0.138	21.3	1.122	N/A	22.4	1.53	0.080	N/A	1.61	24.0
Chemicals and allied products	30.5	0.115	24.6	1.294	N/A	25.9	3.49	0.184	N/A	3.68	29.6
Food Products (SICs combined)	29.0	0.109	0.7	13.762	N/A	14.5	0.66	12.461	N/A	13.1	27.6
Utility Boilers: Coal Combustion, All Types	28.0	0.106	10.8	0	N/A	10.8	7.00	0	N/A	7.00	17.8
Chemical Manufacturing: Tetrachloroethylene	25.4	0.096	4.4	0	N/A	4.40	20.0	0	N/A	20.0	24.4
Other Miscellaneous (SICs combined)	24.3	0.092	17.1	1.896	N/A	19.0	1.02	0.113	N/A	1.13	20.1
Synthetic rubber manufacturing	24.3	0.092	20.9	0	N/A	20.9	3.09	0	N/A	3.09	24.0
Industrial gases manufacturing	16.0	0.060	14.0	0.739	N/A	14.8	0	0	N/A	0	14.8
Industrial inorganic chemical	11.8	0.045	8.56	0	N/A	8.56	0.35	0	N/A	0.351	8.92
Tire Manufacturing	8.98	0.034	3.05	0.031	N/A	3.08	3.60	0.0364	N/A	3.64	6.72
Industrial Boilers: Bituminous and Lignite Coal Combustion	3.39	0.013	1.59	0.682	N/A	2.27	0	0.152	N/A	0.505	2.78
Transportation Equipment Manufacture (SICs	3.25	0.012	1.61	0.537	N/A	2.15	0	0.143	N/A	0.574	2.72
Sewage Sludge Incineration	2.15	0.008	0	1.65	N/A	1.65	0	0.188	N/A	0.188	1.84
Biological products (disc.198,2835or2836)	1.98	0.007	1.88	0.099	N/A	1.98	0	0	N/A	0	1.98
Petroleum Refining: Cyclic Crude and Intermediate Production	1.42	0.005	0.803	0	N/A	0.803	0	0	N/A	0.275	1.08
Unsupported plastics film and sheet manufacturing	1.08	0.004	0.595	6.01E-03	N/A	0.601	0	2.02E-03	N/A	0.202	0.803
Hazardous Waste Incineration: Dedicated HWIs	0.772	0.003	0.518	0	N/A	0.518	0	0	N/A	0.115	0.633
Secondary Lead Smelting	0.328	0.001	0	0.111	N/A	0.231	0	0.0216	N/A	0.0451	0.276

Table 6-17. Base Year 1990 National Emission Estimates for Chloroform

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Minerals, ground or treated production	0.250	0.001	0	0.0244	N/A	0.0257	0	0.0452	N/A	0.0476	0.0734
Chemical Preparations (SICs combined)	0.125	0.000	0	4.83E-03	N/A	0.0966	0	1.44E-04	N/A	2.87E-03	0.100
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.105	0.000	0	0.0656	N/A	0.0821	0	0.011	N/A	0.0133	0.0954
Portland Cement Manufacture: All Fuels	0.0985	0.000	0.0485	8.56E-03	N/A	0.0571	0.0156	2.76E-03	N/A	0.0184	0.0755
Adhesives and Sealants (SICs combined)	0.0955	0.000	0.0858	4.52E-03	N/A	0.0903	1.62E-03	8.55E-05	N/A	1.71E-03	0.0921
Medical Waste Incineration	0.0471	0.000	5.21E-03	0.0295	N/A	0.0347	1.06E-03	6.03E-03	N/A	7.10E-03	0.0418
Landfills: Gas Flares	0.0200	0.000	0	0.0139	N/A	0.0139	0	2.83E-03	N/A	2.83E-03	0.0167
Electronic and other electric equipment manufacturing (SICs combined)	2.50E-03	0.000	1.03E-03	3.45E-04	N/A	1.38E-03	4.43E-04	1.48E-04	N/A	5.91E-04	1.97E-03
Nonmetallic mineral products	2.50E-03	0.000	2.32E-05	4.40E-04	N/A	4.63E-04	1.66E-05	3.16E-04	N/A	3.33E-04	7.96E-04
Structural Clay Products, Nec	1.40E-04	0.000	0	0	N/A	0	0	0	N/A	0	0

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Pollutant: Chromium & Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chromium Plating: Hard Chromium Plating	160	15.016	6.82	130	N/A	136	0.44	8.41	N/A	8.86	145
Fabricated metal products manufacturing (SICs	86.42	8.130	40.73	13.58	N/A	54.30	11.05	3.68	N/A	14.73	69.04
Petroleum Refining: (ALL PROCESSES)	81.28	7.647	59.40	0	N/A	59.40	17.51	0	N/A	17.51	76.91
Utility Boilers: Coal Combustion, All Types	70.00	6.586	27.00	0	N/A	27.00	17.50	0	N/A	17.50	44.50
Primary metal products manufacturing (SICs combined)	60.81	5.721	17.44	21.31	N/A	38.75	3.61	4.42	N/A	8.03	46.78
Blast furnaces and steel mills	51.23	4.820	18.60	22.74	N/A	41.34	3.91	4.78	N/A	8.69	50.03
Transportation Equipment Manufacture (SICs	43.83	4.124	21.74	7.25	N/A	28.99	5.80	1.93	N/A	7.74	36.73
Industrial Boilers: Waste Oil Combustion	38.35	3.608	18.02	7.72	N/A	25.74	4.00	1.72	N/A	5.72	31.45
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	32.89	3.094	5.14	20.56	N/A	25.70	0.84	3.34	N/A	4.18	29.88
Industrial inorganic chemical	32.36	3.044	23.39	0	N/A	23.39	0.96	0	N/A	0.96	24.35
Nonclay refractories	30.17	2.838	1.35	25.67	N/A	27.02	0.01	0.11	N/A	0.12	27.14
Industrial Process Cooling Towers	25.00	2.352	13.42	3.36	N/A	16.78	2.98	0.75	N/A	3.73	20.51
Industrial Machinery and Electrical Equipment (SICs	24.53	2.308	9.82	3.27	N/A	13.10	4.53	1.51	N/A	6.04	19.14
Mobile Sources: On-Road Vehicles	23.31	2.193	0	0	11.538N/A986	11.54	0	0	3.954N/A544	3.95	15.49
Iron and Steel Foundries: Steel Foundries	20.79	1.956	6.29	7.69	N/A	13.97	2.96	3.62	N/A	6.58	20.56
Mobile Sources: Non-Road Vehicles and Equipment - Other	17.47	1.644	0	0	12.12N/A686	12.12	0	0	2.47	2.47	14.59
Gray and ductile iron foundries	16.17	1.521	3.10	3.78	N/A	6.88	1.38	1.69	N/A	3.07	9.94

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Bituminous and Lignite Coal Combustion	14.93	1.404	7.01	3.01	N/A	10.02	1.56	0.67	N/A	2.23	12.24
Wood Treatment/Wood Preserving	14.70	1.383	0	5.66	N/A	5.66	0	3.05	N/A	3.05	8.71
Industrial Boilers: Wood/Wood Residue Combustion	14.13	1.330	6.95	1.74	N/A	8.69	1.78	0.45	N/A	2.23	10.92
Commercial/Institutional Boilers: Distillate Oil Combustion	14.01	1.318	2.19	8.76	N/A	10.95	0.36	1.42	N/A	1.78	12.73
Commercial/Institutional Boilers: Residual Oil Combustion	13.90	1.308	2.17	8.69	N/A	10.86	0.35	1.41	N/A	1.77	12.63
Miscellaneous Organic Chemical Processes (SICs combined)	12.08	1.136	8.99	0	N/A	8.99	1.50	0	N/A	1.50	10.50
Paints and allied products	11.89	1.119	10.10	0	N/A	10.10	0.80	0	N/A	0.80	10.90
Chromium Plating: Decorative Chromium Plating	11.50	1.082	0.49	9.34	N/A	9.83	0.03	0.61	N/A	0.64	10.47
Chemical Manufacturing: Chromium Compounds	9.79	0.921	0	5.20	N/A	5.20	0	4.59	N/A	4.59	9.79
Pulp and Paper: Kraft Recovery Furnaces	8.00	0.753	2.31	0	N/A	2.31	2.25	0	N/A	2.25	4.56
Electronic and other electric equipment manufacturing (SICs combined)	7.92	0.745	3.27	1.09	N/A	4.36	1.40	0.47	N/A	1.87	6.24
Commercial/Institutional Boilers: Anthracite Coal Combustion	6.90	0.649	1.08	4.31	N/A	5.39	0.18	0.70	N/A	0.88	6.27
Industrial gases manufacturing	6.61	0.622	5.81	0.31	N/A	6.11	0	0	N/A	0	6.11
Industrial Boilers: Distillate Oil Combustion	6.59	0.620	3.10	1.33	N/A	4.42	0.69	0.29	N/A	0.98	5.41
Industrial Boilers: Anthracite Coal Combustion	5.46	0.514	2.56	1.10	N/A	3.66	0.57	0.24	N/A	0.81	4.48
Iron and Steel Foundries: Steel Investment Foundries	4.77	0.449	2.03	2.48	N/A	4.51	0.04	0.05	N/A	0.08	4.59

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Utility Boilers: Oil Combustion, All Types	4.70	0.442	1.94	1.94	N/A	3.87	0.32	0.32	N/A	0.65	4.52
Coke Ovens: By-product Recovery Plants	4.36	0.410	3.91	0	N/A	3.91	0.30	0	N/A	0.30	4.21
Custom compound purchased resins manufacturing	4.33	0.407	3.23	0.03	N/A	3.26	0.34	0.00	N/A	0.35	3.61
Industrial Boilers: Natural Gas Combustion	4.25	0.400	2.00	0.86	N/A	2.85	0.44	0.19	N/A	0.63	3.49
Minerals, ground or treated production	3.99	0.376	0.02	0.39	N/A	0.41	0.04	0.72	N/A	0.76	1.17
Chromium Plating: Chromic Anodizing	3.90	0.367	0.17	3.17	N/A	3.33	0.01	0.21	N/A	0.22	3.55
Primary Copper Smelting	3.61	0.340	0.15	0.45	N/A	0.60	0.50	1.51	N/A	2.02	2.62
Industrial Turbines: Natural gas - fired	3.38	0.318	1.36	0.91	N/A	2.27	0.30	0.20	N/A	0.50	2.77
Sewage Sludge Incineration	3.28	0.308	0	2.52	N/A	2.52	0	0.29	N/A	0.29	2.81
Fabricated metal products, nec	3.26	0.307	2.05	0.68	N/A	2.74	0.20	0.07	N/A	0.26	3.00
Chemical Preparations (SICs combined)	2.90	0.272	2.13	0.11	N/A	2.24	0.06	0.00	N/A	0.07	2.30
Industrial organic chemicals manufacturing	2.49	0.234	1.72	0	N/A	1.72	0.32	0	N/A	0.32	2.05
Clay refractories	2.27	0.214	0.04	0.79	N/A	0.83	0.02	0.34	N/A	0.36	1.19
Leather tanning and finishing	2.18	0.205	1.24	0.41	N/A	1.65	0.00	0.00	N/A	0.00	1.65
Other Secondary Nonferrous Metals Recovery	2.17	0.204	0.88	1.07	N/A	1.95	0.04	0.05	N/A	0.08	2.04
Glass containers	2.06	0.194	0.07	1.33	N/A	1.40	0.02	0.32	N/A	0.33	1.73
Chemicals and allied products	1.88	0.176	1.51	0.08	N/A	1.59	0.21	0.01	N/A	0.23	1.82
Miscellaneous Manufacturing (SICs combined)	1.85	0.174	1.03	0.18	N/A	1.21	0.22	0.04	N/A	0.26	1.47
Plastics products manufacturing	1.77	0.166	0.99	0.01	N/A	1.00	0.39	0.00	N/A	0.40	1.40
Utility Turbines: Diesel - Fired	1.72	0.162	0.81	0.35	N/A	1.15	0.18	0.08	N/A	0.26	1.41
Tire Manufacturing	1.62	0.152	0.55	0.01	N/A	0.56	0.65	0.01	N/A	0.66	1.21
Nitrogenous fertilizers	1.60	0.151	0.06	0	N/A	0.06	1.50	0	N/A	1.50	1.56

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Instruments and Related Products (SICs combined)	1.58	0.149	0	1.37	N/A	1.37	0	0.09	N/A	0.09	1.46
Textiles (SICs combined)	1.56	0.147	0.32	0.32	N/A	0.65	0.06	0.06	N/A	0.13	0.78
Portland Cement Manufacture: All Fuels	1.26	0.119	0.62	0.11	N/A	0.73	0.20	0.04	N/A	0.24	0.97
Utility Boilers: Natural Gas Combustion	1.20	0.113	0	0.67	N/A	0.67	0	0.33	N/A	0.33	1.00
Industrial Boilers: Residual Oil Combustion	1.17	0.110	0.55	0.24	N/A	0.79	0.12	0.05	N/A	0.17	0.96
Plastics materials and resins manufacturing	1.08	0.102	0.68	0	N/A	0.68	0.27	0	N/A	0.27	0.95
Cleaning Products (SICs combined)	1.00	0.094	0.67	0.04	N/A	0.70	0.21	0.01	N/A	0.22	0.93
Primary Aluminum Production	0.91	0.086	0.05	0.07	N/A	0.12	0.14	0.17	N/A	0.30	0.42
Pressed and blown glass and glassware manufacturing	0.87	0.081	0.01	0.15	N/A	0.16	0.02	0.35	N/A	0.36	0.52
Other Miscellaneous (SICs combined)	0.79	0.074	0.55	0.06	N/A	0.62	0.03	0.00	N/A	0.04	0.65
Iron and Steel Foundries	0.75	0.071	0	0	N/A	0	0.32	0.39	N/A	0.71	0.71
Municipal Waste Combustion	0.72	0.068	0.53	0.03	N/A	0.55	0.09	0.00	N/A	0.09	0.65
Medical Waste Incineration	0.70	0.066	0.08	0.44	N/A	0.52	0.02	0.09	N/A	0.11	0.62
Agricultural Chemicals	0.56	0.052	0.21	0	N/A	0.21	0.34	0	N/A	0.34	0.55
Food Products (SICs combined)	0.53	0.050	0.01	0.25	N/A	0.26	0.01	0.23	N/A	0.24	0.50
Unsupported plastics profile shapes (1987)	0.50	0.047	0.47	0.00	N/A	0.47	0.00	0.00	N/A	0.00	0.47
Sawmills and planing mills, general	0.50	0.047	0.00	0	N/A	0.00	0.49	0	N/A	0.49	0.49
Steel and Iron Reclamation- Auto Scrap Burning	0.50	0.047	0.13	0.38	N/A	0.50	0	0	N/A	0	0.50
Mineral Wool Manufacturing	0.46	0.043	0.01	0.23	N/A	0.25	0.01	0.16	N/A	0.17	0.42
Primary nonferrous metals production	0.41	0.039	0.09	0.11	N/A	0.19	0.05	0.06	N/A	0.10	0.29
Ship Building & Repair (Surface Coating)	0.41	0.039	0.25	0.08	N/A	0.33	0.01	0.00	N/A	0.01	0.34

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Plastics Products	0.40	0.037	0.16	0.00	N/A	0.16	0.15	0.00	N/A	0.16	0.31
Malleable iron	0.38	0.036	0.17	0.21	N/A	0.38	0	0	N/A	0	0.38
Petroleum Refining: Cyclic Crude and Intermediate Production	0.38	0.035	0.21	0	N/A	0.21	0.07	0	N/A	0.07	0.29
Structural Clay Products, Nec	0.32	0.030	0	0	N/A	0	0	0	N/A	0	0
Abrasive Grain (Media) Manufacturing	0.26	0.024	0.01	0.17	N/A	0.18	0.00	0.02	N/A	0.02	0.20
Partitions and fixtures, except wood	0.25	0.024	0.00	0	N/A	0.00	0.16	0	N/A	0.16	0.16
Plastics foam products manufacturing	0.25	0.024	0.13	0.00	N/A	0.13	0.07	0.00	N/A	0.08	0.21
Products of purchased glass	0.25	0.024	0.00	0.04	N/A	0.05	0.00	0.09	N/A	0.09	0.14
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.23	0.022	0.04	0.14	N/A	0.18	0.01	0.03	N/A	0.03	0.21
Utility Boilers: Coke	0.18	0.017	0.16	0	N/A	0.16	0.01	0	N/A	0.01	0.17
Open Burning: Scrap Tires	0.14	0.013	0	0.09	N/A	0.09	0	0.02	N/A	0.02	0.11
Unsupported plastics film and sheet manufacturing	0.13	0.013	0.07	0.00	N/A	0.07	0.02	0.00	N/A	0.02	0.10
Fabricated rubber products	0.13	0.012	0.13	0.00	N/A	0.13	0	0	N/A	0	0.13
Porcelain electrical supplies	0.13	0.012	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Electrical industrial apparatus, nec	0.13	0.012	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.01	0.01
Wood office furniture	0.13	0.012	0.00	0	N/A	0.00	0.00	0	N/A	0.00	0.00
Rubber and plastic hose and belting manufacturing	0.13	0.012	0.01	0.00	N/A	0.01	0.09	0.00	N/A	0.09	0.10
Organic fibers, non-cellulosic manufacturing	0.13	0.012	0.07	0.00	N/A	0.08	0.01	0.00	N/A	0.01	0.08
Office furniture, except wood manufacturing	0.13	0.012	0.05	0	N/A	0.05	0.08	0	N/A	0.08	0.12
Manifold business forms	0.13	0.012	0.07	0.01	N/A	0.07	0	0	N/A	0	0.07
Commercial printing, gravure	0.13	0.012	0.11	0.01	N/A	0.12	0.00	0.00	N/A	0.01	0.13

Table 6-18. Base Year 1990 National Emission Estimates for Chromium Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Utility Turbines: Natural gas - fired	0.09	0.008	0.04	0.02	N/A	0.06	0.01	0.01	N/A	0.01	0.07
Secondary Lead Smelting	0.04	0.003	0.01	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.03
Pulp and Paper: Sulfite Recovery	0.03	0.003	0.01	0	N/A	0.01	0.02	0	N/A	0.02	0.02
Asphalt Production - Other	0.01	0.001	0.01	0	N/A	0.01	0.00	0	N/A	0.00	0.01
Adhesives and Sealants (SICs combined)	0.01	0.001	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Storage batteries manufacturing	0.01	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Upholstered household furniture	0.01	0.000	0	0	N/A	0	0.00	0	N/A	0.00	0.00
Gaskets, packing and sealing devices manufacturing	0.00	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Surface active agents manufacturing	0.00	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Softwood veneer and plywood	0.00	0.000	0.00	0	N/A	0.00	0.00	0	N/A	0.00	0.00
Chemical Manufacturing: Alkalies and chlorine	0.00	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Lime	0.00	0.000	0	0	N/A	0	0	0	N/A	0	0
Pottery products, nec	0.00	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Wood household furniture manufacturing	0.00	0.000	0.00	0	N/A	0.00	0.00	0	N/A	0.00	0.00
Crematories	0.00	0.000	0	0.00	N/A	0.00	0	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-19. Base Year 1990 National Emission Estimates for Coke Oven Emissions

Pollutant: Coke Oven Emissions

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Coke Ovens: Emergency Releases	937	53.125	840	0	N/A	840	64.7	0	N/A	64.7	905
Coke Ovens: Charging, Topside, &	827	46.875	741	0	N/A	741	57.0	0	N/A	57.0	798

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-20. Base Year 1990 National Emission Estimates for 2,3,7,8-TCDD TEQ

Pollutant: 2,3,7,8-TCDD TEQ

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Carbon Black Manufacture	1.14	81.593	0.0693	0.1616	N/A	0.231	0.199	0.463	N/A	0.662	0.893
Industrial organic chemicals manufacturing	0.250	17.972	0.173	0	N/A	0.173	0.0323	0	N/A	0.0323	0.206
Municipal Waste Combustion	3.65E-03	0.262	2.67E-03	1.41E-04	N/A	2.82E-03	4.38E-04	2.30E-05	N/A	4.61E-04	3.28E-03
Medical Waste Incineration	6.60E-04	0.047	7.29E-05	4.13E-04	N/A	4.86E-04	1.49E-05	8.45E-05	N/A	9.94E-05	5.86E-04
Portland Cement Manufacture: Hazardous Waste-fired	4.75E-04	0.034	2.75E-04	0	N/A	2.75E-04	8.88E-05	0	N/A	8.88E-05	3.64E-04
Residential Boilers: Anthracite Coal Combustion	2.34E-04	0.017	0	1.62E-04	N/A	1.62E-04	0	3.31E-05	N/A	3.31E-05	1.95E-04
Secondary Aluminum Smelting	1.90E-04	0.014	7.69E-05	9.40E-05	N/A	1.71E-04	3.24E-06	3.96E-06	N/A	7.20E-06	1.78E-04
Other Biological Incineration	1.60E-04	0.012	0	9.29E-05	N/A	9.29E-05	0	2.61E-05	N/A	2.61E-05	1.19E-04
Utility Boilers: Coal Combustion, All Types	1.50E-04	0.011	5.79E-05	0	N/A	5.79E-05	3.75E-05	0	N/A	3.75E-05	9.54E-05
Industrial Boilers: Wood/Wood Residue Combustion	1.13E-04	0.008	5.56E-05	1.39E-05	N/A	6.94E-05	1.43E-05	3.57E-06	N/A	1.78E-05	8.73E-05
Mobile Sources: On-Road Vehicles	9.50E-05	0.007	0	0	N/A.N/AN/AN/AN/A47N/A155	4.70E-05	0	0	N/A.N/AN/AN/AN/A16112	1.61E-05	6.31E-05
Open Burning: Forest and Wildfires	5.30E-05	0.004	0	3.29E-06	N/A	3.29E-06	0	7.73E-06	N/A	7.73E-06	1.10E-05
Portland Cement Manufacture: Non-Hazardous Waste fired	4.75E-05	0.003	2.20E-05	5.50E-06	N/A	2.75E-05	7.10E-06	1.78E-06	N/A	8.88E-06	3.64E-05
Open Burning: Prescribed Burnings	4.20E-05	0.003	0	6.18E-06	N/A	6.18E-06	0	9.44E-06	N/A	9.44E-06	1.56E-05
Wood Treatment/Wood Preserving	3.80E-05	0.003	0	1.46E-05	N/A	1.46E-05	0	7.89E-06	N/A	7.89E-06	2.25E-05
Residential Boilers: Wood/Wood Residue Combustion	3.38E-05	0.002	0	2.34E-05	N/A	2.34E-05	0	4.93E-06	N/A	4.93E-06	2.83E-05
Hazardous Waste Incineration: Dedicated HWIs	3.30E-05	0.002	2.21E-05	0	N/A	2.21E-05	4.92E-06	0	N/A	4.92E-06	2.71E-05

Table 6-20. Base Year 1990 National Emission Estimates for 2,3,7,8-TCDD TEQ

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Sewage Sludge Incineration	2.65E-05	0.002	0	2.04E-05	N/A	2.04E-05	0	2.32E-06	N/A	2.32E-06	2.27E-05
Iron and Steel Foundries: All Processes	1.90E-05	0.001	0	0	N/A	0	1.80E-05	0	N/A	1.80E-05	1.80E-05
Utility Boilers: Oil Combustion, All Types	1.10E-05	0.001	4.53E-06	4.53E-06	N/A	9.06E-06	7.55E-07	7.55E-07	N/A	1.51E-06	1.06E-05
Secondary Copper Smelting	6.80E-06	0.000	2.75E-06	3.36E-06	N/A	6.12E-06	1.16E-07	1.42E-07	N/A	2.58E-07	6.37E-06
Secondary Lead Smelting	4.25E-06	0.000	1.56E-06	1.44E-06	N/A	3.00E-06	3.04E-07	2.81E-07	N/A	5.84E-07	3.58E-06
Residential Boilers: Distillate Oil Combustion	3.78E-06	0.000	0	2.62E-06	N/A	2.62E-06	0	5.35E-07	N/A	5.35E-07	3.16E-06
Lightweight Aggregate Kilns	3.60E-06	0.000	2.74E-06	4.84E-07	N/A	3.23E-06	2.11E-07	3.73E-08	N/A	2.48E-07	3.48E-06
Scrap or Waste Tire Incineration	3.00E-07	0.000	1.13E-07	0	N/A	1.13E-07	1.12E-07	0	N/A	1.12E-07	2.25E-07
Drum and Barrel Reclamation	2.51E-07	0.000	0	2.51E-07	N/A	2.51E-07	0	0	N/A	0	2.51E-07
Carbon Reactivation Furnaces	1.25E-07	0.000	2.45E-08	7.34E-08	N/A	9.79E-08	3.15E-09	9.44E-09	N/A	1.26E-08	1.10E-07
Crematories	9.15E-12	0.000	0	6.35E-12	N/A	6.35E-12	0	1.30E-12	N/A	1.30E-12	7.64E-12

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-21. Base Year 1990 National Emission Estimates for Ethyl Acrylate

Pollutant: Ethyl Acrylate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Organic Acid	641	80.024	641	0	N/A	641	0	0	N/A	0	641
Plastic Material and Resins Manufacture	50.9	6.356	33.1	3.68	N/A	36.8	8.74	0.971	N/A	9.71	46.5
Miscellaneous Organic Chemical Processes (SICs combined)	50.8	6.351	37.9	0	N/A	37.9	6.32	0	N/A	6.32	44.2
Industrial organic chemicals manufacturing	35.1	4.383	24.3	0	N/A	24.3	4.53	0	N/A	4.53	28.9
Petroleum Refining: (ALL PROCESSES)	8.47	1.057	6.19	0	N/A	6.19	1.82	0	N/A	1.82	8.01
Paints and allied products	3.45	0.430	2.93	0	N/A	2.93	0.23	0	N/A	0.2329	3.16
Chemical Preparations (SICs combined)	2.41	0.301	1.77	0.093	N/A	1.86	0.05	0.003	N/A	0.0553	1.92
Instruments and Related Products (SICs combined)	1.69	0.211	0	1.47	N/A	1.47	0	0.0909	N/A	0.0909	1.56
Adhesives and Sealants (SICs combined)	1.25	0.156	1.12	0.059	N/A	1.18	0.0213	0.001	N/A	0.0224	1.20
Industrial inorganic chemical	1.14	0.143	0.825	0	N/A	0.825	0.0338	0	N/A	0.0338	0.8587
Cleaning Products (SICs combined)	0.975	0.122	0.651	0.034	N/A	0.686	0.2055	0.0108	N/A	0.2164	0.9021
Plastics products manufacturing	0.677	0.085	0.381	0.004	N/A	0.385	0.1505	1.52E-03	N/A	0.1521	0.5370
Unsupported plastics film and sheet manufacturing	0.550	0.069	0.304	0.003	N/A	0.307	0.1023	1.03E-03	N/A	0.1033	0.4102
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.546	0.068	0.439	0.023	N/A	0.463	0.0437	2.30E-03	N/A	0.0460	0.5086
Synthetic rubber manufacturing	0.452	0.056	0.388	0	N/A	0.388	0.0574	0	N/A	0.0574	0.4453
Other Miscellaneous (SICs combined)	0.452	0.056	0.317	0.035	N/A	0.352	0.0189	2.10E-03	N/A	0.0210	0.3731
Miscellaneous Plastics Products	0.375	0.047	0.149	1.51E-03	N/A	0.151	0.146	1.47E-03	N/A	0.1475	0.2981

Table 6-21. Base Year 1990 National Emission Estimates for Ethyl Acrylate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Cellulosic man-made fibers	0.371	0.046	0.371	0	N/A	0.371	0	0	N/A	0	0.3710
Petroleum Refining: Cyclic Crude and Intermediate Production	0.225	0.028	0.128	0	N/A	0.128	0.0437	0	N/A	0.0437	0.1714
Chemical Manufacturing: Alkalies and chlorine	0.0835	0.010	0.0139	0.0325	N/A	0.0464	4.44E-03	0.0104	N/A	0.0148	0.0612
Fabricated metal products manufacturing (SICs	5.00E-03	6.25E-04	2.36E-03	7.86E-04	N/A	3.14E-03	6.39E-04	2.13E-04	N/A	8.53E-04	3.99E-03

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-22. Base Year 1990 National Emission Estimates for Ethylene Dibromide

Pollutant: Ethylene Dibromide

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Other Miscellaneous (SICs combined)	27.36	35.373	19.18	2.13	N/A	21.31	1.14	0.13	N/A	1.27	22.58
Petroleum Refining: Cyclic Crude and Intermediate Production	10.41	13.456	5.91	0	N/A	5.91	2.02	0	N/A	2.02	7.93
Industrial organic chemicals manufacturing	10.05	12.995	6.97	0	N/A	6.97	1.30	0	N/A	1.30	8.27
Miscellaneous Organic Chemical Processes (SICs combined)	9.72	12.566	7.24	0	N/A	7.24	1.21	0	N/A	1.21	8.45
Tire Manufacturing	6.21	8.030	2.11	0.02	N/A	2.13	2.49	0.03	N/A	2.52	4.65
Transportation Equipment Manufacture (SICs	4.97	6.426	2.47	0.82	N/A	3.29	0.66	0.22	N/A	0.88	4.16
Synthetic rubber manufacturing	3.65	4.721	3.13	0	N/A	3.13	0.46	0	N/A	0.46	3.60
Industrial inorganic chemical	3.45	4.461	2.49	0	N/A	2.49	0.10	0	N/A	0.10	2.60
Petroleum Refining: (ALL PROCESSES)	1.41	1.817	1.03	0	N/A	1.03	0.30	0	N/A	0.30	1.33
Industrial Boilers: Bituminous and Lignite Coal Combustion	0.07	0.089	0.03	0.01	N/A	0.05	0.01	0.00	N/A	0.01	0.06
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.05	0.065	0.04	0.00	N/A	0.04	0.00	0.00	N/A	0.00	0.05
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.00	0.003	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-23. Base Year 1990 National Emission Estimates for Ethylene Dichloride

Pollutant: Ethylene Dichloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Ethylene Dichloride	11,466	70.993	5,291	0	N/A	5,291	2,615	0	N/A	2,615	7,906
Industrial organic chemicals manufacturing	1,504	9.313	1,044	0	N/A	1,044	194	0	N/A	194	1,238
Chemical Manufacturing: Trichloroethylene	648	4.012	212	0	N/A	212	436	0	N/A	436	648
Industrial Machinery and Electrical Equipment (SICs	552	3.420	221	73.75	N/A	295	102	34.00	N/A	136	431
Pulp and Paper: Non-Combustion Sources	458	2.836	132	0	N/A	132	129	0	N/A	129	261
Chemical Manufacturing: Alkalies and chlorine	298	1.848	49.72	116.00	N/A	166	15.88	37.06	N/A	52.94	219
Miscellaneous Organic Chemical Processes (SICs combined)	251	1.552	187	0	N/A	187	31.16	0	N/A	31.16	218
Pharmaceuticals Preparations and Manufacturing (SICs combined)	241	1.494	194	10.23	N/A	205	19.34	1.02	N/A	20.36	225
Publicly owned treatment works (POTWs)	112	0.696	0	78.00	N/A	78.00	0	15.92	N/A	15.92	93.92
Landfills: Chemical Waste Emissions	99.61	0.617	0	69.11	N/A	69.11	0	14.10	N/A	14.10	83.21
Agricultural Chemicals	92.71	0.574	35.75	0	N/A	35.75	56.86	0	N/A	56.86	92.61
Petroleum Refining: Cyclic Crude and Intermediate Production	87.64	0.543	49.74	0	N/A	49.74	17.03	0	N/A	17.03	66.77
Gasoline Distribution Stage I	41.96	0.260	1.70	15.33	N/A	17.03	0.98	8.83	N/A	9.81	26.84
Gasoline Distribution Stage II	41.15	0.255	2.85	25.69	N/A	28.55	0.58	5.24	N/A	5.83	34.38
Chemical Manufacturing: Methyl Chloroform	36.85	0.228	24.37	0	N/A	24.37	12.48	0	N/A	12.48	36.85

Table 6-23. Base Year 1990 National Emission Estimates for Ethylene Dichloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemicals and allied products	32.70	0.202	26.34	1.39	N/A	27.73	3.74	0.20	N/A	3.94	31.67
Miscellaneous Plastics Products	30.15	0.187	11.99	0.12	N/A	12.11	11.74	0.12	N/A	11.86	23.97
Fabricated metal products, nec	30.04	0.186	18.91	6.30	N/A	25.22	1.81	0.60	N/A	2.41	27.63
Utility Boilers: Coal Combustion, All Types	27.00	0.167	10.41	0	N/A	10.41	6.75	0	N/A	6.75	17.16
Synthetic rubber manufacturing	23.70	0.147	20.34	0	N/A	20.34	3.01	0	N/A	3.01	23.35
Plastics materials and resins manufacturing	22.10	0.137	13.76	0	N/A	13.76	5.56	0	N/A	5.56	19.32
Transportation Equipment Manufacture (SICs	15.60	0.097	7.74	2.58	N/A	10.32	2.06	0.69	N/A	2.75	13.07
Instruments and Related Products (SICs combined)	11.70	0.072	0	10.16	N/A	10.16	0	0.63	N/A	0.63	10.79
Petroleum Refining: (ALL PROCESSES)	4.90	0.030	3.58	0	N/A	3.58	1.06	0	N/A	1.06	4.64
Industrial gases manufacturing	4.81	0.030	4.22	0.22	N/A	4.45	0	0	N/A	0	4.45
Cleaning Products (SICs combined)	4.38	0.027	2.92	0.15	N/A	3.08	0.92	0.05	N/A	0.97	4.05
Chemical Preparations (SICs combined)	4.19	0.026	3.08	0.16	N/A	3.24	0.09	0.00	N/A	0.10	3.33
Chemical Manufacturing: Tetrachloroethylene	4.00	0.025	0.69	0	N/A	0.69	3.14	0	N/A	3.14	3.83
Industrial Boilers: Bituminous and Lignite Coal Combustion	2.30	0.014	1.08	0.46	N/A	1.54	0.24	0.10	N/A	0.34	1.88
Medical Waste Incineration	0.79	0.005	0.09	0.50	N/A	0.58	0.02	0.10	N/A	0.12	0.70
Consumer Products Usage (SICs combined)	0.58	0.004	0	0.40	N/A	0.40	0	0.08	N/A	0.08	0.48
Plastics foam products manufacturing	0.38	0.002	0.20	0.00	N/A	0.20	0.11	0.00	N/A	0.11	0.31
Ship Building & Repair (Surface Coating)	0.13	0.001	0.08	0.03	N/A	0.10	0.00	0.00	N/A	0.00	0.11
Portland Cement Manufacture: All Fuels	0.12	0.001	0.06	0.01	N/A	0.07	0.02	0.00	N/A	0.02	0.09
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.07	0.000	0.01	0.05	N/A	0.06	0.00	0.01	N/A	0.01	0.07

Table 6-23. Base Year 1990 National Emission Estimates for Ethylene Dichloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Other Biological Incineration	0.05	0.000	0	0.03	N/A	0.03	0	0.01	N/A	0.01	0.04
Sewage Sludge Incineration	0.01	0.000	0	0.01	N/A	0.01	0	0.00	N/A	0.00	0.01
Other Miscellaneous (SICs combined)	0.00	0.000	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Industrial inorganic chemical	0.00	0.000	0.00	0	N/A	0.00	0.00	0	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-24. Base Year 1990 National Emission Estimates for Ethylene Oxide

Pollutant: Ethylene Oxide

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Ethylene Oxide (storage and handling)	7,895	47.495	6,184	0	N/A	6,184	1,000	0	N/A	1,000	7,185
Chemical Manufacturing: Ethylene Oxide	3,167	19.054	2,481	0	N/A	2,481	401	0	N/A	401	2,882
Consumer Products Usage (SICs combined)	1,878	11.296	0	1,303	N/A	1,303	0	266	N/A	266	1,569
Commercial sterilization	1,225	7.369	0	850	N/A	850	0	173	N/A	173	1,023
Hospital sterilizers	1,173	7.056	0	871	N/A	871	0	126	N/A	126	997
Industrial organic chemicals manufacturing	304	1.827	211	0	N/A	211	39	0	N/A	39.20	250
Instruments and Related Products (SICs combined)	229	1.377	0	199	N/A	199	0	12.315	N/A	12.32	211
Chemical Manufacturing: Polyether Polyols	200	1.203	145	0	N/A	145	38	0	N/A	38.16	183
Miscellaneous Organic Chemical Processes (SICs combined)	142	0.857	106	0	N/A	106	18	0	N/A	17.70	124
Industrial inorganic chemical	90.80	0.546	65.64	0	N/A	65.64	2.69	0	N/A	2.69	68.33
Unsupported plastics film and sheet manufacturing	55.65	0.335	30.74	0.31	N/A	31.05	10.35	0.10	N/A	10.46	41.50
Industrial Machinery and Electrical Equipment (SICs	41.50	0.250	16.62	5.54	N/A	22.16	7.66	2.55	N/A	10.22	32.38
Food Products (SICs combined)	40.94	0.246	1.02	19.45	N/A	20.48	0.93	17.61	N/A	18.54	39.02
Surface active agents manufacturing	29.05	0.175	23.44	1.23	N/A	24.67	3.37	0.18	N/A	3.55	28.22
Miscellaneous Plastics Products	21.91	0.132	8.71	0.09	N/A	8.80	8.53	0.09	N/A	8.62	17.42
Fabricated rubber products	21.90	0.132	21.68	0.22	N/A	21.90	0	0	N/A	0	21.90

Table 6-24. Base Year 1990 National Emission Estimates for Ethylene Oxide

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Alkalies and chlorine	21.60	0.130	3.60	8.40	N/A	11.99	1.15	2.68	N/A	3.83	15.83
Chemical Preparations (SICs combined)	18.69	0.112	13.73	0.72	N/A	14.45	0.41	0.02	N/A	0.43	14.88
Pharmaceuticals Preparations and Manufacturing (SICs combined)	17.70	0.106	14.26	0.75	N/A	15.01	1.42	0.07	N/A	1.49	16.50
Plastics products manufacturing	12.81	0.077	7.21	0.07	N/A	7.29	2.85	0.0288	N/A	2.88	10.16
Gum and wood chemical	7.02	0.042	0.03	1.32E-03	N/A	0.0264	6.57	0.346	N/A	6.92	6.94
Cleaning Products (SICs combined)	6.18	0.037	4.13	0.217	N/A	4.35	1.30	0.0686	N/A	1.37	5.72
Petroleum Refining: Cyclic Crude and Intermediate Production	5.71	0.034	3.24	0	N/A	3.24	1.11	0	N/A	1.11	4.35
Miscellaneous Manufacturing (SICs combined)	3.97	0.024	2.21	0.390	N/A	2.60	0.466	0.0823	N/A	0.549	3.15
Synthetic rubber manufacturing	3.78	0.023	3.25	0	N/A	3.25	0.480	0	N/A	0.480	3.73
Other Miscellaneous (SICs combined)	3.78	0.023	2.65	0.295	N/A	2.95	0.158	0.0175	N/A	0.175	3.12
Petroleum Refining: (ALL PROCESSES)	3.40	0.020	2.48	0	N/A	2.48	0.732	0	N/A	0.732	3.22
Industrial gases manufacturing	1.84	0.011	1.62	0.0852	N/A	1.70	0	0	N/A	0	1.70
Chemicals and allied products	1.69	0.010	1.36	0.0715	N/A	1.43	0.193	0.0102	N/A	0.203	1.63
Electronic and other electric equipment manufacturing (SICs combined)	0.0485	0.000	0.0201	0.0067	N/A	0.0267	0.0086	0.0029	N/A	0.0115	0.0382
Agricultural Chemicals	0.0175	0.000	0.0067	0	N/A	0.0067	0.0107	0	N/A	0.0107	0.0175

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Pollutant: Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Mobile Sources: On-Road Vehicles	97,506	35.30	N/A	N/A	48,256	48,256	N/A	N/A	16,537	16,537	64,793
Open Burning: Forest and Wildfires	68,238	24.70	0	4231	N/A	4231	0	9956	N/A	9956	14,187
Open Burning: Prescribed Burnings	58,610	21.22	0	8627	N/A	8627	0	13170	N/A	13170	21,797
Mobile Sources: Non-Road Vehicles and Equipment - Other	26,864	9.73	N/A	N/A	18,638	18,638	N/A	N/A	3804	3804	22,442
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	6,790	2	N/A	N/A	5,862	5,862	N/A	N/A	724	724	6,586
Pulp and Paper: Non-Combustion Sources	3080	1.12	889	0	N/A	889	867	0	N/A	867	1756
Structure Fires	2217	0.80	0	1538	N/A	1538	0	314	N/A	314	1852
Reconstituted wood products (1987)	1430	0.52	61.5	0	N/A	61.5	242	0	N/A	242	303
Miscellaneous Organic Chemical Processes (SICs combined)	1281	0.46	954	0	N/A	954	159	0	N/A	159	1114
Industrial Turbines: Natural gas - fired	932	0.34	375	250	N/A	625	83.4	55.6	N/A	139	764
Mineral Wool Manufacturing	811	0.29	21.9	416	N/A	438	15.2	289	N/A	304	742
Industrial organic chemicals manufacturing	792	0.29	550	0	N/A	550	102	0	N/A	102	652
Industrial Boilers: Wood/Wood Residue Combustion	743	0.27	365	91.3	N/A	457	93.8	23.4	N/A	117	574
Pulp and Paper: Kraft Recovery Furnaces	657	0.24	190	0	N/A	190	185	0	N/A	185	374
Stationary Reciprocating IC Engines: Natural gas - fired	630	0.23	254	169	N/A	423	56.4	37.6	N/A	93.9	517
Chemical Manufacturing: Amino and Phenolic Resins	600	0.22	434	0	N/A	434	114	0	N/A	114	548
Industrial Boilers: Natural Gas Combustion	599	0.22	282	121	N/A	402	62.5	26.8	N/A	89.3	491

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Plastics materials and resins manufacturing	575	0.21	358	0	N/A	358	145	0	N/A	145	503
Pulp and Paper: Semichemical Recovery	385	0.14	29.6	0	N/A	29.6	59.2	0	N/A	59.2	89
Pharmaceuticals Preparations and Manufacturing (SICs combined)	351	0.13	283	14.9	N/A	298	28.2	1.5	N/A	29.6	327
Particleboard (disc. 1987, 2493)	329	0.12	0	0	N/A	0	173	0	N/A	173	173
Wood Products	326	0.12	24.0	0	N/A	24.0	155	0	N/A	155	179
Pressed and blown glass and glassware manufacturing	214	0.08	1.92	36.5	N/A	38.4	4.49	85.4	N/A	89.9	128
Textiles (SICs combined)	201	0.07	41.8	41.8	N/A	83.5	8.24	8.24	N/A	16.5	100
Consumer Products Usage (SICs combined)	157	0.06	0	109	N/A	109	0	22.2	N/A	22.2	131
Industrial inorganic chemical	121	0.04	87.1	0	N/A	87.1	3.58	0	N/A	3.58	90.7
Transportation Equipment Manufacture (SICs	119	0.04	59.1	19.7	N/A	78.7	15.8	5.25	N/A	21.0	100
Petroleum Refining: (ALL PROCESSES)	115	0.04	84.2	0	N/A	84.2	24.8	0	N/A	24.8	109
Hardwood veneer and plywood	102	0.04	0	0	N/A	0	7.85	0	N/A	7.85	7.85
Gray and ductile iron foundries	95.5	0.03	18.3	22.3	N/A	40.6	8.15	10.0	N/A	18.1	58.7
Petroleum Refining: Cyclic Crude and Intermediate Production	86.6	0.03	49.1	0	N/A	49.1	16.8	0	N/A	16.8	66.0
Commercial/Institutional Boilers: Distillate Oil Combustion	84.3	0.03	13.2	52.7	N/A	65.9	2.14	8.56	N/A	10.7	76.6
Millwork, Plywood, and Structural Members	71.8	0.03	0.550	0	N/A	0.550	71.2	0	N/A	71.2	71.8
Paper coated and laminated, packaging	60.1	0.02	40.8	4.04	N/A	44.9	13.4	1.33	N/A	14.7	59.6
Pulp and Paper: Sulfite Recovery	60.0	0.02	20.0	0	N/A	20.0	30.0	0	N/A	30.0	50.0
Industrial Boilers: Residual Oil Combustion	58.8	0.02	27.6	11.8	N/A	39.4	6.13	2.63	N/A	8.76	48.2

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Primary batteries, dry and wet,	56.6	0.02	27.4	9.13	N/A	36.5	4.21	1.40	N/A	5.61	42.1
Utility Boilers: Natural Gas Combustion	55.0	0.02	0	30.9	N/A	30.9	0	15.0	N/A	15.0	45.9
Commercial/Institutional Boilers: Residual Oil Combustion	53.2	0.02	8.32	33.3	N/A	41.6	1.35	5.41	N/A	6.76	48.4
Miscellaneous Plastics Products	49.1	0.02	19.5	0	N/A	19.7	19.1	0.193	N/A	19.3	39.0
Industrial Boilers: Distillate Oil Combustion	39.3	0.01	18.5	7.91	N/A	26.4	4.10	1.76	N/A	5.86	32.2
Chemical Preparations (SICs combined)	37.6	0.01	27.6	1.45	N/A	29.1	0.820	0.043	N/A	0.86	29.9
Utility Turbines: Diesel - Fired	37.0	0.01	17.4	7.46	N/A	24.9	3.87	1.66	N/A	5.52	30.4
Utility Boilers: Coal Combustion, All Types	35.0	0.01	13.5	0	N/A	13.5	8.75	0	N/A	8.75	22.2
Municipal Waste Combustion	33.2	0.01	24.3	1.28	N/A	25.6	3.98	0.209	N/A	4.19	29.8
Industrial Machinery and Electrical Equipment (SICs	31.0	0.01	12.4	4.13	N/A	16.5	5.72	1.91	N/A	7.62	24.2
Softwood veneer and plywood	27.8	0.01	1.70	0	N/A	1.70	7.90	0	N/A	7.90	9.60
Abrasive Grain (Media) Manufacturing	27.8	0.01	0.97	18.4	N/A	19.3	0.0929	1.76	N/A	1.86	21.2
Iron and Steel Foundries: Steel Foundries	25.3	0.01	7.65	9.35	N/A	17.0	3.61	4.41	N/A	8.01	25.0
Cellulosic man-made fibers	25.0	0.01	25.0	0	N/A	25.0	0	0	N/A	0	25.0
Electronic and other electric equipment manufacturing (SICs combined)	24.7	0.01	10.2	3.41	N/A	13.6	4.39	1.46	N/A	5.85	19.5
Chemical Manufacturing: Polyacetal Resins	20.7	0.01	3.20	0	N/A	3.20	17.5	0	N/A	17.5	20.7
Utility Boilers: Oil Combustion, All Types	19.0	0.01	7.82	7.82	N/A	15.6	1.30	1.30	N/A	2.61	18.3
Agricultural Chemicals	18.8	0.01	7.26	0	N/A	7.26	11.5	0	N/A	11.5	18.8
Sawmills and planing mills, general	18.3	0.01	0	0	N/A	0.0146	17.75	0	N/A	17.7	17.8
Asphalt Production - Other	17.9	0.01	17.3	0	N/A	17.3	0.180	0	N/A	0.180	17.5

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Converted Paper Products	17.7	0.01	16.1	1.59	N/A	17.7	0	0	N/A	0	17.7
Instruments and Related Products (SICs combined)	16.5	0.01	0	14.3	N/A	14.3	0	0.887	N/A	0.887	15.2
Surface active agents manufacturing	15.2	0.01	12.3	0.646	N/A	12.9	1.77	0.0929	N/A	1.86	14.8
Stationary Reciprocating IC Engines: Diesel - fired	14.6	0.01	6.86	2.94	N/A	9.80	1.52	0.653	N/A	2.18	12.0
Plastics products manufacturing	14.4	0.01	8.12	0.0820	N/A	8.20	3.21	0.0324	N/A	3.24	11.4
Industrial Boilers: Bituminous and Lignite Coal Combustion	13.8	0.00	6.47	2.77	N/A	9.25	1.44	0.616	N/A	2.05	11.3
Paints and allied products	12.4	0.00	10.6	0	N/A	10.6	0.841	0	N/A	0.841	11.4
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	12.4	0.00	1.90	7.59	N/A	9.48	0.338	1.35	N/A	1.69	11.2
Wood office furniture	12.1	0.00	0.215	0	N/A	0.215	0.0605	0	N/A	0.060	0.275
Misc. Nonmetallic Mineral Products	12.0	0.00	0	0	N/A	0	0	0	N/A	0	0
Wood television and radio cabinets	10.0	0.00	0	0	N/A	0	0	0	N/A	0	0
Nitrogenous fertilizers	9.44	0.00	0.372	0	N/A	0.372	8.86	0	N/A	8.86	9.23
Wood Treatment/Wood Preserving	9.38	0.00	0	3.61	N/A	3.61	0	1.95	N/A	1.95	5.55
Miscellaneous Manufacturing (SICs combined)	9.28	0.00	5.16	0.910	N/A	6.07	1.09	0.192	N/A	1.28	7.35
Secondary Lead Smelting	9.03	0.00	3.31	3.06	N/A	6.37	0.646	0.596	N/A	1.24	7.61
Chromium Plating: Chromic Anodizing	7.64	0.00	0.326	6.20	N/A	6.52	0.0212	0.403	N/A	0.424	6.95
Converted paper and paperboard products, nec (disc)	7.29	0.00	6.64	0.656	N/A	7.29	0	0	N/A	0	7.29
Paper coating and glazing manufacturing	7.27	0.00	4.77	0.472	N/A	5.24	1.85	0.182	N/A	2.03	7.27
Adhesives and Sealants (SICs combined)	6.51	0.00	5.85	0.308	N/A	6.16	0.111	5.83E-03	N/A	0.117	6.28
Fabricated metal products manufacturing (SICs	6.38	0.00	3.01	1.00	N/A	4.01	0.816	0.272	N/A	1.09	5.10

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutional Boilers: POTW Digester Gas Combustion	6.34	0.00	0	4.40	N/A	4.40	0	0.898	N/A	0.898	5.30
Laminated plastics plate and sheet (1987)	5.95	0.00	4.74	0.0479	N/A	4.79	0.642	6.48E-03	N/A	0.648	5.44
Food Products (SICs combined)	5.50	0.00	0.138	2.61	N/A	2.75	0.125	2.366	N/A	2.49	5.24
Industrial gases manufacturing	5.05	0.00	4.44	0.234	N/A	4.67	0	0	N/A	0	4.67
Leather tanning and finishing	3.95	0.00	2.25	0.749	N/A	3.00	3.64E-04	1.21E-04	N/A	0.000	3.00
Furniture and Fixtures	3.85	0.00	3.85	0	N/A	3.85	0	0	N/A	0	3.85
Wood household furniture manufacturing	3.82	0.00	0.656	0	N/A	0.656	0.241	0	N/A	0.241	0.897
Iron and Steel Foundries: Steel Investment Foundries	2.78	0.00	1.18	1.44	N/A	2.62	0.0222	0.0272	N/A	0.049	2.67
Unsupported plastics film and sheet manufacturing	2.52	0.00	1.39	0.0141	N/A	1.41	0.469	4.74E-03	N/A	0.474	1.88
Utility Turbines: Natural gas - fired	2.36	0.00	0.950	0.634	N/A	1.58	0.211	0.141	N/A	0.352	1.94
Primary metal products manufacturing (SICs combined)	2.36	0.00	0.676	0.827	N/A	1.50	0.140	0.171	N/A	0.311	1.81
Organic fibers, non-cellulosic manufacturing	2.30	0.00	1.35	0.0708	N/A	1.42	0.0962	5.06E-03	N/A	0.101	1.52
Gum and wood chemical	1.88	0.00	0.00670	3.53E-04	N/A	0.00706	1.76	0.0926	N/A	1.85	1.86
Plastics foam products manufacturing	1.87	0.00	0.983	9.92E-03	N/A	0.992	0.557	5.63E-03	N/A	0.563	1.56
Cleaning Products (SICs combined)	1.68	0.00	1.12	0.0592	N/A	1.18	0.355	0.0187	N/A	0.373	1.56
Medical Waste Incineration	1.38	0.00	0.153	0.867	N/A	1.02	0.0313	0.177	N/A	0.208	1.23
Chemical Manufacturing: Alkalies and chlorine	1.37	0.00	0.229	0.534	N/A	0.763	0.0732	0.171	N/A	0.244	1.01
Other Miscellaneous (SICs combined)	1.14	0.00	0.800	0.0889	N/A	0.889	0.0476	0.0053	N/A	0.053	0.942
Synthetic rubber manufacturing	0.857	0.00	0.735	0	N/A	0.735	0.109	0	N/A	0.109	0.844
Wood kitchen cabinets	0.817	0.00	0.0396	0	N/A	0.0396	0.0622	0	N/A	0.0622	0.102

Table 6-25. Base Year 1990 National Emission Estimates for Formaldehyde

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Public building and related furniture	0.500	0.00	0.0802	0	N/A	0.0802	0.0169	0	N/A	0.0169	0.0970
Chemicals and allied products	0.473	0.00	0.381	0.0201	N/A	0.401	0.0541	0.0028	N/A	0.0570	0.458
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.430	0.00	0.0672	0.269	N/A	0.336	0.0109	0.0437	N/A	0.0546	0.391
Sewage Sludge Incineration	0.321	0.00	0	0.247	N/A	0.247	0	0.0281	N/A	0.0281	0.275
Structural wood members, nec	0.308	0.00	0.183	0	N/A	0.183	0.125	0	N/A	0.125	0.308
Office furniture, except wood manufacturing	0.285	0.00	0.104	0	N/A	0.104	0.178	0	N/A	0.178	0.282
Inorganic Pigments Manufacturing	0.263	0.00	0.224	0	N/A	0.224	0.0384	0	N/A	0.0384	0.263
Fabricated rubber products	0.257	0.00	0.254	2.57E-03	N/A	0.257	0	0	N/A	0	0.257
Custom compound purchased resins manufacturing	0.250	0.00	0.186	1.88E-03	N/A	0.188	0.0198	2.00E-04	N/A	0.0200	0.208
Drapery hardware and blinds and shades	0.250	0.00	0.250	0	N/A	0.250	0	0	N/A	0	0.250
Secondary Aluminum Smelting	0.193	0.00	0.0781	0.0955	N/A	0.174	3.29E-03	4.02E-03	N/A	7.31E-03	0.181
Furniture and fixtures manufacturing	0.157	0.00	0.157	0	N/A	0.157	0	0	N/A	0	0.157
Partitions And Fixtures	0.125	0.00	0	0	N/A	0	0	0	N/A	0	0
Minerals, ground or treated production	0.005	0.00	2.57E-05	4.89E-04	N/A	5.15E-04	4.76E-05	9.05E-04	N/A	9.53E-04	1.47E-03
Nonclay refractories	0.0025	0.00	1.12E-04	2.13E-03	N/A	2.24E-03	4.81E-07	9.13E-06	N/A	9.62E-06	2.25E-03
Portland Cement Manufacture: All Fuels	0.002	0.00	9.85E-04	1.74E-04	N/A	1.16E-03	3.18E-04	5.61E-05	N/A	3.74E-04	1.53E-03
Crematories	3.98E-08	0.00	0	2.76E-08	N/A	2.76E-08	0	5.64E-09	N/A	0.00	3.32E-08

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-26. Base Year 1990 National Emission Estimates for Hydrazine

Pollutant: Hydrazine

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Pharmaceuticals Preparations and Manufacturing (SICs combined)	108	86	87	4.59	N/A	91.7	8.67	0.456	N/A	9.128	101
Industrial inorganic chemical	6.32	5	4.57	0	N/A	4.57	0.188	0	N/A	0.188	4.76
Miscellaneous Organic Chemical Processes (SICs combined)	5.13	4	3.82	0	N/A	3.82	0.637	0	N/A	0.637	4.46
Petroleum Refining: Cyclic Crude and Intermediate Production	2.81	2	1.59	0	N/A	1.59	0.546	0	N/A	0.546	2.14
Industrial organic chemicals manufacturing	1.12	0.89	0.778	0	N/A	0.778	0.145	0	N/A	0.145	0.923
Primary metal products manufacturing (SICs combined)	0.500	0.40	0.143	0.175	N/A	0.319	0.0297	0.0363	N/A	0.066	0.385
Petroleum Refining: (ALL PROCESSES)	0.477	0.38	0.348	0	N/A	0.348	0.103	0	N/A	0.103	0.451
Chemicals and allied products	0.432	0.34	0.348	0.0183	N/A	0.366	0.0495	2.60E-03	N/A	0.052	0.418
Agricultural Chemicals	0.400	0.32	0.154	0	N/A	0.154	0.245	0	N/A	0.245	0.399
Transportation Equipment Manufacture (SICs	0.383	0.30	0.190	0.0633	N/A	0.253	0.0507	0.0169	N/A	0.068	0.321
Plastics materials and resins manufacturing	0.265	0.21	0.165	0	N/A	0.165	0.0666	0	N/A	0.067	0.231
Synthetic rubber manufacturing	0.151	0.12	0.130	0	N/A	0.130	0.0192	0	N/A	0.019	0.149
Other Miscellaneous (SICs combined)	0.151	0.12	0.106	0.0118	N/A	0.118	6.30E-03	7.00E-04	N/A	0.007	0.125

Table 6-26. Base Year 1990 National Emission Estimates for Hydrazine

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Alkalies and chlorine	0.0390	0.03	6.50E-03	0.0152	N/A	0.0217	2.08E-03	4.84E-03	N/A	0.007	0.0286
Chemical Preparations (SICs combined)	0.0130	0.01	9.55E-03	5.03E-04	N/A	0.0101	2.84E-04	1.49E-05	N/A	0.000	0.0103

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Pollutant: Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Mobile Sources: On-Road Vehicles	1,690	34.05	N/A	N/A	836	836	N/A	N/A	286	286	1,122
Iron and Steel Foundries: All Processes	571	11.50	0.00	0.00	N/A	0.00	541.71	0.00	N/A	542	542
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	384	7.74	N/A	N/A	332	332	N/A	N/A	40.51	40.51	372
Primary nonferrous metals production	299	6.03	62.34	76.19	N/A	139	33.38	40.80	N/A	74.19	213
Primary metal products manufacturing (SICs combined)	208	4.20	59.72	72.99	N/A	133	12.38	15.13	N/A	27.51	160
Mobile Sources: Non-Road Vehicles and Equipment - Other	197	3.97	N/A	N/A	136.68	137	N/A	N/A	27.90	27.90	165
Primary Copper Smelting	152	3.07	6.35	19.04	N/A	25.38	21.29	63.88	N/A	85.17	111
Pulp and Paper: Kraft Recovery Furnaces	149	3.00	43.00	0.00	N/A	43.00	41.93	0.00	N/A	41.93	84.93
Lead Oxide in Pigments	136	2.74	75.67	0.00	N/A	75.67	31.51	0.00	N/A	31.51	107
Other Secondary Nonferrous Metals Recovery	122	2.46	49.34	60.31	N/A	110	2.08	2.54	N/A	4.62	114
Secondary Lead Smelting	113	2.28	41.42	38.23	N/A	79.65	8.08	7.46	N/A	15.54	95.19
Blast furnaces and steel mills	110	2.21	39.79	48.64	N/A	88.43	8.36	10.22	N/A	18.58	107
Residential Boilers: Distillate Oil Combustion	92.98	1.87	0.00	64.51	N/A	64.51	0.00	13.17	N/A	13.17	77.68
Secondary Copper Smelting	75.00	1.51	30.36	37.10	N/A	67.46	1.28	1.56	N/A	2.84	70.30
Utility Boilers: Coal Combustion, All Types	72.00	1.45	27.77	0.00	N/A	27.77	18.00	0.00	N/A	18.00	45.77
Medical Waste Incineration	63.43	1.28	7.01	39.72	N/A	46.73	1.43	8.12	N/A	9.55	56.28
Storage batteries manufacturing	56.30	1.13	1.72	32.65	N/A	34.37	0.87	16.46	N/A	17.33	51.69
Pressed and blown glass and glassware manufacturing	52.39	1.06	0.47	8.94	N/A	9.41	1.10	20.90	N/A	22.00	31.41

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Wood/Wood Residue Combustion	40.32	0.81	19.82	4.95	N/A	24.77	5.09	1.27	N/A	6.36	31.14
Fabricated metal products manufacturing (SICs	38.19	0.77	18.00	6.00	N/A	24.00	4.88	1.63	N/A	6.51	30.51
Paint Application: Small Shops	35.00	0.71	6.36	19.07	N/A	25.43	1.17	3.52	N/A	4.69	30.12
Municipal Waste Combustion	26.00	0.52	19.05	1.00	N/A	20.05	3.12	0.16	N/A	3.28	23.34
Industrial Boilers: Bituminous and Lignite Coal Combustion	24.11	0.49	11.33	4.85	N/A	16.18	2.52	1.08	N/A	3.59	19.78
Petroleum Refining: Cyclic Crude and Intermediate Production	22.90	0.46	13.00	0.00	N/A	13.00	4.45	0.00	N/A	4.45	17.45
Residential Boilers: Bituminous and Lignite Coal Combustion	19.29	0.39	0.00	13.38	N/A	13.38	0.00	2.73	N/A	2.73	16.11
Paints and allied products	18.04	0.36	15.32	0.00	N/A	15.32	1.22	0.00	N/A	1.22	16.54
Secondary Aluminum Smelting	15.00	0.30	6.07	7.42	N/A	13.49	0.26	0.31	N/A	0.57	14.06
Sewage Sludge Incineration	13.86	0.28	0.00	10.68	N/A	10.68	0.00	1.21	N/A	1.21	11.89
Transportation Equipment Manufacture (SICs	13.85	0.28	6.87	2.29	N/A	9.16	1.83	0.61	N/A	2.44	11.60
Gray and ductile iron foundries	12.03	0.24	2.30	2.82	N/A	5.12	1.03	1.25	N/A	2.28	7.40
Electronic and other electric equipment manufacturing (SICs combined)	11.36	0.23	4.70	1.57	N/A	6.27	2.02	0.67	N/A	2.69	8.95
Utility Boilers: Oil Combustion, All Types	10.60	0.21	4.36	4.36	N/A	8.73	0.73	0.73	N/A	1.46	10.18
Industrial Machinery and Electrical Equipment (SICs	9.01	0.18	3.61	1.20	N/A	4.81	1.66	0.55	N/A	2.22	7.03
Fabricated metal products, nec	6.29	0.13	3.96	1.32	N/A	5.28	0.38	0.13	N/A	0.50	5.79
Residential Boilers: Anthracite Coal Combustion	5.86	0.12	0.00	4.06	N/A	4.06	0.00	0.83	N/A	0.83	4.89

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Paint Application: Medium Shops	5.83	0.12	1.06	3.18	N/A	4.24	0.20	0.59	N/A	0.78	5.02
Custom compound purchased resins manufacturing	5.76	0.12	4.29	0.04	N/A	4.34	0.46	0.00	N/A	0.46	4.80
Miscellaneous Organic Chemical Processes (SICs combined)	4.98	0.10	3.71	0.00	N/A	3.71	0.62	0.00	N/A	0.62	4.33
Petroleum Refining: (ALL PROCESSES)	4.88	0.10	3.57	0.00	N/A	3.57	1.05	0.00	N/A	1.05	4.62
Rubber and plastic hose and belting manufacturing	4.34	0.09	0.33	0.00	N/A	0.34	3.21	0.03	N/A	3.24	3.58
Glass containers	4.33	0.09	0.15	2.78	N/A	2.92	0.03	0.66	N/A	0.70	3.62
Paint Application: Large Shops	4.08	0.08	0.74	2.23	N/A	2.97	0.14	0.41	N/A	0.55	3.51
Industrial inorganic chemical	4.01	0.08	2.90	0.00	N/A	2.90	0.12	0.00	N/A	0.12	3.02
Chemical Manufacturing: Coke	4.00	0.08	3.59	0.00	N/A	3.59	0.28	0.00	N/A	0.28	3.86
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	4.00	0.08	0.63	2.50	N/A	3.13	0.10	0.41	N/A	0.51	3.63
Miscellaneous Manufacturing (SICs combined)	3.28	0.07	1.83	0.32	N/A	2.15	0.39	0.07	N/A	0.45	2.60
Primary smelting and refining of zinc	3.06	0.06	0.68	0.83	N/A	1.52	0.70	0.85	N/A	1.55	3.06
Industrial Boilers: Residual Oil Combustion	3.00	0.06	1.41	0.60	N/A	2.01	0.31	0.13	N/A	0.45	2.46
Commercial/Institutional Boilers: Residual Oil Combustion	3.00	0.06	0.47	1.88	N/A	2.34	0.08	0.30	N/A	0.38	2.73
Portland Cement Manufacture: All Fuels	2.94	0.06	1.45	0.26	N/A	1.71	0.47	0.08	N/A	0.55	2.26
Pottery products, nec	2.50	0.05	0.09	1.63	N/A	1.72	0.04	0.74	N/A	0.78	2.50
Vitreous plumbing fixtures	2.15	0.04	0.06	1.13	N/A	1.19	0.05	0.91	N/A	0.96	2.15
Products of purchased glass	1.88	0.04	0.02	0.33	N/A	0.34	0.04	0.67	N/A	0.71	1.05
Vitreous china table and kitchenware	1.78	0.04	0.03	0.60	N/A	0.63	0.00	0.00	N/A	0.00	0.63
Plastics products manufacturing	1.76	0.04	0.99	0.01	N/A	1.00	0.39	0.00	N/A	0.39	1.39

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Anthracite Coal Combustion	1.74	0.03	0.82	0.35	N/A	1.16	0.18	0.08	N/A	0.26	1.42
Plastics materials and resins manufacturing	1.48	0.03	0.92	0.00	N/A	0.92	0.37	0.00	N/A	0.37	1.29
Agricultural Chemicals	1.38	0.03	0.53	0.00	N/A	0.53	0.84	0.00	N/A	0.84	1.37
Industrial organic chemicals manufacturing	1.36	0.03	0.94	0.00	N/A	0.94	0.18	0.00	N/A	0.18	1.12
Primary Aluminum Production	1.29	0.03	0.08	0.09	N/A	0.17	0.19	0.24	N/A	0.43	0.60
Instruments and Related Products (SICs combined)	1.24	0.02	0.00	1.08	N/A	1.08	0.00	0.07	N/A	0.07	1.14
Chemical Preparations (SICs combined)	1.17	0.02	0.86	0.05	N/A	0.90	0.03	0.00	N/A	0.03	0.93
Electroplating: Printed Circuit Boards	1.10	0.02	0.68	0.23	N/A	0.91	0.09	0.03	N/A	0.12	1.03
Iron and Steel Foundries: Steel Investment Foundries	1.10	0.02	0.47	0.57	N/A	1.04	0.01	0.01	N/A	0.02	1.06
Industrial Boilers: Natural Gas Combustion	1.05	0.02	0.49	0.21	N/A	0.70	0.11	0.05	N/A	0.16	0.86
Industrial Boilers: Distillate Oil Combustion	1.00	0.02	0.47	0.20	N/A	0.67	0.10	0.04	N/A	0.15	0.82
Commercial/Institutional Boilers: Distillate Oil Combustion	1.00	0.02	0.16	0.63	N/A	0.78	0.03	0.10	N/A	0.13	0.91
Structural Clay Products, Nec	0.94	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Coke Ovens: By-product Recovery Plants	0.85	0.02	0.76	0.00	N/A	0.76	0.06	0.00	N/A	0.06	0.82
Drum and Barrel Reclamation	0.81	0.02	0.00	0.81	N/A	0.81	0.00	0.00	N/A	0.00	0.81
Chromium Plating: Chromic Anodizing	0.69	0.01	0.03	0.56	N/A	0.59	0.00	0.04	N/A	0.04	0.63
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.67	0.01	0.10	0.41	N/A	0.51	0.02	0.07	N/A	0.09	0.60
Chemical Manufacturing: Explosives & Blasting Agents	0.63	0.01	0.28	0.00	N/A	0.28	0.34	0.00	N/A	0.34	0.63

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fabricated rubber products	0.53	0.01	0.53	0.01	N/A	0.53	0.00	0.00	N/A	0.00	0.53
Tire Manufacturing	0.50	0.01	0.17	0.00	N/A	0.17	0.20	0.00	N/A	0.20	0.37
Lubricating oils and greases	0.50	0.01	0.47	0.00	N/A	0.47	0.03	0.00	N/A	0.03	0.49
Asphalt paving mixtures and blocks	0.49	0.01	0.49	0.00	N/A	0.49	0.00	0.00	N/A	0.00	0.49
Utility Boilers: Natural Gas Combustion	0.44	0.01	0.00	0.25	N/A	0.25	0.00	0.12	N/A	0.12	0.37
Miscellaneous Plastics Products	0.43	0.01	0.17	0.00	N/A	0.17	0.17	0.00	N/A	0.17	0.34
Iron and Steel Foundries: Steel Foundries	0.38	0.01	0.11	0.14	N/A	0.26	0.05	0.07	N/A	0.12	0.38
Malleable iron foundries	0.38	0.01	0.17	0.21	N/A	0.38	0.00	0.00	N/A	0.00	0.38
Abrasive Grain (Media) Manufacturing	0.38	0.01	0.01	0.25	N/A	0.26	0.00	0.02	N/A	0.03	0.29
Primary batteries, dry and wet,	0.38	0.01	0.18	0.06	N/A	0.24	0.03	0.01	N/A	0.04	0.28
Ship Building & Repair (Surface Coating)	0.38	0.01	0.23	0.08	N/A	0.30	0.01	0.00	N/A	0.01	0.31
Other Miscellaneous (SICs combined)	0.29	0.01	0.20	0.02	N/A	0.23	0.01	0.00	N/A	0.01	0.24
Unsupported plastics film and sheet manufacturing	0.27	0.01	0.15	0.00	N/A	0.15	0.05	0.00	N/A	0.05	0.20
Textiles (SICs combined)	0.27	0.01	0.06	0.06	N/A	0.11	0.01	0.01	N/A	0.02	0.13
Porcelain electrical supplies	0.26	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Phosphatic fertilizers production	0.25	0.01	0.08	0.00	N/A	0.08	0.10	0.00	N/A	0.10	0.19
Semivitreous Table & Kitchenware	0.25	0.01	0.00	0.00	N/A	0.00	0.25	0.00	N/A	0.25	0.25
Food Products (SICs combined)	0.18	0.00	0.00	0.09	N/A	0.09	0.00	0.08	N/A	0.08	0.17
Aviation Gasoline Distribution: Stage I & II	0.15	0.00	0.01	0.09	N/A	0.10	0.00	0.02	N/A	0.02	0.13
Unsupported plastics profile shapes (1987)	0.13	0.00	0.12	0.00	N/A	0.12	0.00	0.00	N/A	0.00	0.12
Paper coated and laminated, packaging	0.13	0.00	0.08	0.01	N/A	0.09	0.03	0.00	N/A	0.03	0.12
Organic fibers, non-cellulosic manufacturing	0.13	0.00	0.07	0.00	N/A	0.08	0.01	0.00	N/A	0.01	0.08

Table 6-27. Base Year 1990 National Emission Estimates for Lead Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Minerals, ground or treated production	0.13	0.00	0.00	0.01	N/A	0.01	0.00	0.02	N/A	0.02	0.04
Semiconductors and related devices	0.06	0.00	0.05	0.02	N/A	0.06	0.00	0.00	N/A	0.00	0.06
Pulp and Paper: Sulfite Recovery	0.05	0.00	0.02	0.00	N/A	0.02	0.03	0.00	N/A	0.03	0.04
Lime	0.05	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Utility Turbines: Natural gas - fired	0.02	0.00	0.01	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
Gasoline Distribution Stage I	0.02	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Gasoline Distribution Stage II	0.02	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.02
Open Burning: Scrap Tires	0.02	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Nonmetallic mineral products	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Electrical industrial apparatus, nec	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Adhesives and Sealants (SICs combined)	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Carbon and Graphite Products	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Chemicals and allied products	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Greeting cards	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Pollutant: Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Wood/Wood Residue Combustion	1142	30.43	561	140	N/A	701	144	36.03	N/A	180.14	882
Blast furnaces and steel mills	507	13.51	184	225	N/A	409	38.68	47.27	N/A	85.95	495
Primary metal products manufacturing (SICs combined)	450	12.00	129	158	N/A	287	26.75	32.70	N/A	59.45	346
Coke Ovens: By-product Recovery Plants	227	6.06	204	0.00	N/A	204	15.69	0.00	N/A	15.69	220
Gray and ductile iron foundries	182	4.84	34.78	42.50	N/A	77.28	15.50	18.94	N/A	34.44	112
Utility Boilers: Coal Combustion, All Types	180	4.80	69.43	0.00	N/A	69.43	45.00	0.00	N/A	45.00	114
Industrial inorganic chemical	155	4.12	112	0.00	N/A	112	4.58	0.00	N/A	4.58	116
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	101	2.69	15.76	63.05	N/A	78.81	2.56	10.25	N/A	12.81	91.6
Municipal Waste Combustion	86.7	2.31	63.50	3.34	N/A	66.85	10.40	0.55	N/A	10.94	77.8
Industrial Machinery and Electrical Equipment (SICs	77.2	2.06	30.93	10.31	N/A	41.24	14.26	4.75	N/A	19.01	60.3
Residential Boilers: Bituminous and Lignite Coal Combustion	75.4	2.01	0.00	52.29	N/A	52.29	0.00	10.67	N/A	10.67	63.0
Fabricated metal products manufacturing (SICs	66.1	1.76	31.16	10.39	N/A	41.55	8.46	2.82	N/A	11.27	52.8
Vitreous plumbing fixtures	63.1	1.68	1.75	33.18	N/A	34.92	1.41	26.70	N/A	28.10	63.0
Iron and Steel Foundries: Steel Foundries	44.6	1.19	13.49	16.48	N/A	29.97	6.36	7.77	N/A	14.12	44.1
Transportation Equipment Manufacture (SICs	44.5	1.19	22.07	7.36	N/A	29.42	5.89	1.96	N/A	7.85	37.3
Mobile Sources: On-Road Vehicles	29.7	0.79	0.00	0.00	14.71	14.71	0.00	0.00	5.04	5.04	19.8

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Pulp and Paper: Kraft Recovery Furnaces	29.0	0.77	8.37	0.00	N/A	8.37	8.16	0.00	N/A	8.16	16.5
Industrial Boilers: Bituminous and Lignite Coal Combustion	28.1	0.75	13.21	5.66	N/A	18.88	2.94	1.26	N/A	4.19	23.1
Miscellaneous Organic Chemical Processes (SICs combined)	27.3	0.73	20.37	0.00	N/A	20.37	3.40	0.00	N/A	3.40	23.8
Mobile Sources: Non-Road Vehicles and Equipment - Other	20.2	0.54	0.00	0.00	13.99	13.99	0.00	0.00	2.85	2.85	16.8
Industrial Turbines: Natural gas - fired	19.5	0.52	7.85	5.23	N/A	13.09	1.74	1.16	N/A	2.91	16.0
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	19.0	0.51	2.91	11.66	N/A	14.57	0.52	2.08	N/A	2.60	17.2
Food Products (SICs combined)	16.7	0.45	0.42	7.93	N/A	8.35	0.38	7.18	N/A	7.56	15.9
Utility Turbines: Diesel - Fired	12.5	0.33	5.86	2.51	N/A	8.37	1.30	0.56	N/A	1.86	10.2
Industrial Boilers: Waste Oil Combustion	11.8	0.32	5.55	2.38	N/A	7.93	1.23	0.53	N/A	1.76	9.69
Electronic and other electric equipment manufacturing (SICs combined)	11.2	0.30	4.63	1.54	N/A	6.18	1.99	0.66	N/A	2.65	8.83
Structural Clay Products, Nec	11.0	0.29	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Chemical Preparations (SICs combined)	9.93	0.26	7.29	0.38	N/A	7.68	0.22	0.01	N/A	0.23	7.90
Utility Boilers: Oil Combustion, All Types	9.50	0.25	3.91	3.91	N/A	7.82	0.65	0.65	N/A	1.30	9.13
Commercial/Institutional Boilers: Residual Oil Combustion	9.09	0.24	1.42	5.68	N/A	7.10	0.23	0.92	N/A	1.15	8.26
Agricultural Chemicals	8.75	0.23	3.37	0.00	N/A	3.37	5.37	0.00	N/A	5.37	8.74
Inorganic Pigments Manufacturing	6.97	0.19	5.95	0.00	N/A	5.95	1.02	0.00	N/A	1.02	6.97
Other Secondary Nonferrous Metals Recovery	5.12	0.14	2.07	2.53	N/A	4.60	0.09	0.11	N/A	0.19	4.80
Primary batteries, dry and wet,	4.67	0.12	2.26	0.75	N/A	3.02	0.35	0.12	N/A	0.46	3.48
Secondary Lead Smelting	4.56	0.12	1.67	1.54	N/A	3.21	0.33	0.30	N/A	0.63	3.84

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Residual Oil Combustion	4.15	0.11	1.95	0.84	N/A	2.79	0.43	0.19	N/A	0.62	3.41
Primary Aluminum Production	4.09	0.11	0.24	0.30	N/A	0.54	0.61	0.74	N/A	1.35	1.90
Industrial organic chemicals manufacturing	3.93	0.10	2.73	0.00	N/A	2.73	0.51	0.00	N/A	0.51	3.23
Petroleum Refining: (ALL PROCESSES)	3.70	0.10	2.70	0.00	N/A	2.70	0.80	0.00	N/A	0.80	3.50
Commercial/Institutional Boilers: Distillate Oil Combustion	3.41	0.09	0.53	2.13	N/A	2.66	0.09	0.35	N/A	0.43	3.10
Residential Boilers: Wood/Wood Residue Combustion	2.84	0.08	0.00	1.96	N/A	1.96	0.00	0.41	N/A	0.41	2.38
Fabricated metal products, nec	2.46	0.07	1.55	0.52	N/A	2.07	0.15	0.05	N/A	0.20	2.26
Ship Building & Repair (Surface Coating)	2.23	0.06	1.36	0.45	N/A	1.81	0.04	0.01	N/A	0.06	1.87
Primary smelting and refining of zinc	2.08	0.06	0.46	0.57	N/A	1.03	0.47	0.58	N/A	1.05	2.08
Organic fibers, non-cellulosic manufacturing	2.04	0.05	1.19	0.06	N/A	1.25	0.09	0.00	N/A	0.09	1.34
Plastics materials and resins manufacturing	1.96	0.05	1.22	0.00	N/A	1.22	0.49	0.00	N/A	0.49	1.71
Miscellaneous Manufacturing (SICs combined)	1.75	0.05	0.97	0.17	N/A	1.15	0.21	0.04	N/A	0.24	1.39
Phosphatic fertilizers production	1.64	0.04	0.55	0.00	N/A	0.55	0.65	0.00	N/A	0.65	1.20
Industrial Boilers: Distillate Oil Combustion	1.61	0.04	0.75	0.32	N/A	1.08	0.17	0.07	N/A	0.24	1.32
Industrial Boilers: Natural Gas Combustion	1.47	0.04	0.69	0.30	N/A	0.99	0.15	0.07	N/A	0.22	1.21
Residential Boilers: Anthracite Coal Combustion	1.39	0.04	0.00	0.96	N/A	0.96	0.00	0.20	N/A	0.20	1.16
Primary Copper Smelting	1.24	0.03	0.05	0.15	N/A	0.21	0.17	0.52	N/A	0.69	0.90
Sewage Sludge Incineration	1.13	0.03	0.00	0.87	N/A	0.87	0.00	0.10	N/A	0.10	0.97

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Primary nonferrous metals production	0.99	0.03	0.21	0.25	N/A	0.46	0.11	0.13	N/A	0.24	0.70
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.98	0.03	0.79	0.04	N/A	0.83	0.08	0.00	N/A	0.08	0.91
Commercial/Institutional Boilers: Anthracite Coal Combustion	0.89	0.02	0.14	0.55	N/A	0.69	0.02	0.09	N/A	0.11	0.81
Instruments and Related Products (SICs combined)	0.88	0.02	0.00	0.77	N/A	0.77	0.00	0.05	N/A	0.05	0.82
Iron and Steel Foundries: Steel Investment Foundries	0.71	0.02	0.30	0.37	N/A	0.67	0.01	0.01	N/A	0.01	0.68
Industrial Boilers: Anthracite Coal Combustion	0.70	0.02	0.33	0.14	N/A	0.47	0.07	0.03	N/A	0.10	0.58
Residential Boilers: Distillate Oil Combustion	0.59	0.02	0.00	0.41	N/A	0.41	0.00	0.08	N/A	0.08	0.49
Malleable iron	0.51	0.01	0.23	0.28	N/A	0.51	0.00	0.00	N/A	0.00	0.51
Office furniture, except wood manufacturing	0.50	0.01	0.18	0.00	N/A	0.18	0.31	0.00	N/A	0.31	0.50
Custom compound purchased resins manufacturing	0.50	0.01	0.37	0.00	N/A	0.38	0.04	0.00	N/A	0.04	0.42
Nitrogenous fertilizers	0.50	0.01	0.02	0.00	N/A	0.02	0.47	0.00	N/A	0.47	0.49
Abrasive Grain (Media) Manufacturing	0.50	0.01	0.02	0.33	N/A	0.35	0.00	0.03	N/A	0.03	0.38
Medical Waste Incineration	0.49	0.01	0.05	0.31	N/A	0.36	0.01	0.06	N/A	0.07	0.44
Chromium Plating: Chromic Anodizing	0.39	0.01	0.02	0.32	N/A	0.33	0.00	0.02	N/A	0.02	0.35
Partitions and fixtures, except wood	0.38	0.01	0.00	0.00	N/A	0.00	0.23	0.00	N/A	0.23	0.24
Porcelain electrical supplies	0.38	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Glass containers	0.38	0.01	0.01	0.24	N/A	0.25	0.00	0.06	N/A	0.06	0.31
Utility Boilers: Natural Gas Combustion	0.37	0.01	0.00	0.21	N/A	0.21	0.00	0.10	N/A	0.10	0.31
Pulp and Paper: Sulfite Recovery	0.30	0.01	0.10	0.00	N/A	0.10	0.15	0.00	N/A	0.15	0.25
Unsupported plastics profile shapes (1987)	0.26	0.01	0.24	0.00	N/A	0.24	0.00	0.00	N/A	0.00	0.24

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Other Miscellaneous (SICs combined)	0.25	0.01	0.18	0.02	N/A	0.20	0.01	0.00	N/A	0.01	0.21
Concrete block and brick	0.25	0.01	0.01	0.24	N/A	0.25	0.00	0.00	N/A	0.00	0.25
Public building and related furniture	0.25	0.01	0.04	0.00	N/A	0.04	0.01	0.00	N/A	0.01	0.05
Utility Turbines: Natural gas - fired	0.16	0.00	0.06	0.04	N/A	0.11	0.01	0.01	N/A	0.02	0.13
Paints and allied products	0.15	0.00	0.12	0.00	N/A	0.12	0.01	0.00	N/A	0.01	0.13
Pressed and blown glass and glassware manufacturing	0.15	0.00	0.00	0.02	N/A	0.03	0.00	0.06	N/A	0.06	0.09
Textiles (SICs combined)	0.14	0.00	0.03	0.03	N/A	0.06	0.01	0.01	N/A	0.01	0.07
Miscellaneous Plastics Products	0.14	0.00	0.05	0.00	N/A	0.05	0.05	0.00	N/A	0.05	0.11
Clay refractories	0.13	0.00	0.00	0.04	N/A	0.05	0.00	0.02	N/A	0.02	0.07
Concrete products	0.13	0.00	0.01	0.12	N/A	0.12	0.00	0.00	N/A	0.00	0.12
Adhesives and Sealants (SICs combined)	0.06	0.00	0.06	0.00	N/A	0.06	0.00	0.00	N/A	0.00	0.06
Chemical Manufacturing: Alkalies and chlorine	0.06	0.00	0.01	0.02	N/A	0.03	0.00	0.01	N/A	0.01	0.04
Cleaning Products (SICs combined)	0.05	0.00	0.04	0.00	N/A	0.04	0.01	0.00	N/A	0.01	0.05
Wood household furniture manufacturing	0.02	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Storage batteries manufacturing	0.02	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Steel and Iron Reclamation- Auto Scrap Burning	0.01	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Plastics products manufacturing	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Fabricated rubber products	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Petroleum Refining: Cyclic Crude and Intermediate Production	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Semiconductors and related devices	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01

Table 6-28. Base Year 1990 National Emission Estimates for Manganese Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Crushed And Broken Limestone	0.01	0.00	0.00	0.00	N/A	0.00	0.01	0.00	N/A	0.01	0.01
Electrical industrial apparatus, nec	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-29. Base Year 1990 National Emission Estimates for Mercury Compounds

Pollutant: Mercury Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Municipal Waste Combustion	54.00	21.44	39.57	2.08	N/A	41.66	6.48	0.34	N/A	6.82	48.48
Utility Boilers: Coal Combustion, All Types	51.00	20.25	19.67	0.00	N/A	19.67	12.75	0.00	N/A	12.75	32.42
Medical Waste Incineration	50.00	19.85	5.53	31.31	N/A	36.84	1.13	6.40	N/A	7.53	44.37
Industrial Boilers: Coal, All Types	22.02	8.74	10.35	4.43	N/A	14.78	2.30	0.99	N/A	3.28	18.06
Chloralkali Production	9.80	3.89	0.75	1.75	N/A	2.50	1.56	3.64	N/A	5.20	7.70
Secondary Mercury Production	7.40	2.94	3.70	3.70	N/A	7.40	0.00	0.00	N/A	0.00	7.40
Mobile Sources: On-Road Vehicles	5.96	2.37	N/A	N/A	2.95	2.95	N/A	N/A	1.01	1.01	3.96
Industrial Boilers: Oil Combustion, All Types	5.80	2.30	2.72	1.17	N/A	3.89	0.60	0.26	N/A	0.86	4.75
Mobile Sources: Non-Road Vehicles and Equipment - Other	4.67	1.85	N/A	N/A	3.24	3.24	N/A	N/A	0.66	0.66	3.90
Stationary Reciprocating IC Engines: Natural gas - fired	4.47	1.78	1.80	1.20	N/A	3.00	0.40	0.27	N/A	0.67	3.67
Portland Cement Manufacture: Non-Hazardous Waste fired	4.00	1.59	1.85	0.46	N/A	2.32	0.60	0.15	N/A	0.75	3.07
Portland Cement Manufacture: Hazardous Waste-fired	3.50	1.39	2.03	0.00	N/A	2.03	0.65	0.00	N/A	0.65	2.68
Commercial/Institutional Boilers: Oil Combustion, all types	3.46	1.37	0.54	2.16	N/A	2.70	0.09	0.35	N/A	0.44	3.14
Hazardous Waste Incineration: Dedicated HWIs	3.20	1.27	2.14	0.00	N/A	2.14	0.48	0.00	N/A	0.48	2.62
Residential Boilers: Oil Combustion, All Types	3.00	1.19	0.00	2.08	N/A	2.08	0.00	0.42	N/A	0.42	2.51
Pulp and Paper: Kraft Recovery Furnaces	1.90	0.75	0.55	0.00	N/A	0.55	0.53	0.00	N/A	0.53	1.08
Sewage Sludge Incineration	1.80	0.71	0.00	1.39	N/A	1.39	0.00	0.16	N/A	0.16	1.54
Industrial Turbines: Natural gas - fired	1.61	0.64	0.65	0.43	N/A	1.08	0.14	0.10	N/A	0.24	1.32

Table 6-29. Base Year 1990 National Emission Estimates for Mercury Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Lamp Breakage	1.50	0.60	0.21	0.83	N/A	1.04	0.04	0.17	N/A	0.21	1.25
Primary Lead Smelting	1.30	0.52	0.65	0.00	N/A	0.65	0.33	0.00	N/A	0.33	0.98
Geothermal Power	1.30	0.52	0.00	0.46	N/A	0.46	0.00	0.19	N/A	0.19	0.65
Industrial inorganic chemical	1.00	0.40	0.72	0.00	N/A	0.72	0.03	0.00	N/A	0.03	0.75
Electronic and other electric equipment manufacturing (SICs combined)	0.88	0.35	0.36	0.12	N/A	0.49	0.16	0.05	N/A	0.21	0.69
General Laboratory Activities	0.80	0.32	0.11	0.44	N/A	0.56	0.02	0.09	N/A	0.11	0.67
Dental Preparation and Use	0.80	0.32	0.59	0.00	N/A	0.59	0.13	0.00	N/A	0.13	0.72
Commercial/Institutional Boilers: Coal Combustion, all types	0.78	0.31	0.12	0.49	N/A	0.61	0.02	0.08	N/A	0.10	0.71
Primary Copper Smelting	0.74	0.29	0.03	0.09	N/A	0.12	0.10	0.31	N/A	0.41	0.54
Lime	0.70	0.28	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Residential Boilers: Coal Combustion, All Types	0.60	0.24	0.00	0.42	N/A	0.42	0.00	0.08	N/A	0.08	0.50
Instrument Manufacturing	0.50	0.20	0.00	0.43	N/A	0.43	0.00	0.04	N/A	0.04	0.47
Industrial Boilers: Wood/Wood Residue Combustion	0.47	0.19	0.23	0.06	N/A	0.29	0.06	0.01	N/A	0.07	0.36
Electrical Apparatus Manufacturing	0.46	0.18	0.12	0.04	N/A	0.16	0.10	0.03	N/A	0.14	0.30
Lightweight Aggregate Kilns	0.31	0.12	0.24	0.04	N/A	0.28	0.02	0.00	N/A	0.02	0.30
Industrial Boilers: Non-Residential Wood Combustion	0.30	0.12	0.15	0.04	N/A	0.18	0.04	0.01	N/A	0.05	0.23
Utility Boilers: Oil Combustion, All Types	0.25	0.10	0.10	0.10	N/A	0.21	0.02	0.02	N/A	0.03	0.24
Blast furnaces and steel mills	0.25	0.10	0.09	0.11	N/A	0.20	0.02	0.02	N/A	0.04	0.24
Other Miscellaneous (SICs combined)	0.25	0.10	0.18	0.02	N/A	0.19	0.01	0.00	N/A	0.01	0.21
Carbon Black Manufacture	0.25	0.10	0.02	0.04	N/A	0.05	0.04	0.10	N/A	0.15	0.20
Other Secondary Nonferrous Metals Recovery	0.25	0.10	0.10	0.12	N/A	0.22	0.00	0.01	N/A	0.01	0.23

Table 6-29. Base Year 1990 National Emission Estimates for Mercury Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Custom compound purchased resins manufacturing	0.13	0.05	0.10	0.00	N/A	0.10	0.01	0.00	N/A	0.01	0.11
Structural Clay Products, Nec	0.11	0.04	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Miscellaneous Organic Chemical Processes (SICs combined)	0.10	0.04	0.07	0.00	N/A	0.07	0.01	0.00	N/A	0.01	0.08
Industrial Turbines: Diesel - fired	0.09	0.04	0.04	0.02	N/A	0.06	0.01	0.00	N/A	0.01	0.07
Petroleum Refining: (ALL PROCESSES)	0.04	0.02	0.03	0.00	N/A	0.03	0.01	0.00	N/A	0.01	0.04
Primary batteries, dry and wet,	0.03	0.01	0.02	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
Utility Turbines: Diesel - Fired	0.03	0.01	0.01	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
Industrial organic chemicals manufacturing	0.02	0.01	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.02
Battery Manufacture	0.02	0.01	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Secondary Lead Smelting	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Paints and allied products	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Fluorescent Lamp Recycling	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.01
Inorganic Pigments Manufacturing	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.01
Nonmetallic mineral products	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Plastics materials and resins manufacturing	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Chromium Plating: Chromic Anodizing	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Utility Boilers: Natural Gas Combustion	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

Table 6-29. Base Year 1990 National Emission Estimates for Mercury Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Electrical industrial apparatus, nec	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Crematories	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-30. Base Year 1990 National Emission Estimates for Methyl Chloride

Pollutant: Methyl Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial organic chemicals manufacturing	2819	38.93	1956	0.00	N/A	1956	364	0.00	N/A	364	2320
Miscellaneous Organic Chemical Processes (SICs combined)	2050	28.32	1527	0.00	N/A	1527	255	0.00	N/A	255	1782
Chemical Manufacturing: Chloromethanes Production	609	8.41	180	0.00	N/A	180	101	0.00	N/A	101	280
Formaldehyde, Acrolein, Acetaldehyde, Butyraldehyde	344	4.75	60.99	0.00	N/A	60.99	283	0.00	N/A	283	344
Pharmaceuticals Preparations and Manufacturing (SICs combined)	319	4.40	257	13.51	N/A	270	25.56	1.35	N/A	26.90	297
Surface active agents manufacturing	232	3.20	187	9.84	N/A	197	26.88	1.41	N/A	28.29	225
Plastic Material and Resins Manufacture	187	2.59	122	13.55	N/A	136	32.18	3.58	N/A	35.75	171
Secondary Lead Smelting	129	1.78	47.28	43.65	N/A	90.93	9.22	8.51	N/A	17.74	109
Petroleum Refining: Cyclic Crude and Intermediate Production	112	1.55	63.67	0.00	N/A	63.67	21.79	0.00	N/A	21.79	85.46
Plastics foam products manufacturing	71.50	0.99	37.52	0.38	N/A	37.90	21.28	0.21	N/A	21.49	59.39
Chemical Manufacturing: Alkalies and chlorine	68.35	0.94	11.39	26.57	N/A	37.95	3.64	8.49	N/A	12.13	50.08
Agricultural Chemicals	61.62	0.85	23.76	0.00	N/A	23.76	37.79	0.00	N/A	37.79	61.56
Paints and allied products	51.17	0.71	43.44	0.00	N/A	43.44	3.46	0.00	N/A	3.46	46.90
Utility Boilers: Coal Combustion, All Types	51.00	0.70	19.67	0.00	N/A	19.67	12.75	0.00	N/A	12.75	32.42
Chemicals and allied products	41.40	0.57	33.36	1.76	N/A	35.11	4.74	0.25	N/A	4.99	40.10

Table 6-30. Base Year 1990 National Emission Estimates for Methyl Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Bituminous and Lignite Coal Combustion	30.43	0.42	14.29	6.13	N/A	20.42	3.18	1.36	N/A	4.54	24.96
Fabricated metal products, nec	16.63	0.23	10.47	3.49	N/A	13.96	1.00	0.33	N/A	1.33	15.29
Cleaning Products (SICs combined)	9.84	0.14	6.58	0.35	N/A	6.92	2.08	0.11	N/A	2.18	9.11
Pulp and Paper: Non-Combustion Sources	9.00	0.12	2.60	0.00	N/A	2.60	2.53	0.00	N/A	2.53	5.13
Fabricated rubber products	6.53	0.09	6.46	0.07	N/A	6.53	0.00	0.00	N/A	0.00	6.53
Tire Manufacturing	5.95	0.08	2.02	0.02	N/A	2.04	2.39	0.02	N/A	2.41	4.45
Pulp and Paper: Sulfite Recovery	4.90	0.07	1.63	0.00	N/A	1.63	2.45	0.00	N/A	2.45	4.08
Structural Clay Products, Nec	3.80	0.05	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Transportation Equipment Manufacture (SICs	3.29	0.05	1.63	0.54	N/A	2.18	0.44	0.15	N/A	0.58	2.76
Chemical Preparations (SICs combined)	2.05	0.03	1.51	0.08	N/A	1.59	0.04	0.00	N/A	0.05	1.63
Petroleum Refining: (ALL PROCESSES)	1.55	0.02	1.13	0.00	N/A	1.13	0.33	0.00	N/A	0.33	1.47
Industrial inorganic chemical	0.96	0.01	0.70	0.00	N/A	0.70	0.03	0.00	N/A	0.03	0.72
Industrial gases manufacturing	0.20	0.00	0.17	0.01	N/A	0.18	0.00	0.00	N/A	0.00	0.18

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-31. Base Year 1990 National Emission Estimates for Methylene Chloride (Dichloromethane)

Pollutant: Methylene Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Flexible Polyurethane Foam Production	19,500	23	11,856	0.00	N/A	11,856	3824	0.00	N/A	3824	15,680
Pharmaceuticals Preparations and Manufacturing (SICs combined)	10,261	12	8,267	435	N/A	8702	823	43.30	N/A	866	9568
Halogenated Solvent Cleaners (Degreasing)	9590	11	7245.25	0.00	N/A	7245	1268	0.00	N/A	1268	8513
Flexible Polyurethane Foam Fabrication	5100	6.0	3101	0.00	N/A	3101	1000	0.00	N/A	1000	4101
Instruments and Related Products (SICs combined)	4788	5.6	0.00	4157	N/A	4157	0.00	258	N/A	258	4415
Consumer Products Usage (SICs combined)	4527	5.3	0.00	3140	N/A	3140	0.00	641	N/A	641	3781
Plastics materials and resins manufacturing	3247	3.8	2022	0.00	N/A	2022	818	0.00	N/A	818	2839
Transportation Equipment Manufacture (SICs	2743	3.2	1360	453	N/A	1814	363	121	N/A	484	2298
Publicly owned treatment works (POTWs)	2348	2.8	0.00	1629	N/A	1629	0.00	332	N/A	332	1961
Electronic and other electric equipment manufacturing (SICs combined)	2342	2.7	968	323	N/A	1291	415	138	N/A	554	1845
Miscellaneous Organic Chemical Processes (SICs combined)	2200	2.6	1638	0.00	N/A	1638	273	0.00	N/A	273	1912
Pulp and Paper: Non-Combustion Sources	1740	2.0	502	0.00	N/A	502	490	0.00	N/A	490	992
Miscellaneous Plastics Products	1723	2.0	685	6.92	N/A	692	671	6.78	N/A	678	1369
Landfills: Chemical Waste Emissions	1548	1.8	0.00	1074	N/A	1074	0.00	219	N/A	219	1293
Fabricated metal products manufacturing (SICs	1311	1.5	618	206	N/A	824	168	55.90	N/A	224	1048
Industrial Machinery and Electrical Equipment (SICs	1261	1.5	505	168	N/A	673	233	77.61	N/A	310	984
Plastics products manufacturing	1246	1.5	702	7.09	N/A	709	277	2.80	N/A	280	988

Table 6-31. Base Year 1990 National Emission Estimates for Methylene Chloride (Dichloromethane)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial organic chemicals manufacturing	804	0.94	558	0.00	N/A	558	104	0.00	N/A	104	662
Organic fibers, non-cellulosic manufacturing	735	0.86	429	22.59	N/A	452	30.70	1.62	N/A	32.32	484
Primary metal products manufacturing (SICs combined)	622	0.73	178	218	N/A	396	36.95	45.16	N/A	82.11	478
Fabricated rubber products	550	0.65	545	5.50	N/A	550	0.00	0.00	N/A	0.00	550
Paper coated and laminated, packaging	521	0.61	354	34.98	N/A	389	116	11.49	N/A	128	516
Chromium Plating: Chromic Anodizing	393	0.46	16.78	319	N/A	336	1.09	20.70	N/A	21.79	357
Adhesives and Sealants (SICs combined)	372	0.44	334	17.60	N/A	352	6.33	0.33	N/A	6.66	359
Chemical Manufacturing: Alkalies and chlorine	362	0.42	60.26	141	N/A	201	19.25	44.92	N/A	64.17	265
Miscellaneous Manufacturing (SICs combined)	344	0.40	191	33.74	N/A	225	40.39	7.13	N/A	47.52	272
Paints and allied products	294	0.35	250	0.00	N/A	250	19.89	0.00	N/A	19.89	270
Glass containers	288	0.34	9.72	185	N/A	194	2.32	44.06	N/A	46.38	241
Fabricated metal products, nec	281	0.33	177	59.06	N/A	236	16.93	5.64	N/A	22.57	259
Industrial inorganic chemical	274	0.32	198	0.00	N/A	198	8.11	0.00	N/A	8.11	206
Chemical Preparations (SICs combined)	272	0.32	200	10.53	N/A	211	5.94	0.31	N/A	6.25	217
Other Miscellaneous (SICs combined)	254	0.30	178	19.76	N/A	198	10.58	1.18	N/A	11.76	209
Textiles (SICs combined)	231	0.27	47.97	47.97	N/A	95.93	9.46	9.46	N/A	18.93	115
Custom compound purchased resins manufacturing	226	0.27	168	1.70	N/A	170	17.93	0.18	N/A	18.11	188
Tire Manufacturing	202	0.24	68.66	0.69	N/A	69.35	81.20	0.82	N/A	82.02	151
Agricultural Chemicals	182	0.21	69.99	0.00	N/A	69.99	111	0.00	N/A	111.33	181
Laminated plastics plate and sheet (1987)	166	0.19	132	1.34	N/A	134	17.89	0.18	N/A	18.07	152
Plastics pipe (1987)	162	0.19	91.65	0.93	N/A	92.58	66.85	0.68	N/A	67.52	160
Food Products (SICs combined)	157	0.18	3.93	74.73	N/A	78.67	3.56	67.67	N/A	71.23	150
Cleaning Products (SICs combined)	146	0.17	97.24	5.12	N/A	102	30.68	1.61	N/A	32.30	135
Utility Boilers: Coal Combustion, All Types	110	0.13	42.43	0.00	N/A	42.43	27.50	0.00	N/A	27.50	69.93

Table 6-31. Base Year 1990 National Emission Estimates for Methylene Chloride (Dichloromethane)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Rubber and plastic hose and belting manufacturing	110	0.13	8.43	0.09	N/A	8.51	80.97	0.82	N/A	81.79	90.30
Semiconductors and related devices	107	0.13	79.80	26.60	N/A	106.39	0.60	0.20	N/A	0.81	107.20
Plastics plumbing fixtures (1987)	94.07	0.11	25.72	0.26	N/A	25.98	36.61	0.37	N/A	36.98	62.96
Cellulosic man-made fibers	79.57	0.09	79.57	0.00	N/A	79.57	0.00	0.00	N/A	0.00	79.57
Unsupported plastics film and sheet manufacturing	74.56	0.09	41.18	0.42	N/A	41.60	13.87	0.14	N/A	14.01	55.60
Wood Products	71.52	0.08	5.27	0.00	N/A	5.27	34.12	0.00	N/A	34.12	39.39
Commercial printing, lithographic	71.45	0.08	54.33	5.37	N/A	59.71	10.68	1.06	N/A	11.74	71.45
Blast furnaces and steel mills	69.65	0.08	25.29	30.91	N/A	56.20	5.32	6.50	N/A	11.81	68.02
Gray and ductile iron foundries	64.13	0.08	12.28	15.00	N/A	27.28	5.47	6.69	N/A	12.16	39.44
Biological products (disc.198,2835or2836)	62.63	0.07	59.49	3.13	N/A	62.63	0.00	0.00	N/A	0.00	62.63
Pressed and blown glass and glassware manufacturing	58.40	0.07	0.52	9.96	N/A	10.49	1.23	23.30	N/A	24.52	35.01
Wood household furniture manufacturing	57.77	0.07	9.94	0.00	N/A	9.94	3.64	0.00	N/A	3.64	13.58
Metal household furniture	54.66	0.06	0.12	0.00	N/A	0.12	0.00	0.00	N/A	0.00	0.12
Chemicals and allied products	47.75	0.06	38.47	2.02	N/A	40.50	5.47	0.29	N/A	5.75	46.25
Wood partitions and fixtures	46.89	0.06	20.26	0.00	N/A	20.26	21.80	0.00	N/A	21.80	42.06
Public building and related furniture	46.20	0.05	7.41	0.00	N/A	7.41	1.56	0.00	N/A	1.56	8.97
Converted paper and paperboard products, nec (disc)	45.00	0.05	40.95	4.05	N/A	45.00	0.00	0.00	N/A	0.00	45.00
Iron and Steel Foundries: Steel Foundries	39.30	0.05	11.89	14.53	N/A	26.41	5.60	6.84	N/A	12.45	38.86
Wood television and radio cabinets	37.31	0.04	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Inorganic Pigments Manufacturing	32.76	0.04	27.97	0.00	N/A	27.97	4.79	0.00	N/A	4.79	32.76
Manifold business forms	31.85	0.04	16.94	1.68	N/A	18.61	0.00	0.00	N/A	0.00	18.61
Millwork	30.17	0.04	3.22	0.00	N/A	3.22	26.06	0.00	N/A	26.06	29.28

Table 6-31. Base Year 1990 National Emission Estimates for Methylene Chloride (Dichloromethane)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining: Cyclic Crude and Intermediate Production	25.17	0.03	14.28	0.00	N/A	14.28	4.89	0.00	N/A	4.89	19.17
Chemical Manufacturing: Polycarbonate Resins	25.00	0.03	20.95	0.00	N/A	20.95	0.00	0.00	N/A	0.00	20.95
Commercial printing, gravure	25.00	0.03	21.80	2.16	N/A	23.96	0.95	0.09	N/A	1.05	25.00
Synthetic rubber manufacturing	23.15	0.03	19.87	0.00	N/A	19.87	2.94	0.00	N/A	2.94	22.81
Products of purchased glass	22.35	0.03	0.20	3.89	N/A	4.09	0.42	8.03	N/A	8.45	12.54
Iron and Steel Foundries: Steel Investment Foundries	22.29	0.03	9.47	11.58	N/A	21.05	0.18	0.22	N/A	0.40	21.45
Utility Boilers: Oil Combustion, All Types	20.00	0.02	8.24	8.24	N/A	16.47	1.37	1.37	N/A	2.75	19.22
Ship Building & Repair (Surface Coating)	19.30	0.02	11.76	3.92	N/A	15.68	0.38	0.13	N/A	0.51	16.19
Wood kitchen cabinets	19.03	0.02	0.92	0.00	N/A	0.92	1.45	0.00	N/A	1.45	2.37
Minerals, ground or treated production	17.19	0.02	0.09	1.68	N/A	1.77	0.16	3.11	N/A	3.28	5.04
Industrial Boilers: Bituminous and Lignite Coal Combustion	16.65	0.02	7.82	3.35	N/A	11.17	1.74	0.74	N/A	2.48	13.65
Hose and Belting and Gaskets and Packing (1987)	14.75	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Storage batteries manufacturing	13.60	0.02	0.42	7.89	N/A	8.30	0.21	3.98	N/A	4.19	12.49
Gaskets, packing and sealing devices manufacturing	10.95	0.01	5.44	0.05	N/A	5.50	0.01	0.00	N/A	0.01	5.50
Furniture and Fixtures	10.80	0.01	10.80	0.00	N/A	10.80	0.00	0.00	N/A	0.00	10.80
Porcelain electrical supplies	9.98	0.01	0.00	0.05	N/A	0.05	0.00	0.00	N/A	0.00	0.05
Nonmetallic mineral products	9.17	0.01	0.08	1.61	N/A	1.70	0.06	1.16	N/A	1.22	2.92
Wood Treatment/Wood Preserving	9.00	0.01	0.00	3.46	N/A	3.46	0.00	1.87	N/A	1.87	5.33
Folding paperboard boxes (1987)	8.56	0.01	3.87	0.38	N/A	4.26	2.90	0.29	N/A	3.18	7.44
Commercial printing, nec (1987)	8.32	0.01	6.48	0.64	N/A	7.12	1.09	0.11	N/A	1.20	8.32
Upholstered household furniture	7.02	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Greeting cards	6.73	0.01	1.65	0.16	N/A	1.81	2.37	0.23	N/A	2.60	4.41
Office furniture, except wood manufacturing	6.59	0.01	2.40	0.00	N/A	2.40	4.13	0.00	N/A	4.13	6.52

Table 6-31. Base Year 1990 National Emission Estimates for Methylene Chloride (Dichloromethane)

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Secondary Lead Smelting	6.42	0.01	2.35	2.17	N/A	4.53	0.46	0.42	N/A	0.88	5.41
Industrial gases manufacturing	6.20	0.01	5.45	0.29	N/A	5.74	0.00	0.00	N/A	0.00	5.74
Concrete block and brick	6.15	0.01	0.31	5.84	N/A	6.15	0.00	0.00	N/A	0.00	6.15
Household furniture	6.00	0.01	6.00	0.00	N/A	6.00	0.00	0.00	N/A	0.00	6.00
Vitreous plumbing fixtures	5.88	0.01	0.16	3.09	N/A	3.25	0.13	2.49	N/A	2.62	5.87
Carbon and Graphite Products	5.53	0.01	1.28	0.43	N/A	1.71	0.92	0.31	N/A	1.23	2.94
Periodicals	5.23	0.01	0.00	0.00	N/A	0.00	4.76	0.47	N/A	5.23	5.23
Concrete products	5.16	0.01	0.25	4.81	N/A	5.06	0.00	0.05	N/A	0.06	5.12
Abrasive Grain (Media) Manufacturing	5.10	0.01	0.18	3.37	N/A	3.55	0.02	0.32	N/A	0.34	3.89
Commercial/Institutional Boilers: POTW Digester Gas Combustion	2.96	0.00	0.00	2.05	N/A	2.05	0.00	0.42	N/A	0.42	2.47
Lubricating oils and greases	2.08	0.00	1.93	0.00	N/A	1.93	0.12	0.00	N/A	0.12	2.05
Landfills: Gas Flares	1.65	0.00	0.00	1.14	N/A	1.14	0.00	0.23	N/A	0.23	1.38
Wood office furniture	1.40	0.00	0.02	0.00	N/A	0.02	0.01	0.00	N/A	0.01	0.03
Portland Cement Manufacture: All Fuels	1.32	0.00	0.65	0.12	N/A	0.77	0.21	0.04	N/A	0.25	1.01
Sewage Sludge Incineration	0.83	0.00	0.00	0.64	N/A	0.64	0.00	0.07	N/A	0.07	0.71
Medical Waste Incineration	0.58	0.00	0.06	0.37	N/A	0.43	0.01	0.07	N/A	0.09	0.52
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.52	0.00	0.08	0.33	N/A	0.41	0.01	0.05	N/A	0.07	0.47
Petroleum Refining: Other Petroleum Products	0.38	0.00	0.19	0.19	N/A	0.38	0.00	0.00	N/A	0.00	0.38
Petroleum Refining: (ALL PROCESSES)	0.13	0.00	0.09	0.00	N/A	0.09	0.03	0.00	N/A	0.03	0.12
Rubber & Plastic Products	0.13	0.00	0.12	0.00	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Structural Clay Products, Nec	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Primary batteries, dry and wet,	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-32. Base Year 1990 National Emission Estimates for Methylene Diphenyl Diisocyanate

Pollutant: Methylene Diphenyl Diisocyanate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Transportation Equipment Manufacture (SICs	57.91	18.43	28.72	9.57	N/A	38.30	7.67	2.56	N/A	10.22	48.52
Flexible Polyurethane Foam Production	50.00	15.91	30.40	0.00	N/A	30.40	9.81	0.00	N/A	9.81	40.21
Industrial Machinery and Electrical Equipment (SICs	37.29	11.87	14.93	4.98	N/A	19.91	6.89	2.30	N/A	9.18	29.09
Gray and ductile iron foundries	36.17	11.51	6.92	8.46	N/A	15.39	3.09	3.77	N/A	6.86	22.24
Iron and Steel Foundries: Steel Foundries	30.58	9.73	9.25	11.30	N/A	20.55	4.36	5.33	N/A	9.68	30.23
Mobile homes	22.02	7.01	0.00	0.00	N/A	0.00	9.26	0.00	N/A	9.26	9.26
Electronic and other electric equipment manufacturing (SICs combined)	18.85	6.00	7.79	2.60	N/A	10.39	3.34	1.11	N/A	4.46	14.85
Miscellaneous Manufacturing (SICs combined)	8.69	2.76	4.83	0.85	N/A	5.68	1.02	0.18	N/A	1.20	6.88
Plastics products manufacturing	6.63	2.11	3.73	0.04	N/A	3.77	1.47	0.01	N/A	1.49	5.25
Fabricated metal products manufacturing (SICs	6.31	2.01	2.97	0.99	N/A	3.97	0.81	0.27	N/A	1.08	5.04
Industrial organic chemicals manufacturing	4.45	1.42	3.09	0.00	N/A	3.09	0.57	0.00	N/A	0.57	3.66
Public building and related furniture	4.11	1.31	0.66	0.00	N/A	0.66	0.14	0.00	N/A	0.14	0.80
Food Products (SICs combined)	3.80	1.21	0.10	1.81	N/A	1.90	0.09	1.63	N/A	1.72	3.62
Miscellaneous Plastics Products	3.63	1.15	1.44	0.01	N/A	1.46	1.41	0.01	N/A	1.43	2.88
Primary metal products manufacturing (SICs combined)	3.17	1.01	0.91	1.11	N/A	2.02	0.19	0.23	N/A	0.42	2.44
Miscellaneous Organic Chemical Processes (SICs combined)	3.02	0.96	2.25	0.00	N/A	2.25	0.38	0.00	N/A	0.38	2.63

Table 6-32. Base Year 1990 National Emission Estimates for Methylene Diphenyl Diisocyanate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Plastics materials and resins manufacturing	3.02	0.96	1.88	0.00	N/A	1.88	0.76	0.00	N/A	0.76	2.64
Industrial inorganic chemical	2.12	0.67	1.53	0.00	N/A	1.53	0.06	0.00	N/A	0.06	1.59
Textiles (SICs combined)	1.41	0.45	0.29	0.29	N/A	0.59	0.06	0.06	N/A	0.12	0.70
Reconstituted wood products (1987)	1.15	0.36	0.05	0.00	N/A	0.05	0.19	0.00	N/A	0.19	0.24
Office furniture, except wood manufacturing	1.06	0.34	0.38	0.00	N/A	0.38	0.66	0.00	N/A	0.66	1.04
Unsupported plastics profile shapes (1987)	1.04	0.33	0.96	0.01	N/A	0.97	0.00	0.00	N/A	0.00	0.98
Cleaning Products (SICs combined)	1.00	0.32	0.67	0.04	N/A	0.71	0.21	0.01	N/A	0.22	0.93
Paints and allied products	0.90	0.29	0.77	0.00	N/A	0.77	0.06	0.00	N/A	0.06	0.83
Fabricated Rubber Products, NEC	0.88	0.28	0.34	0.00	N/A	0.35	0.39	0.00	N/A	0.39	0.74
Adhesives and Sealants (SICs combined)	0.77	0.24	0.69	0.04	N/A	0.72	0.01	0.00	N/A	0.01	0.74
Chemicals and allied products	0.69	0.22	0.55	0.03	N/A	0.58	0.08	0.00	N/A	0.08	0.66
Rubber and plastic hose and belting manufacturing	0.56	0.18	0.04	0.00	N/A	0.04	0.41	0.00	N/A	0.42	0.46
Custom compound purchased resins manufacturing	0.51	0.16	0.38	0.00	N/A	0.39	0.04	0.00	N/A	0.04	0.43
Softwood veneer and plywood	0.39	0.12	0.02	0.00	N/A	0.02	0.11	0.00	N/A	0.11	0.13
Plastics plumbing fixtures (1987)	0.39	0.12	0.11	0.00	N/A	0.11	0.15	0.00	N/A	0.15	0.26
Chemical Manufacturing: Alkalies and chlorine	0.37	0.12	0.06	0.14	N/A	0.20	0.02	0.05	N/A	0.07	0.27
Chemical Preparations (SICs combined)	0.25	0.08	0.19	0.01	N/A	0.20	0.01	0.00	N/A	0.01	0.20
Wood Products	0.25	0.08	0.02	0.00	N/A	0.02	0.12	0.00	N/A	0.12	0.14
Agricultural Chemicals	0.23	0.07	0.09	0.00	N/A	0.09	0.14	0.00	N/A	0.14	0.22
Mineral Wool Manufacturing	0.13	0.04	0.00	0.07	N/A	0.07	0.00	0.05	N/A	0.05	0.12
Malleable iron	0.13	0.04	0.06	0.07	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Bags: Plastics, Laminated, & Coated	0.13	0.04	0.11	0.01	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Iron and Steel Foundries	0.13	0.04	0.00	0.00	N/A	0.00	0.05	0.07	N/A	0.12	0.12

Table 6-32. Base Year 1990 National Emission Estimates for Methylene Diphenyl Diisocyanate

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining: Cyclic Crude and Intermediate Production	0.11	0.03	0.06	0.00	N/A	0.06	0.02	0.00	N/A	0.02	0.08
Corrugated And Solid Fiber Boxes	0.03	0.01	0.02	0.00	N/A	0.03	0.00	0.00	N/A	0.00	0.03
Mechanical rubber goods manufacturing	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Upholstered household furniture	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Instruments and Related Products (SICs combined)	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Fabricated rubber products	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Lubricating oils and greases	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Pollutant: Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Utility Boilers: Oil Combustion, All Types	389	25.60	160	160	N/A	320	26.70	26.70	N/A	53.41	374
Commercial/Institutional Boilers: Residual Oil Combustion	297	19.54	46.41	186	N/A	232	7.54	30.17	N/A	37.71	270
Industrial Boilers: Residual Oil Combustion	117	7.70	54.96	23.55	N/A	78.52	12.21	5.23	N/A	17.44	95.96
Fabricated metal products manufacturing (SICs	55.35	3.64	26.09	8.70	N/A	34.78	7.08	2.36	N/A	9.44	44.22
Transportation Equipment Manufacture (SICs	54.40	3.58	26.99	9.00	N/A	35.98	7.20	2.40	N/A	9.60	45.58
Residential Boilers: Bituminous and Lignite Coal Combustion	50.23	3.31	0.00	34.85	N/A	34.85	0.00	7.11	N/A	7.11	41.96
Primary metal products manufacturing (SICs combined)	48.59	3.20	13.94	17.03	N/A	30.97	2.89	3.53	N/A	6.42	37.39
Utility Boilers: Coal Combustion, All Types	48.00	3.16	18.51	0.00	N/A	18.51	12.00	0.00	N/A	12.00	30.51
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	47.98	3.16	7.50	30.00	N/A	37.50	1.22	4.87	N/A	6.09	43.59
Utility Turbines: Diesel - Fired	44.01	2.90	20.67	8.86	N/A	29.54	4.59	1.97	N/A	6.56	36.10
Blast furnaces and steel mills	36.07	2.37	13.10	16.01	N/A	29.11	2.75	3.36	N/A	6.12	35.23
Industrial Machinery and Electrical Equipment (SICs	34.58	2.28	13.85	4.62	N/A	18.47	6.39	2.13	N/A	8.51	26.98
Industrial Turbines: Natural gas - fired	27.89	1.84	11.23	7.49	N/A	18.72	2.50	1.66	N/A	4.16	22.88
Industrial Boilers: Waste Oil Combustion	21.73	1.43	10.21	4.38	N/A	14.58	2.27	0.97	N/A	3.24	17.82
Primary nonferrous metals production	16.58	1.09	3.45	4.22	N/A	7.67	1.85	2.26	N/A	4.11	11.78
Industrial Boilers: Bituminous and Lignite Coal Combustion	16.07	1.06	7.55	3.24	N/A	10.79	1.68	0.72	N/A	2.40	13.18

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Electronic and other electric equipment manufacturing (SICs combined)	15.42	1.01	6.38	2.13	N/A	8.50	2.74	0.91	N/A	3.65	12.15
Petroleum Refining: (ALL PROCESSES)	14.77	0.97	10.79	0.00	N/A	10.79	3.18	0.00	N/A	3.18	13.97
Mobile Sources: On-Road Vehicles	14.66	0.96	0.00	0.00	7.26	7.26	0.00	0.00	2.49	2.49	9.74
Industrial Boilers: Natural Gas Combustion	13.96	0.92	6.56	2.81	N/A	9.37	1.46	0.62	N/A	2.08	11.45
Petroleum Refining: Cyclic Crude and Intermediate Production	13.02	0.86	7.39	0.00	N/A	7.39	2.53	0.00	N/A	2.53	9.92
Industrial inorganic chemical	12.61	0.83	9.12	0.00	N/A	9.12	0.37	0.00	N/A	0.37	9.49
Pulp and Paper: Kraft Recovery Furnaces	12.00	0.79	3.46	0.00	N/A	3.46	3.38	0.00	N/A	3.38	6.84
Chromium Plating: Chromic Anodizing	9.75	0.64	0.42	7.92	N/A	8.33	0.03	0.51	N/A	0.54	8.87
Mobile Sources: Non-Road Vehicles and Equipment - Other	9.48	0.62	0.00	0.00	6.58	6.58	0.00	0.00	1.34	1.34	7.92
Iron and Steel Foundries: Steel Foundries	7.29	0.48	2.21	2.70	N/A	4.90	1.04	1.27	N/A	2.31	7.21
Primary Copper Smelting	6.87	0.45	0.29	0.86	N/A	1.14	0.96	2.88	N/A	3.84	4.98
Other Secondary Nonferrous Metals Recovery	6.65	0.44	2.69	3.29	N/A	5.98	0.11	0.14	N/A	0.25	6.23
Commercial/Institutional Boilers: Anthracite Coal Combustion	6.40	0.42	1.00	4.00	N/A	5.00	0.16	0.65	N/A	0.81	5.81
Residential Boilers: Anthracite Coal Combustion	6.35	0.42	0.00	4.40	N/A	4.40	0.00	0.90	N/A	0.90	5.30
Industrial Boilers: Wood/Wood Residue Combustion	6.25	0.41	3.07	0.77	N/A	3.84	0.79	0.20	N/A	0.99	4.83
Industrial Boilers: Anthracite Coal Combustion	5.07	0.33	2.38	1.02	N/A	3.40	0.53	0.23	N/A	0.76	4.16

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutional Boilers: Distillate Oil Combustion	4.39	0.29	0.69	2.74	N/A	3.43	0.11	0.45	N/A	0.56	3.99
Gray and ductile iron foundries	4.29	0.28	0.82	1.00	N/A	1.82	0.37	0.45	N/A	0.81	2.64
Fabricated metal products, nec	3.38	0.22	2.13	0.71	N/A	2.84	0.20	0.07	N/A	0.27	3.11
Iron and Steel Foundries: Steel Investment Foundries	3.03	0.20	1.29	1.58	N/A	2.86	0.02	0.03	N/A	0.05	2.92
Miscellaneous Manufacturing (SICs combined)	2.83	0.19	1.57	0.28	N/A	1.85	0.33	0.06	N/A	0.39	2.24
Utility Boilers: Coke	2.79	0.18	2.50	0.00	N/A	2.50	0.19	0.00	N/A	0.19	2.69
Coke Ovens: By-product Recovery Plants	2.42	0.16	2.17	0.00	N/A	2.17	0.17	0.00	N/A	0.17	2.34
Industrial organic chemicals manufacturing	2.36	0.16	1.64	0.00	N/A	1.64	0.30	0.00	N/A	0.30	1.94
Utility Boilers: Natural Gas Combustion	2.30	0.15	0.00	1.29	N/A	1.29	0.00	0.63	N/A	0.63	1.92
Miscellaneous Organic Chemical Processes (SICs combined)	2.18	0.14	1.63	0.00	N/A	1.63	0.27	0.00	N/A	0.27	1.90
Industrial Boilers: Distillate Oil Combustion	2.06	0.14	0.97	0.42	N/A	1.39	0.22	0.09	N/A	0.31	1.69
Chemical Preparations (SICs combined)	1.89	0.12	1.39	0.07	N/A	1.46	0.04	0.00	N/A	0.04	1.50
Tire Manufacturing	1.81	0.12	0.61	0.01	N/A	0.62	0.73	0.01	N/A	0.73	1.35
Coke Ovens: All	1.80	0.12	1.61	0.00	N/A	1.61	0.12	0.00	N/A	0.12	1.74
Sewage Sludge Incineration	1.61	0.11	0.00	1.24	N/A	1.24	0.00	0.14	N/A	0.14	1.38
Instruments and Related Products (SICs combined)	1.51	0.10	0.00	1.31	N/A	1.31	0.00	0.08	N/A	0.08	1.40
Partitions and fixtures, except wood	1.13	0.07	0.01	0.00	N/A	0.01	0.70	0.00	N/A	0.70	0.71
Municipal Waste Combustion	0.97	0.06	0.71	0.04	N/A	0.75	0.12	0.01	N/A	0.12	0.87
Ship Building & Repair (Surface Coating)	0.93	0.06	0.57	0.19	N/A	0.75	0.02	0.01	N/A	0.02	0.78
Storage batteries manufacturing	0.90	0.06	0.03	0.52	N/A	0.55	0.01	0.26	N/A	0.28	0.82
Nitrogenous fertilizers	0.76	0.05	0.03	0.00	N/A	0.03	0.71	0.00	N/A	0.71	0.74

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Inorganic Pigments Manufacturing	0.63	0.04	0.54	0.00	N/A	0.54	0.09	0.00	N/A	0.09	0.63
Plastics products manufacturing	0.60	0.04	0.34	0.00	N/A	0.34	0.13	0.00	N/A	0.13	0.47
Medical Waste Incineration	0.54	0.04	0.06	0.34	N/A	0.40	0.01	0.07	N/A	0.08	0.48
Paints and allied products	0.53	0.03	0.45	0.00	N/A	0.45	0.04	0.00	N/A	0.04	0.49
Other Miscellaneous (SICs combined)	0.51	0.03	0.36	0.04	N/A	0.40	0.02	0.00	N/A	0.02	0.42
Steel and Iron Reclamation- Auto Scrap Burning	0.50	0.03	0.13	0.38	N/A	0.50	0.00	0.00	N/A	0.00	0.50
Structural Clay Products, Nec	0.45	0.03	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Glass containers	0.39	0.03	0.01	0.25	N/A	0.26	0.00	0.06	N/A	0.06	0.32
Office furniture, except wood manufacturing	0.38	0.02	0.14	0.00	N/A	0.14	0.23	0.00	N/A	0.23	0.37
Cleaning Products (SICs combined)	0.27	0.02	0.18	0.01	N/A	0.19	0.06	0.00	N/A	0.06	0.25
Custom compound purchased resins manufacturing	0.26	0.02	0.19	0.00	N/A	0.20	0.02	0.00	N/A	0.02	0.22
Pressed and blown glass and glassware manufacturing	0.26	0.02	0.00	0.04	N/A	0.05	0.01	0.10	N/A	0.11	0.15
Porcelain electrical supplies	0.26	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Minerals, ground or treated production	0.26	0.02	0.00	0.02	N/A	0.03	0.00	0.05	N/A	0.05	0.07
Malleable iron	0.25	0.02	0.11	0.14	N/A	0.25	0.00	0.00	N/A	0.00	0.25
Iron and Steel Foundries	0.25	0.02	0.00	0.00	N/A	0.00	0.11	0.13	N/A	0.24	0.24
Nonclay refractories	0.25	0.02	0.01	0.21	N/A	0.22	0.00	0.00	N/A	0.00	0.22
Residential Boilers: Wood/Wood Residue Combustion	0.23	0.02	0.00	0.16	N/A	0.16	0.00	0.03	N/A	0.03	0.19
Food Products (SICs combined)	0.20	0.01	0.00	0.09	N/A	0.10	0.00	0.08	N/A	0.09	0.19
Textiles (SICs combined)	0.18	0.01	0.04	0.04	N/A	0.08	0.01	0.01	N/A	0.01	0.09
Secondary Lead Smelting	0.17	0.01	0.06	0.06	N/A	0.12	0.01	0.01	N/A	0.02	0.15
Portland Cement Manufacture: All Fuels	0.15	0.01	0.07	0.01	N/A	0.08	0.02	0.00	N/A	0.03	0.11

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Plastics Products	0.14	0.01	0.05	0.00	N/A	0.05	0.05	0.00	N/A	0.05	0.11
Plastics materials and resins manufacturing	0.13	0.01	0.08	0.00	N/A	0.08	0.03	0.00	N/A	0.03	0.12
Public building and related furniture	0.13	0.01	0.02	0.00	N/A	0.02	0.00	0.00	N/A	0.00	0.03
Plastics products inc. plastic bottles	0.13	0.01	0.13	0.00	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Plastics foam products manufacturing	0.13	0.01	0.07	0.00	N/A	0.07	0.04	0.00	N/A	0.04	0.11
Open Burning: Scrap Tires	0.13	0.01	0.00	0.09	N/A	0.09	0.00	0.02	N/A	0.02	0.11
Primary Aluminum Production	0.13	0.01	0.01	0.01	N/A	0.02	0.02	0.02	N/A	0.04	0.06
Manifold business forms	0.13	0.01	0.07	0.01	N/A	0.07	0.00	0.00	N/A	0.00	0.07
Metal household furniture	0.13	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Organic fibers, non-cellulosic manufacturing	0.13	0.01	0.07	0.00	N/A	0.08	0.01	0.00	N/A	0.01	0.08
Wood office furniture	0.13	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	0.10	0.01	0.02	0.06	N/A	0.08	0.00	0.01	N/A	0.01	0.09
Utility Turbines: Natural gas - fired	0.06	0.00	0.02	0.02	N/A	0.04	0.01	0.00	N/A	0.01	0.05
Vitreous plumbing fixtures	0.06	0.00	0.00	0.03	N/A	0.03	0.00	0.02	N/A	0.03	0.06
Surface active agents manufacturing	0.04	0.00	0.03	0.00	N/A	0.04	0.00	0.00	N/A	0.01	0.04
Synthetic rubber manufacturing	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Primary batteries, dry and wet,	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Fabricated rubber products	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Gaskets, packing and sealing devices manufacturing	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Abrasive Grain (Media) Manufacturing	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

Table 6-33. Base Year 1990 National Emission Estimates for Nickel Compounds

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Electrical industrial apparatus, nec	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Chemicals and allied products	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Pottery products, nec	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Crematories	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-34. Base Year 1990 National Emission Estimates for 7-PAH

Pollutant: 7-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers: Wood/Wood Residue Combustion	572.00	28.60	0	395.88	N/A	395.88	0	83.40	N/A	83.40	479.28
Open Burning: Forest and Wildfires	537.80	26.89	0	33.34	N/A	33.34	0	78.47	N/A	78.47	111.81
Open Burning: Prescribed Burnings	426.20	21.31	0	62.74	N/A	62.74	0	95.77	N/A	95.77	158.50
Primary Aluminum Production	141.00	7.05	8.44	10.31	N/A	18.75	20.98	25.65	N/A	46.63	65.38
Coke Ovens: Charging, Topside, & Door Leaks	71.80	3.59	64.38	0	N/A	64.38	4.95	0	N/A	4.95	69.33
Open Burning: Scrap Tires	52.50	2.63	0	35.48	N/A	35.48	0	8.18	N/A	8.18	43.67
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	36.00	1.80	5.63	22.51	N/A	28.13	0.91	3.66	N/A	4.57	32.71
Mobile Sources: On-Road Vehicles	34.35	1.72	N/A	N/A	17.00	17.00	N/A	N/A	5.83	5.83	22.83
Residential Boilers: Bituminous and Lignite Coal Combustion	31.80	1.59	0	22.06	N/A	22.06	0	4.50	N/A	4.50	26.57
Coke Ovens: Pushing, Quenching, and Battery Stacks	30.10	1.51	26.99	0	N/A	26.99	2.08	0	N/A	2.08	29.06
Mobile Sources: Non-Road Vehicles and Equipment - Other	24.00	1.20	N/A	N/A	16.65	16.65	N/A	N/A	3.40	3.40	20.05
Petroleum Refining: (ALL PROCESSES)	16.40	0.82	11.99	0	N/A	11.99	3.53	0	N/A	3.53	15.52
Portland Cement Manufacture: Hazardous Waste-fired	4.61	0.23	2.67	0	N/A	2.67	0.86	0	N/A	0.86	3.53
Pulp and Paper: Kraft Recovery Furnaces	3.74	0.19	1.08	0	N/A	1.08	1.05	0	N/A	1.05	2.13
Industrial Boilers: Coal, All Types	3.09	0.15	1.45	0.62	N/A	2.07	0.32	0.14	N/A	0.46	2.53
Portland Cement Manufacture: Non-Hazardous Waste fired	2.78	0.14	1.29	0.32	N/A	1.61	0.42	0.10	N/A	0.52	2.13

Table 6-34. Base Year 1990 National Emission Estimates for 7-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Wood/Wood Residue Combustion	2.67	0.13	1.31	0.33	N/A	1.64	0.34	0.08	N/A	0.42	2.06
Residential Boilers: Distillate Oil Combustion	1.70	0.09	0	1.18	N/A	1.18	0	0.24	N/A	0.24	1.42
Asphalt Production - Other	1.68	0.08	1.63	0	N/A	1.63	0.02	0	N/A	0.02	1.65
Industrial Boilers: Waste Oil Combustion	1.34	0.07	0.63	0.27	N/A	0.90	0.14	0.06	N/A	0.20	1.10
Stationary Reciprocating IC Engines: Natural gas - fired	1.03	0.05	0.41	0.28	N/A	0.69	0.09	0.06	N/A	0.15	0.84
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	1.01	0.05	0.15	0.62	N/A	0.77	0.03	0.11	N/A	0.14	0.91
Cigarette Smoke	0.52	0.03	0	0.36	N/A	0.36	0	0.07	N/A	0.07	0.43
Carbon Black Manufacture	0.45	0.02	0.03	0.06	N/A	0.09	0.08	0.18	N/A	0.26	0.35
Ferroalloy Manufacture	0.26	0.01	0	0.10	N/A	0.10	0	0.04	N/A	0.04	0.15
Pulp and Paper: Lime Kilns	0.25	0.01	0.07	0	N/A	0.07	0.07	0	N/A	0.07	0.14
Utility Boilers: Coal Combustion, All Types	0.21	0.01	0.08	0	N/A	0.08	0.05	0	N/A	0.05	0.13
Iron and Steel Foundries: All Processes	0.11	0.01	N/A	N/A	N/A	N/A	0.10	0	N/A	0.10	0.10
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	0.09	0.00	N/A	N/A	0.08	0.08	N/A	N/A	0.01	0.01	0.09
Stationary Reciprocating IC Engines: Diesel - fired	0.09	0.00	0.04	0.02	N/A	0.06	0.01	0.00	N/A	0.01	0.07
Residential Boilers: Natural Gas Combustion	0.08	0.00	0	0.06	N/A	0.06	0	0.01	N/A	0.01	0.07
Residential Boilers: Anthracite Coal Combustion	0.05	0.00	0	0.04	N/A	0.04	0	0.01	N/A	0.01	0.04
Utility Boilers: Oil Combustion, All Types	0.05	0.00	0.02	0.02	N/A	0.04	0.00	0.00	N/A	0.01	0.05
Commercial/Institutional Boilers: Residual Oil Combustion	0.03	0.00	0.00	0.02	N/A	0.02	0.00	0.00	N/A	0.00	0.03

Table 6-34. Base Year 1990 National Emission Estimates for 7-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers: Residual Oil Combustion	0.03	0.00	0.01	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
Hazardous Waste Incineration: Dedicated HWIs	0.02	0.00	0.01	0	N/A	0.01	0.00	0	N/A	0.00	0.02
Secondary Lead Smelting	0.02	0.00	0.01	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.02
Sewage Sludge Incineration	0.01	0.00	N/A	0.01	N/A	0.01	0	0.00	N/A	0.00	0.01
Commercial/Institutional Boilers: Distillate Oil Combustion	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Landfills: Gas Flares	0.00	0.00	0	0.00	N/A	0.00	0	0.00	N/A	0.00	0.00
Industrial Boilers: Distillate Oil Combustion	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Scrap or Waste Tire Incineration	0.00	0.00	0.00	0	N/A	0.00	0.00	0	N/A	0.00	0.00
Drum and Barrel Reclamation	0.00	0.00	0	0.00	N/A	0.00	N/A	N/A	N/A	N/A	0.00
Crematories	0.00	0.00	0	0.00	N/A	0.00	0	0.00	N/A	0.00	0.00

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Pollutant: 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers: Wood/Wood Residue Combustion	8855	45	0	6129	N/A	6129	0	1291	N/A	1291	7420
Open Burning: Forest and Wildfires	1417	7.20	0	87.85	N/A	87.85	0	207	N/A	207	295
Open Burning: Prescribed Burnings	1123	5.71	0	165	N/A	165	0	252	N/A	252	418
Petroleum Refining: (ALL PROCESSES)	1096	5.57	801	0	N/A	801	236	0	N/A	236	1037
Primary Aluminum Production	662	3.36	39.62	48.43	N/A	88.05	98.52	120	N/A	219	307
Pulp and Paper: Kraft Recovery Furnaces	649	3.30	187	0	N/A	187	183	0	N/A	183	370
Coke Ovens: Charging, Topside, & Door Leaks	538	2.74	483	0	N/A	483	37.15	0	N/A	37.15	520
Coke Ovens: Pushing, Quenching, and Battery Stacks	517	2.63	464	0	N/A	464	35.67	0	N/A	35.67	499
Blast furnaces and steel mills	499	2.53	181	221	N/A	402	38.06	46.52	N/A	84.58	487
Miscellaneous Organic Chemical Processes (SICs combined)	440	2.23	327	0	N/A	327	54.64	0	N/A	54.64	382
Gasoline Distribution Stage II	374	1.90	25.95	233.53	N/A	259	5.30	47.66	N/A	52.96	312
Gasoline Distribution Stage I	355	1.80	14.39	129.51	N/A	144	8.28	74.56	N/A	82.85	227
Open Burning: Scrap Tires	294	1.50	0	198.97	N/A	199	0	45.89	N/A	45.89	245
Industrial organic chemicals manufacturing	227	1.15	157	0	N/A	157	29.26	0	N/A	29.26	187
Pulp and Paper: Lime Kilns	183	0.93	52.81	0	N/A	52.81	51.50	0	N/A	51.50	104
Industrial Boilers: Coal, All Types	157	0.80	73.75	31.61	N/A	105	16.39	7.02	N/A	23.41	129
Industrial Boilers: Wood/Wood Residue Combustion	152	0.77	74.72	18.68	N/A	93.40	19.19	4.80	N/A	23.99	117
Fabricated rubber products	148	0.75	147	1.48	N/A	148	0	0	N/A	0	148

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	139	0.71	21.73	86.90	N/A	109	3.53	14.12	N/A	17.65	126
Fabricated metal products manufacturing (SICs	125	0.64	59.03	19.68	N/A	78.71	16.02	5.34	N/A	21.35	100
Plastics foam products manufacturing	110	0.56	57.70	0.58	N/A	58.28	32.72	0.33	N/A	33.05	91.3
Petroleum Refining: Cyclic Crude and Intermediate Production	104	0.53	58.98	0	N/A	58.98	20.19	0	N/A	20.19	79.2
Residential Boilers: Bituminous and Lignite Coal Combustion	103	0.52	0	71.18	N/A	71.18	0	14.53	N/A	14.53	85.7
Wood Treatment/Wood Preserving	90.4	0.46	0	34.79	N/A	34.79	0	18.76	N/A	18.76	53.6
Coke Ovens: By-product Recovery Plants	77.2	0.39	69.18	0	N/A	69.18	5.32	0	N/A	5.32	74.5
Mobile Sources: On-Road Vehicles	75.9	0.39	N/A	N/A	37.58	37.58	N/A	N/A	12.88	12.88	50.5
Secondary Lead Smelting	69.8	0.35	25.59	23.62	N/A	49.20	4.99	4.61	N/A	9.60	58.8
Paper coated and laminated, packaging	55.4	0.28	37.62	3.72	N/A	41.34	12.36	1.22	N/A	13.58	54.9
Portland Cement Manufacture: Non-Hazardous Waste fired	51.0	0.26	23.64	5.91	N/A	29.55	7.63	1.91	N/A	9.53	39.1
Stationary Reciprocating IC Engines: Natural gas - fired	47.6	0.24	19.17	12.78	N/A	31.94	4.26	2.84	N/A	7.10	39.0
Mobile Sources: Non-Road Vehicles and Equipment - Other	47.0	0.24	N/A	N/A	32.61	32.61	N/A	N/A	6.66	6.66	39.3
Industrial Boilers: Residual Oil Combustion	44.7	0.23	21.00	9.00	N/A	30.00	4.67	2.00	N/A	6.66	36.7
Asphalt paving mixtures and blocks	43.7	0.22	43.70	0	N/A	43.70	0	0	N/A	0	43.7
Asphalt Production - Other	43.6	0.22	42.28	0	N/A	42.28	0.44	0	N/A	0.44	42.7
Other Miscellaneous (SICs combined)	40.8	0.21	28.57	3.17	N/A	31.75	1.70	0.19	N/A	1.89	33.6

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutional Boilers: Residual Oil Combustion	40.1	0.20	6.27	25.07	N/A	31.34	1.02	4.07	N/A	5.09	36.4
Transportation Equipment Manufacture (SICs	37.2	0.19	18.44	6.15	N/A	24.59	4.92	1.64	N/A	6.56	31.1
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	35.8	0.18	5.48	21.92	N/A	27.40	0.98	3.90	N/A	4.88	32.3
Commercial/Institutional Boilers: Anthracite Coal Combustion	33.7	0.17	5.27	21.07	N/A	26.34	0.86	3.42	N/A	4.28	30.6
Paints and allied products	30.7	0.16	26.09	0	N/A	26.09	2.08	0	N/A	2.08	28.2
Iron and Steel Foundries: All Processes	29.7	0.15	0	0	N/A	0	28.18	0	N/A	28.18	28.2
Gray and ductile iron foundries	29.4	0.15	5.63	6.88	N/A	12.51	2.51	3.07	N/A	5.58	18.1
Commercial printing, gravure	28.9	0.15	25.18	2.49	N/A	27.67	1.10	0.11	N/A	1.21	28.9
Electronic and other electric equipment manufacturing (SICs combined)	28.4	0.14	11.76	3.92	N/A	15.68	5.04	1.68	N/A	6.73	22.4
Portland Cement Manufacture: Hazardous Waste-fired	28.0	0.14	16.22	0	N/A	16.22	5.23	0	N/A	5.23	21.5
Phthalic Anhydride Production	27.1	0.14	18.98	8.14	N/A	27.12	0	0	N/A	0	27.1
Primary metal products manufacturing (SICs combined)	27.0	0.14	7.73	9.45	N/A	17.18	1.60	1.96	N/A	3.56	20.7
Chemical Manufacturing: Naphthalene	25.0	0.13	5.83	2.50	N/A	8.33	11.67	5.00	N/A	16.67	25.0
Abrasive Grain (Media) Manufacturing	24.8	0.13	0.86	16.40	N/A	17.27	0.08	1.57	N/A	1.66	18.9
Residential Boilers: Oil Combustion, All Types	21.0	0.11	0	14.57	N/A	14.57	0	2.97	N/A	2.97	17.5
Fabricated metal products, nec	17.4	0.09	10.96	3.65	N/A	14.61	1.05	0.35	N/A	1.40	16.0
Industrial inorganic chemical	15.7	0.08	11.34	0	N/A	11.34	0.47	0	N/A	0.47	11.8
Ship Building & Repair (Surface Coating)	14.4	0.07	8.77	2.92	N/A	11.69	0.29	0.10	N/A	0.38	12.1

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Turbines - natural gas	13.8	0.07	5.56	3.70	N/A	9.26	1.23	0.82	N/A	2.06	11.3
Commercial/Institutional Boilers: Distillate Oil Combustion	13.2	0.07	2.06	8.25	N/A	10.32	0.34	1.34	N/A	1.68	12.0
Public building and related furniture	11.6	0.06	1.87	0	N/A	1.87	0.39	0	N/A	0.39	2.26
Wood household furniture manufacturing	11.3	0.06	1.94	0	N/A	1.94	0.71	0	N/A	0.71	2.65
Commercial printing, letterpress, and screen (disc	10.4	0.05	9.49	0.94	N/A	10.43	0	0	N/A	0	10.4
Textiles (SICs combined)	9.68	0.05	2.01	2.01	N/A	4.02	0.40	0.40	N/A	0.79	4.81
Industrial gases manufacturing	9.43	0.05	8.28	0.44	N/A	8.72	0	0	N/A	0	8.72
Agricultural Chemicals	9.02	0.05	3.48	0	N/A	3.48	5.53	0	N/A	5.53	9.01
Plastics materials and resins manufacturing	8.55	0.04	5.32	0	N/A	5.32	2.15	0	N/A	2.15	7.47
Industrial Boilers: Waste Oil Combustion	7.82	0.04	3.67	1.57	N/A	5.25	0.82	0.35	N/A	1.17	6.41
Utility Boilers: Coal Combustion, All Types	7.55	0.04	2.91	0	N/A	2.91	1.89	0	N/A	1.89	4.80
Surface active agents manufacturing	7.41	0.04	5.98	0.31	N/A	6.29	0.86	0.05	N/A	0.90	7.20
Tire Manufacturing	7.00	0.04	2.38	0.02	N/A	2.40	2.81	0.03	N/A	2.84	5.24
Chemical Preparations (SICs combined)	6.79	0.03	4.98	0.26	N/A	5.25	0.15	0.01	N/A	0.16	5.40
Miscellaneous Manufacturing (SICs combined)	6.58	0.03	3.66	0.65	N/A	4.30	0.77	0.14	N/A	0.91	5.21
Office furniture, except wood manufacturing	6.45	0.03	2.34	0	N/A	2.34	4.04	0	N/A	4.04	6.38
Chemical Manufacturing: Napthalene Sulfonates	6.24	0.03	1.75	0.75	N/A	2.50	0.87	0.37	N/A	1.25	3.74
Pulp and Paper: Sulfite Recovery	6.17	0.03	2.06	0	N/A	2.06	3.09	0	N/A	3.09	5.14
Industrial Boilers: Distillate Oil Combustion	6.15	0.03	2.89	1.24	N/A	4.13	0.64	0.28	N/A	0.92	5.04
Miscellaneous Plastics Products	5.76	0.03	2.29	0.02	N/A	2.31	2.24	0.02	N/A	2.26	4.58
Residential Boilers: Natural Gas Combustion	5.10	0.03	0	3.54	N/A	3.54	0	0.72	N/A	0.72	4.26

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fiber cans, drums, and similar products	5.06	0.03	4.61	0.46	N/A	5.06	0	0	N/A	0	5.06
Stationary Reciprocating IC Engines: Diesel - fired	5.02	0.03	2.36	1.01	N/A	3.37	0.52	0.22	N/A	0.75	4.12
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	4.79	0.02	N/A	N/A	4.12	4.12	N/A	N/A	0.53	0.53	4.65
Chemical Manufacturing: Alkalies and chlorine	4.52	0.02	0.75	1.76	N/A	2.51	0.24	0.56	N/A	0.80	3.31
Partitions and fixtures, except wood	4.35	0.02	0.04	0	N/A	0.04	2.70	0	N/A	2.70	2.75
Carbon Black Manufacture	4.33	0.02	0.26	0.62	N/A	0.88	0.76	1.77	N/A	2.53	3.41
Adhesives and Sealants (SICs combined)	4.18	0.02	3.75	0.20	N/A	3.95	0.07	3.74E-03	N/A	0.07	4.03
Carbamate Insecticides Production	4.08	0.02	1.22	2.86	N/A	4.08	0	0	N/A	0	4.08
Food Products (SICs combined)	3.54	0.02	0.09	1.68	N/A	1.77	0.08	1.52	N/A	1.60	3.37
Cigarette Smoke	3.45	0.02	0	2.39	N/A	2.39	0	0.49	N/A	0.49	2.88
Industrial Machinery and Electrical Equipment (SICs	2.77	0.01	1.11	0.37	N/A	1.48	0.51	0.17	N/A	0.68	2.16
Carbon and Graphite Products	2.08	0.01	0.48	0.16	N/A	0.64	0.35	0.12	N/A	0.46	1.11
Porcelain electrical supplies	2.08	0.01	5.15E-04	0.01	N/A	0.01	1.09E-05	2.08E-04	N/A	0.00	0.0105
Sewage Sludge Incineration	1.64	0.01	0	1.26	N/A	1.26	0	0.14	N/A	0.14	1.41
Cleaning Products (SICs combined)	1.38	0.01	0.92	0.05	N/A	0.97	0.29	0.02	N/A	0.31	1.27
Naphthalene: Miscellaneous Uses	1.25	0.01	0.23	0.54	N/A	0.77	0.11	0.25	N/A	0.36	1.14
Medical Waste Incineration	0.800	0.00	0.09	0.50	N/A	0.59	0.02	0.10	N/A	0.12	0.710
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.766	0.00	0.62	0.03	N/A	0.65	0.06	3.23E-03	N/A	0.06	0.714
Utility Boilers: Natural Gas Combustion	0.690	0.00	0	0.39	N/A	0.39	0	0.19	N/A	0.19	0.576
Utility Boilers: Oil Combustion, All Types	0.570	0.00	0.23	0.23	N/A	0.47	0.04	0.04	N/A	0.08	0.548
Ferroalloy Manufacture	0.560	0.00	0	0.22	N/A	0.22	0	0.09	N/A	0.09	0.313

Table 6-35. Base Year 1990 National Emission Estimates for 16-PAH

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Structural Clay Products, Nec	0.560	0.00	0	0	N/A	0	0	0	N/A	0	0
Gum and wood chemical	0.500	0.00	1.79E-03	9.40E-05	N/A	0.00	0.47	0.02	N/A	0.49	0.495
Clay refractories	0.500	0.00	0.01	0.17	N/A	0.18	3.99E-03	0.08	N/A	0.08	0.262
Landfills: Gas Flares	0.445	0.00	0	0.31	N/A	0.31	0	0.06	N/A	0.06	0.372
Portland Cement Manufacture: All Fuels	0.254	0.00	0.13	0.02	N/A	0.15	0.04	0.01	N/A	0.05	0.195
Residential Boilers: Anthracite Coal Combustion	0.226	0.00	0	0.16	N/A	0.16	0	0.03	N/A	0.03	0.189
Hazardous Waste Incineration: Dedicated HWIs	0.175	0.00	0.12	0	N/A	0.12	0.03	0	N/A	0.03	0.143
Lubricating oils and greases	0.0600	0.00	0.06	0	N/A	0.06	3.36E-03	0	N/A	3.36E-03	0.0592
Municipal Waste Combustion	0.0525	0.00	0.04	2.03E-03	N/A	0.04	0.01	3.32E-04	N/A	0.01	0.0471
Commercial/Institutional Boilers: Natural Gas Combustion	0.0300	0.00	4.69E-03	0.02	N/A	0.02	7.62E-04	3.05E-03	N/A	3.81E-03	0.0273
Industrial Boilers: Natural Gas Combustion	0.0200	0.00	0.01	4.03E-03	N/A	0.01	2.09E-03	8.95E-04	N/A	2.98E-03	0.0164
Turbines - distillate oil	0.0150	0.00	0.01	3.02E-03	N/A	0.01	1.57E-03	6.71E-04	N/A	2.24E-03	0.0123
Scrap or Waste Tire Incineration	5.18E-03	0.00	1.96E-03	0	N/A	1.96E-03	1.93E-03	0	N/A	1.93E-03	3.89E-03
Metal household furniture	2.50E-03	0.00	5.70E-06	0	N/A	5.70E-06	0	0	N/A	0	5.70E-06
Nonmetallic mineral products	2.50E-03	0.00	2.32E-05	4.40E-04	N/A	4.63E-04	1.66E-05	3.16E-04	N/A	3.33E-04	7.96E-04
Drum and Barrel Reclamation	8.19E-05	0.00	0	8.19E-05	N/A	8.19E-05	0	0	N/A	0	8.19E-05
Crematories	8.33E-06	0.00	0	5.78E-06	N/A	5.78E-06	0	1.18E-06	N/A	1.18E-06	6.96E-06

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-36. Base Year 1990 National Emission Estimates for EOM

Pollutant: EOM

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers: Wood/Wood Residue Combustion	235881.00	51.67	0	163253.24	N/A	163253.24	0	34391.45	N/A	34391.45	197644.69
Industrial Boilers: Wood/Wood Residue Combustion	97848.00	21.44	48102.08	12025.52	N/A	60127.60	12352.33	3088.08	N/A	15440.41	75568.01
Mobile Sources: On-Road Vehicles	56157.00	12.30	N/A	N/A	27792.10	27792.10	N/A	N/A	9524.23	9524.23	37316.33
Utility Boilers: Coal Combustion, All Types	38627.00	8.46	14898.43	0	N/A	14898.43	9656.75	0	N/A	9656.75	24555.18
Residential Boilers: Natural Gas Combustion	4142.00	0.91	0	2873.72	N/A	2873.72	0	586.51	N/A	586.51	3460.23
Primary Aluminum Production	3876.00	0.85	231.98	283.53	N/A	515.51	576.81	704.99	N/A	1281.79	1797.30
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	2744.00	0.60	428.89	1715.55	N/A	2144.44	69.70	278.79	N/A	348.49	2492.92
Industrial Boilers: Coal, All Types	2412.00	0.53	1133.09	485.61	N/A	1618.69	251.74	107.89	N/A	359.63	1978.32
Commercial/Institutional Boilers: Wood/Wood Residue Combustion	1946.00	0.43	297.89	1191.57	N/A	1489.47	53.05	212.19	N/A	265.24	1754.71
Stationary Reciprocating IC Engines: Diesel - fired	1929.00	0.42	906.19	388.37	N/A	1294.55	201.33	86.28	N/A	287.61	1582.17
Commercial/Institutional Boilers: Natural Gas Combustion	1921.00	0.42	300.25	1201.01	N/A	1501.26	48.79	195.17	N/A	243.97	1745.23
Turbines - distillate oil	1731.00	0.38	813.17	348.50	N/A	1161.67	180.66	77.43	N/A	258.09	1419.77
Residential Boilers: Distillate Oil Combustion	1465.00	0.32	0	1016.42	N/A	1016.42	0	207.44	N/A	207.44	1223.86
Utility Boilers: Natural Gas Combustion	1004.00	0.22	0	563.55	N/A	563.55	0	274.69	N/A	274.69	838.24
Commercial/Institutional Boilers: Distillate Oil Combustion	965.00	0.21	150.83	603.32	N/A	754.15	24.51	98.04	N/A	122.56	876.70
Industrial Boilers: Natural Gas Combustion	928.00	0.20	435.95	186.83	N/A	622.78	96.86	41.51	N/A	138.36	761.15

Table 6-36. Base Year 1990 National Emission Estimates for EOM

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Turbines - natural gas	739.00	0.16	297.57	198.38	N/A	495.94	66.11	44.07	N/A	110.18	606.13
Coke Ovens: Charging, Topside, &	679.00	0.15	608.79	0	N/A	608.79	46.85	0	N/A	46.85	655.64
Utility Boilers: Oil Combustion, All Types	531.00	0.12	218.64	218.64	N/A	437.28	36.45	36.45	N/A	72.91	510.18
Industrial Boilers: Distillate Oil Combustion	397.00	0.09	186.50	79.93	N/A	266.43	41.43	17.76	N/A	59.19	325.62
Commercial/Institutional Boilers: Residual Oil Combustion	350.00	0.08	54.71	218.82	N/A	273.53	8.89	35.56	N/A	44.45	317.98
Municipal Waste Combustion	98.79	0.02	72.39	3.81	N/A	76.21	11.85	0.62	N/A	12.48	88.68
Industrial Boilers: Residual Oil Combustion	97.00	0.02	45.57	19.53	N/A	65.10	10.12	4.34	N/A	14.46	79.56
Medical Waste Incineration	15.00	0.00	1.66	9.39	N/A	11.05	0.34	1.92	N/A	2.26	13.31
Other Biological Incineration	1.05	0.00	0	0.61	N/A	0.61	0	0.17	N/A	0.17	0.78

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-37. Base Year 1990 National Emission Estimates for Quinoline

Pollutant: Quinoline

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Organic Chemical Processes (SICs combined)	12.2	35	9.12	0	N/A	9.12	1.52	0	N/A	1.52	10.6
Blast furnaces and steel mills	9.14	26	3.32	4.06	N/A	7.38	0.698	0.853	N/A	1.55	8.93
Coke Ovens: By-product Recovery Plants	8.90	25	7.98	0	N/A	7.98	0.614	0	N/A	0.614	8.59
Petroleum Refining: Cyclic Crude and Intermediate Production	4.38	12	2.49	0	N/A	2.49	0.851	0	N/A	0.851	3.34
Utility Boilers: Coal Combustion, All Types	0.460	1.3	0.177	0	N/A	0.177	0.115	0	N/A	0.115	0.292
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.250	0.70	0.201	0.0106	N/A	0.212	0.0200	0.00106	N/A	0.0211	0.233
Wood Treatment/Wood Preserving	0.0850	0.24	0	0.0327	N/A	0.0327	0	0.0176	N/A	0.0176	0.0503

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-38. Base Year 1990 National Emission Estimates for Styrene

Pollutant: Styrene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Mobile Sources: On-Road Vehicles	17179.520	40.325	N/A	N/A	8502.144	8502.144	N/A	N/A	2913.647	2913.647	11415.791
Transportation Equipment Manufacture (SICs	4035.170	9.472	2001.646	667.215	N/A	2668.861	534.156	178.052	N/A	712.208	3381.069
Polystyrene Production	3806.000	8.934	2701.499	0.000	N/A	2701.499	281.263	0.000	N/A	281.263	2982.762
Plastics products manufacturing	2471.082	5.800	1391.007	14.051	N/A	1405.057	549.455	5.550	N/A	555.005	1960.062
Plastics materials and resins manufacturing	1935.823	4.544	1205.243	0.000	N/A	1205.243	487.440	0.000	N/A	487.440	1692.683
Miscellaneous Organic Chemical Processes (SICs combined)	1600.356	3.756	1191.785	0.000	N/A	1191.785	198.924	0.000	N/A	198.924	1390.709
Plastics plumbing fixtures (1987)	1564.592	3.672	427.819	4.321	N/A	432.140	608.891	6.150	N/A	615.041	1047.181
Other Miscellaneous (SICs combined)	1113.215	2.613	780.475	86.719	N/A	867.194	46.438	5.160	N/A	51.597	918.792
Synthetic rubber manufacturing	1101.857	2.586	945.724	0.000	N/A	945.724	139.826	0.000	N/A	139.826	1085.550
Miscellaneous Plastics Products	1036.774	2.434	412.205	4.164	N/A	416.368	403.685	4.078	N/A	407.763	824.131
Chemical Manufacturing: Styrene-Butadiene Copolymer Latexes	728.000	1.709	575.921	0.000	N/A	575.921	49.577	0.000	N/A	49.577	625.498
Chemical Manufacturing: Styrene (storage emissions)	662.000	1.554	477.037	0.000	N/A	477.037	24.494	0.000	N/A	24.494	501.531
Pulp and Paper: Non-Combustion Sources	535.000	1.256	154.401	0.000	N/A	154.401	150.549	0.000	N/A	150.549	304.950
Custom compound purchased resins manufacturing	420.125	0.986	313.191	3.164	N/A	316.354	33.353	0.337	N/A	33.690	350.044
Chemical Manufacturing: ABS Resins	373.000	0.876	188.850	0.000	N/A	188.850	184.150	0.000	N/A	184.150	373.000
Laminated plastics plate and sheet (1987)	353.916	0.831	281.948	2.848	N/A	284.796	38.156	0.385	N/A	38.541	323.338
Mobile Sources: Non-Road Vehicles and Equipment - Other	310.000	0.728	N/A	N/A	215.078	215.078	N/A	N/A	43.896	43.896	258.974

Table 6-38. Base Year 1990 National Emission Estimates for Styrene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Manufacturing (SICs combined)	262.802	0.617	146.114	25.785	N/A	171.898	30.871	5.448	N/A	36.319	208.218
Chemical Manufacturing: Styrene	237.000	0.556	170.782	0.000	N/A	170.782	8.769	0.000	N/A	8.769	179.551
Electronic and other electric equipment manufacturing (SICs combined)	235.837	0.554	97.530	32.510	N/A	130.041	41.832	13.944	N/A	55.775	185.816
Agricultural Chemicals	229.530	0.539	88.507	0.000	N/A	88.507	140.771	0.000	N/A	140.771	229.278
Petroleum Refining: Cyclic Crude and Intermediate Production	198.599	0.466	112.725	0.000	N/A	112.725	38.588	0.000	N/A	38.588	151.313
Mobile Sources: Non-Road Vehicles and Equipment - Aircraft	194.000	0.455	N/A	N/A	167.480	167.480	N/A	N/A	20.700	20.700	188.180
Plastics pipe (1987)	182.412	0.428	103.025	1.041	N/A	104.066	75.143	0.759	N/A	75.902	179.968
Pressed and blown glass and glassware manufacturing	159.803	0.375	1.435	27.266	N/A	28.701	3.355	63.746	N/A	67.101	95.802
Unsupported plastics film and sheet manufacturing	156.225	0.367	86.286	0.872	N/A	87.158	29.061	0.294	N/A	29.355	116.512
Textiles (SICs combined)	124.859	0.293	25.914	25.914	N/A	51.829	5.114	5.114	N/A	10.227	62.056
Industrial organic chemicals manufacturing	121.151	0.284	84.054	0.000	N/A	84.054	15.641	0.000	N/A	15.641	99.695
Vitreous plumbing fixtures	120.939	0.284	3.349	63.638	N/A	66.988	2.695	51.207	N/A	53.902	120.890
Pulp and Paper: Semichemical Recovery	117.000	0.275	8.997	0.000	N/A	8.997	17.995	0.000	N/A	17.995	26.992
Paints and allied products	108.104	0.254	91.780	0.000	N/A	91.780	7.306	0.000	N/A	7.306	99.086
Industrial Machinery and Electrical Equipment (SICs	99.097	0.233	39.688	13.229	N/A	52.918	18.298	6.099	N/A	24.398	77.315
Secondary Lead Smelting	95.900	0.225	35.152	32.448	N/A	67.600	6.857	6.329	N/A	13.186	80.786
Fabricated metal products manufacturing (SICs	81.970	0.192	38.632	12.877	N/A	51.510	10.482	3.494	N/A	13.976	65.486

Table 6-38. Base Year 1990 National Emission Estimates for Styrene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Alkalies and chlorine	71.851	0.169	11.970	27.929	N/A	39.899	3.824	8.922	N/A	12.746	52.645
Open Burning: Scrap Tires	47.576	0.112	0.000	32.156	N/A	32.156	0.000	7.417	N/A	7.417	39.573
Ship Building & Repair (Surface Coating)	46.247	0.109	28.175	9.392	N/A	37.566	0.922	0.307	N/A	1.229	38.795
Wood household furniture manufacturing	37.049	0.087	6.372	0.000	N/A	6.372	2.337	0.000	N/A	2.337	8.709
Cut stone and stone products	34.623	0.081	1.323	25.139	N/A	26.462	0.358	6.802	N/A	7.160	33.622
Nonmetallic mineral products	30.948	0.073	0.287	5.445	N/A	5.731	0.206	3.910	N/A	4.116	9.847
Concrete products	29.223	0.069	1.434	27.240	N/A	28.674	0.016	0.301	N/A	0.316	28.990
Surface active agents manufacturing	28.528	0.067	23.014	1.211	N/A	24.226	3.309	0.174	N/A	3.483	27.709
Fabricated metal products, nec	27.021	0.063	17.013	5.671	N/A	22.684	1.626	0.542	N/A	2.168	24.851
Utility Boilers: Coal Combustion, All Types	27.000	0.063	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Wood kitchen cabinets	25.272	0.059	1.226	0.000	N/A	1.226	1.926	0.000	N/A	1.926	3.152
Primary metal products manufacturing (SICs combined)	23.755	0.056	6.813	8.326	N/A	15.139	1.412	1.726	N/A	3.138	18.277
Petroleum Refining: (ALL PROCESSES)	21.719	0.051	15.872	0.000	N/A	15.872	4.678	0.000	N/A	4.678	20.550
Mineral Wool Manufacturing	21.637	0.051	0.585	11.106	N/A	11.690	0.405	7.702	N/A	8.107	19.798
Blast furnaces and steel mills	19.221	0.045	6.980	8.531	N/A	15.511	1.467	1.793	N/A	3.260	18.771
Tire Manufacturing	17.610	0.041	5.978	0.060	N/A	6.038	7.069	0.071	N/A	7.141	13.179
Gray and ductile iron foundries	17.186	0.040	3.290	4.021	N/A	7.311	1.466	1.792	N/A	3.258	10.569
Plastics foam products manufacturing	14.643	0.034	7.683	0.078	N/A	7.761	4.358	0.044	N/A	4.402	12.162
Wood Products	12.613	0.030	0.929	0.000	N/A	0.929	6.017	0.000	N/A	6.017	6.947
Book printing	11.228	0.026	0.000	0.000	N/A	0.000	0.000	0.000	N/A	0.000	0.000
Industrial inorganic chemical	11.113	0.026	8.033	0.000	N/A	8.033	0.330	0.000	N/A	0.330	8.363
Paper coating and glazing manufacturing	9.500	0.022	6.233	0.616	N/A	6.850	2.412	0.239	N/A	2.651	9.500
Household furniture	8.146	0.019	8.146	0.000	N/A	8.146	0.000	0.000	N/A	0.000	8.146
Adhesives and Sealants (SICs combined)	8.132	0.019	7.308	0.385	N/A	7.693	0.138	0.007	N/A	0.146	7.838
Furniture and fixtures manufacturing	6.885	0.016	6.885	0.000	N/A	6.885	0.000	0.000	N/A	0.000	6.885

Table 6-38. Base Year 1990 National Emission Estimates for Styrene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fabricated rubber products	6.686	0.016	6.619	0.067	N/A	6.686	0.000	0.000	N/A	0.000	6.686
Chemical Preparations (SICs combined)	5.093	0.012	3.741	0.197	N/A	3.937	0.111	0.006	N/A	0.117	4.054
Miscellaneous Plastics Products, NEC (1987)	5.050	0.012	5.000	0.051	N/A	5.050	0.000	0.000	N/A	0.000	5.050
Unsupported plastics profile shapes (1987)	4.189	0.010	3.903	0.039	N/A	3.942	0.011	0.000	N/A	0.011	3.953
Paper coated and laminated, packaging	4.081	0.010	2.772	0.274	N/A	3.046	0.911	0.090	N/A	1.001	4.047
Coke Ovens: By-product Recovery Plants	3.100	0.007	2.779	0.000	N/A	2.779	0.214	0.000	N/A	0.214	2.993
Instruments and Related Products (SICs combined)	2.150	0.005	0.000	1.867	N/A	1.867	0.000	0.116	N/A	0.116	1.983
Wood partitions and fixtures	1.877	0.004	0.811	0.000	N/A	0.811	0.873	0.000	N/A	0.873	1.684
Commercial/Institutional Boilers: POTW Digester Gas Combustion	1.650	0.004	0.000	1.145	N/A	1.145	0.000	0.234	N/A	0.234	1.378
Cleaning Products (SICs combined)	1.475	0.003	0.985	0.052	N/A	1.037	0.311	0.016	N/A	0.327	1.364
Products of purchased glass	1.447	0.003	0.013	0.252	N/A	0.265	0.027	0.520	N/A	0.547	0.812
Industrial Boilers: Bituminous and Lignite Coal Combustion	1.435	0.003	0.674	0.289	N/A	0.963	0.150	0.064	N/A	0.214	1.177
Gum and wood chemical	0.984	0.002	0.004	0.000	N/A	0.004	0.921	0.048	N/A	0.970	0.974
Portland Cement Manufacture: All Fuels	0.568	0.001	0.280	0.049	N/A	0.329	0.090	0.016	N/A	0.106	0.435
Pottery products, nec	0.375	0.001	0.013	0.245	N/A	0.258	0.006	0.111	N/A	0.117	0.375
Primary Copper Smelting	0.375	0.001	0.016	0.047	N/A	0.062	0.052	0.157	N/A	0.210	0.272
Particleboard (disc. 1987, 2493)	0.374	0.001	0.000	0.000	N/A	0.000	0.196	0.000	N/A	0.196	0.196
Construction (SICs combined)	0.274	0.001	0.088	0.000	N/A	0.088	0.000	0.000	N/A	0.000	0.088
Food Products (SICs combined)	0.253	0.001	0.006	0.120	N/A	0.126	0.006	0.109	N/A	0.114	0.241
Inorganic Pigments Manufacturing	0.250	0.001	0.213	0.000	N/A	0.213	0.037	0.000	N/A	0.037	0.250
Minerals, ground or treated production	0.126	0.000	0.001	0.012	N/A	0.013	0.001	0.023	N/A	0.024	0.037

Table 6-38. Base Year 1990 National Emission Estimates for Styrene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Hardwood dimension and flooring mills	0.125	0.000	0.000	0.000	N/A	0.000	0.000	0.000	N/A	0.000	0.000
Concrete block and brick	0.125	0.000	0.006	0.119	N/A	0.125	0.000	0.000	N/A	0.000	0.125
Office furniture, except wood manufacturing	0.125	0.000	0.045	0.000	N/A	0.045	0.078	0.000	N/A	0.078	0.124
Wood office furniture	0.125	0.000	0.002	0.000	N/A	0.002	0.001	0.000	N/A	0.001	0.003
Wood Treatment/Wood Preserving	0.125	0.000	0.000	0.048	N/A	0.048	0.000	0.026	N/A	0.026	0.074
Structural Clay Products, Nec	0.096	0.000	0.000	0.000	N/A	0.000	0.000	0.000	N/A	0.000	0.000
Asphalt paving mixtures and blocks	0.087	0.000	0.087	0.000	N/A	0.087	0.000	0.000	N/A	0.000	0.087
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.045	0.000	0.007	0.028	N/A	0.035	0.001	0.005	N/A	0.006	0.041

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions . Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-39. Base Year 1990 National Emission Estimates for Tetrachloroethylene

Pollutant: Tetrachloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Dry Cleaning: Industrial/Commercial, Dry-To-Dry, & Transfer Machines	95700.000	75.118	0.000	59391.420	N/A	59391.420	0.000	17235.570	N/A	17235.570	76626.990
Halogenated Solvent Cleaners (Degreasing)	11871.770	9.319	8969.122	0.000	N/A	8969.122	1569.448	0.000	N/A	1569.448	10538.570
Publicly owned treatment works (POTWs)	3560.430	2.795	0.000	2470.226	N/A	2470.226	0.000	504.157	N/A	504.157	2974.383
Consumer Products Usage (SICs combined)	3506.809	2.753	0.000	2433.024	N/A	2433.024	0.000	496.564	N/A	496.564	2929.588
Transportation Equipment Manufacture (SICs	2661.530	2.089	1320.252	440.084	N/A	1760.336	352.320	117.440	N/A	469.760	2230.096
Electronic and other electric equipment manufacturing (SICs combined)	1243.945	0.976	514.433	171.478	N/A	685.911	220.645	73.548	N/A	294.193	980.104
Primary metal products manufacturing (SICs combined)	1157.545	0.909	331.967	405.737	N/A	737.703	68.810	84.101	N/A	152.912	890.615
Industrial Machinery and Electrical Equipment (SICs	1130.885	0.888	452.919	150.973	N/A	603.892	208.818	69.606	N/A	278.424	882.316
Fabricated metal products manufacturing (SICs	1097.493	0.861	517.248	172.416	N/A	689.664	140.342	46.781	N/A	187.122	876.787
Pulp and Paper: Non-Combustion Sources	865.000	0.679	249.639	0.000	N/A	249.639	243.411	0.000	N/A	243.411	493.050
Landfills: Chemical Waste Emissions	726.870	0.571	0.000	504.302	N/A	504.302	0.000	102.925	N/A	102.925	607.227
Textiles (SICs combined)	479.404	0.376	99.500	99.500	N/A	199.001	19.634	19.634	N/A	39.268	238.269
Chromium Plating: Chromic Anodizing	352.890	0.277	15.079	286.501	N/A	301.580	0.979	18.606	N/A	19.585	321.165
Other Miscellaneous (SICs combined)	280.437	0.220	196.614	21.846	N/A	218.460	11.698	1.300	N/A	12.998	231.459
Fabricated rubber products	241.623	0.190	239.207	2.416	N/A	241.623	0.000	0.000	N/A	0.000	241.623
Instruments and Related Products (SICs combined)	229.718	0.180	0.000	199.464	N/A	199.464	0.000	12.361	N/A	12.361	211.825

Table 6-39. Base Year 1990 National Emission Estimates for Tetrachloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Paper coated and laminated, packaging	214.268	0.168	145.555	14.396	N/A	159.951	47.810	4.728	N/A	52.538	212.489
Fabricated metal products, nec	209.929	0.165	132.176	44.059	N/A	176.235	12.630	4.210	N/A	16.840	193.075
Industrial organic chemicals manufacturing	195.339	0.153	135.526	0.000	N/A	135.526	25.218	0.000	N/A	25.218	160.744
Chemical Manufacturing: Alkalies and chlorine	179.634	0.141	29.925	69.826	N/A	99.751	9.560	22.307	N/A	31.867	131.618
Blast furnaces and steel mills	165.767	0.130	60.198	73.575	N/A	133.774	12.651	15.463	N/A	28.114	161.888
Miscellaneous Manufacturing (SICs combined)	98.684	0.077	54.867	9.682	N/A	64.549	11.592	2.046	N/A	13.638	78.187
Primary nonferrous metals production	91.697	0.072	19.101	23.345	N/A	42.446	10.229	12.502	N/A	22.732	65.178
Semiconductors and related devices	90.660	0.071	67.485	22.495	N/A	89.980	0.511	0.170	N/A	0.681	90.661
Miscellaneous Organic Chemical Processes (SICs combined)	67.507	0.053	50.272	0.000	N/A	50.272	8.391	0.000	N/A	8.391	58.663
Plastics products manufacturing	67.347	0.053	37.910	0.383	N/A	38.293	14.975	0.151	N/A	15.126	53.419
Millwork	65.500	0.051	6.989	0.000	N/A	6.989	56.592	0.000	N/A	56.592	63.581
Agricultural Chemicals	61.150	0.048	23.579	0.000	N/A	23.579	37.503	0.000	N/A	37.503	61.083
Mechanical rubber goods manufacturing	51.335	0.040	35.946	0.363	N/A	36.309	0.000	0.000	N/A	0.000	36.309
Pharmaceuticals Preparations and Manufacturing (SICs combined)	49.424	0.039	39.816	2.096	N/A	41.911	3.963	0.209	N/A	4.171	46.082
Rubber and plastic hose and belting (disc.	47.418	0.037	46.944	0.474	N/A	47.418	0.000	0.000	N/A	0.000	47.418
Commercial printing, nec (1987)	39.914	0.031	31.084	3.074	N/A	34.158	5.230	0.517	N/A	5.748	39.906
Commercial printing, letterpress, and screen (disc	36.877	0.029	33.558	3.319	N/A	36.877	0.000	0.000	N/A	0.000	36.877
Cleaning Products (SICs combined)	33.918	0.027	22.661	1.193	N/A	23.854	7.150	0.376	N/A	7.526	31.380
Office furniture, except wood manufacturing	30.500	0.024	11.084	0.000	N/A	11.084	19.093	0.000	N/A	19.093	30.177
Abrasive Grain (Media) Manufacturing	28.603	0.022	0.996	18.915	N/A	19.911	0.096	1.816	N/A	1.911	21.822

Table 6-39. Base Year 1990 National Emission Estimates for Tetrachloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemicals and allied products	28.255	0.022	22.765	1.198	N/A	23.963	3.234	0.170	N/A	3.405	27.368
Porcelain electrical supplies	27.222	0.021	0.007	0.128	N/A	0.135	0.000	0.003	N/A	0.003	0.138
Utility Boilers: Coal Combustion, All Types	27.000	0.021	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Plastics foam products manufacturing	24.125	0.019	12.658	0.128	N/A	12.786	7.179	0.073	N/A	7.252	20.038
Coke Ovens: By-product Recovery Plants	24.000	0.019	21.518	0.000	N/A	21.518	1.656	0.000	N/A	1.656	23.174
Miscellaneous Plastics Products	23.924	0.019	9.512	0.096	N/A	9.608	9.315	0.094	N/A	9.409	19.017
Chemical Preparations (SICs combined)	21.666	0.017	15.912	0.837	N/A	16.750	0.473	0.025	N/A	0.497	17.247
Envelopes	20.900	0.016	19.019	1.881	N/A	20.900	0.000	0.000	N/A	0.000	20.900
Pulp and Paper: Sulfite Recovery	20.000	0.016	6.666	0.000	N/A	6.666	10.000	0.000	N/A	10.000	16.666
Platemaking services (1987)	19.077	0.015	17.245	1.706	N/A	18.951	0.114	0.011	N/A	0.125	19.076
Paper & Printed Products	18.844	0.015	17.148	1.696	N/A	18.844	0.000	0.000	N/A	0.000	18.844
Commercial printing, lithographic	18.625	0.015	14.164	1.401	N/A	15.564	2.785	0.275	N/A	3.060	18.625
Greeting cards	18.263	0.014	4.475	0.443	N/A	4.918	6.425	0.635	N/A	7.060	11.978
Plastics materials and resins manufacturing	15.772	0.012	9.819	0.000	N/A	9.819	3.971	0.000	N/A	3.971	13.791
Petroleum Refining: Cyclic Crude and Intermediate Production	15.697	0.012	8.909	0.000	N/A	8.909	3.050	0.000	N/A	3.050	11.959
Adhesives and Sealants (SICs combined)	14.318	0.011	12.867	0.677	N/A	13.544	0.243	0.013	N/A	0.256	13.801
Leather tanning and finishing	14.230	0.011	8.097	2.699	N/A	10.796	0.001	0.000	N/A	0.002	10.798
Iron and Steel Foundries: Steel Investment Foundries	13.848	0.011	5.887	7.195	N/A	13.082	0.111	0.136	N/A	0.246	13.329
Bags: Plastics, Laminated, & Coated	11.634	0.009	10.587	1.047	N/A	11.634	0.000	0.000	N/A	0.000	11.634
Rubber and plastic hose and belting manufacturing	10.453	0.008	0.804	0.008	N/A	0.812	7.726	0.078	N/A	7.804	8.616
Products of purchased glass	10.125	0.008	0.093	1.762	N/A	1.855	0.191	3.637	N/A	3.828	5.683

Table 6-39. Base Year 1990 National Emission Estimates for Tetrachloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Primary batteries, dry and wet,	9.400	0.007	4.547	1.516	N/A	6.063	0.699	0.233	N/A	0.932	6.995
Carbon and Graphite Products	7.742	0.006	1.797	0.599	N/A	2.396	1.294	0.431	N/A	1.726	4.122
Other Secondary Nonferrous Metals Recovery	7.500	0.006	3.036	3.710	N/A	6.746	0.128	0.156	N/A	0.284	7.030
Paper Coated & Laminated, Packaging	5.903	0.005	2.824	0.279	N/A	3.103	2.548	0.252	N/A	2.800	5.903
Furniture and fixtures manufacturing	5.700	0.004	5.700	0.000	N/A	5.700	0.000	0.000	N/A	0.000	5.700
Manifold business forms	5.500	0.004	2.925	0.289	N/A	3.214	0.000	0.000	N/A	0.000	3.214
Pressed and blown glass and glassware manufacturing	3.735	0.003	0.034	0.637	N/A	0.671	0.078	1.490	N/A	1.568	2.239
Converted Paper Products	2.734	0.002	2.488	0.246	N/A	2.734	0.000	0.000	N/A	0.000	2.734
Commercial printing, gravure	2.672	0.002	2.329	0.230	N/A	2.560	0.102	0.010	N/A	0.112	2.672
Minerals, ground or treated production	2.598	0.002	0.013	0.254	N/A	0.267	0.025	0.470	N/A	0.495	0.762
Industrial Boilers: Bituminous and Lignite Coal Combustion	2.469	0.002	1.160	0.497	N/A	1.657	0.258	0.110	N/A	0.368	2.025
Folding paperboard boxes (1987)	2.253	0.002	1.020	0.101	N/A	1.120	0.762	0.075	N/A	0.838	1.958
Organic fibers, non-cellulosic manufacturing	2.200	0.002	1.285	0.068	N/A	1.353	0.092	0.005	N/A	0.097	1.450
Paints and allied products	1.836	0.001	1.559	0.000	N/A	1.559	0.124	0.000	N/A	0.124	1.683
Converted paper and paperboard products, nec (disc)	1.150	0.001	1.047	0.104	N/A	1.150	0.000	0.000	N/A	0.000	1.150
Industrial inorganic chemical	0.983	0.001	0.711	0.000	N/A	0.711	0.029	0.000	N/A	0.029	0.740
Surface active agents manufacturing	0.969	0.001	0.782	0.041	N/A	0.823	0.112	0.006	N/A	0.118	0.941
Sanitary Food Containers (1987)	0.900	0.001	0.819	0.081	N/A	0.900	0.000	0.000	N/A	0.000	0.900
Paper coating and glazing manufacturing	0.750	0.001	0.492	0.049	N/A	0.541	0.190	0.019	N/A	0.209	0.750
Portland Cement Manufacture: All Fuels	0.398	0.000	0.196	0.035	N/A	0.230	0.063	0.011	N/A	0.074	0.305

Table 6-39. Base Year 1990 National Emission Estimates for Tetrachloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous publishing	0.375	0.000	0.341	0.034	N/A	0.375	0.000	0.000	N/A	0.000	0.375
Petroleum Refining: (ALL PROCESSES)	0.342	0.000	0.250	0.000	N/A	0.250	0.074	0.000	N/A	0.074	0.323
Utility Boilers: Oil Combustion, All Types	0.340	0.000	0.140	0.140	N/A	0.280	0.023	0.023	N/A	0.047	0.327
Lubricating oils and greases	0.250	0.000	0.233	0.000	N/A	0.233	0.014	0.000	N/A	0.014	0.247
Inorganic Pigments Manufacturing	0.210	0.000	0.179	0.000	N/A	0.179	0.031	0.000	N/A	0.031	0.210
Sewage Sludge Incineration	0.179	0.000	0.000	0.138	N/A	0.138	0.000	0.016	N/A	0.016	0.153
Reconstituted wood products (1987)	0.125	0.000	0.005	0.000	N/A	0.005	0.021	0.000	N/A	0.021	0.027
Industrial gases manufacturing	0.125	0.000	0.110	0.006	N/A	0.116	0.000	0.000	N/A	0.000	0.116
Custom compound purchased resins manufacturing	0.125	0.000	0.093	0.001	N/A	0.094	0.010	0.000	N/A	0.010	0.104
Commercial/Institutional Boilers: Bituminous and Lignite Coal Combustion	0.077	0.000	0.012	0.048	N/A	0.060	0.002	0.008	N/A	0.010	0.070
Medical Waste Incineration	0.035	0.000	0.004	0.022	N/A	0.026	0.001	0.004	N/A	0.005	0.031
Landfills: Gas Flares	0.027	0.000	0.000	0.019	N/A	0.019	0.000	0.004	N/A	0.004	0.023
Structural Clay Products, Nec	0.014	0.000	0.000	0.000	N/A	0.000	0.000	0.000	N/A	0.000	0.000
Synthetic rubber manufacturing	0.012	0.000	0.010	0.000	N/A	0.010	0.001	0.000	N/A	0.001	0.011
Nonmetallic mineral products	0.004	0.000	0.000	0.001	N/A	0.001	0.000	0.000	N/A	0.000	0.001

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-40. Base Year 1990 National Emission Estimates for Trichloroethylene

Pollutant: Trichloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Halogenated Solvent Cleaners (Degreasing)	40707.940	60.679	30754.849	0.000	N/A	30754.849	5381.590	0.000	N/A	5381.590	36136.438
Publicly owned treatment works (POTWs)	5335.130	7.952	0.000	3701.513	N/A	3701.513	0.000	755.454	N/A	755.454	4456.968
Transportation Equipment Manufacture (SICs	3747.360	5.586	1858.878	619.626	N/A	2478.504	496.057	165.352	N/A	661.409	3139.913
Fabricated metal products manufacturing (SICs	3531.270	5.264	1664.288	554.763	N/A	2219.050	451.561	150.520	N/A	602.082	2821.132
Industrial Machinery and Electrical Equipment (SICs	2363.687	3.523	946.656	315.552	N/A	1262.209	436.455	145.485	N/A	581.940	1844.148
Electronic and other electric equipment manufacturing (SICs combined)	1622.531	2.419	670.997	223.666	N/A	894.663	287.796	95.932	N/A	383.728	1278.392
Primary metal products manufacturing (SICs combined)	1262.230	1.881	361.989	442.431	N/A	804.419	75.033	91.707	N/A	166.741	971.160
Chromium Plating: Chromic Anodizing	1158.886	1.727	49.519	940.864	N/A	990.384	3.216	61.102	N/A	64.318	1054.702
Pulp and Paper: Non-Combustion Sources	815.000	1.215	235.209	0.000	N/A	235.209	229.341	0.000	N/A	229.341	464.550
Instruments and Related Products (SICs combined)	686.220	1.023	0.000	595.845	N/A	595.845	0.000	36.925	N/A	36.925	632.770
Fabricated metal products, nec	648.057	0.966	408.033	136.011	N/A	544.044	38.990	12.997	N/A	51.987	596.031
Miscellaneous Manufacturing (SICs combined)	646.232	0.963	359.295	63.405	N/A	422.700	75.913	13.396	N/A	89.309	512.010
Textiles (SICs combined)	631.016	0.941	130.967	130.967	N/A	261.935	25.843	25.843	N/A	51.686	313.621
Blast furnaces and steel mills	489.290	0.729	177.686	217.171	N/A	394.857	37.343	45.641	N/A	82.984	477.841
Concrete block and brick	464.833	0.693	23.235	441.459	N/A	464.694	0.006	0.117	N/A	0.123	464.817
Plastics products manufacturing	434.353	0.647	244.503	2.470	N/A	246.973	96.580	0.976	N/A	97.556	344.528

Table 6-40. Base Year 1990 National Emission Estimates for Trichloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Landfills: Chemical Waste Emissions	348.250	0.519	0.000	241.616	N/A	241.616	0.000	49.312	N/A	49.312	290.928
Fabricated rubber products	247.625	0.369	245.148	2.476	N/A	247.625	0.000	0.000	N/A	0.000	247.625
Primary batteries, dry and wet,	146.850	0.219	71.039	23.680	N/A	94.718	10.921	3.640	N/A	14.562	109.280
Chemical Manufacturing: Alkalies and chlorine	142.239	0.212	23.696	55.290	N/A	78.985	7.570	17.663	N/A	25.233	104.219
Pharmaceuticals Preparations and Manufacturing (SICs combined)	125.970	0.188	101.482	5.341	N/A	106.823	10.100	0.532	N/A	10.632	117.455
Iron and Steel Foundries: Steel Investment Foundries	113.354	0.169	48.188	58.897	N/A	107.086	0.908	1.110	N/A	2.018	109.103
Semiconductors and related devices	108.248	0.161	80.577	26.859	N/A	107.436	0.610	0.203	N/A	0.813	108.249
Other Miscellaneous (SICs combined)	104.716	0.156	73.416	8.157	N/A	81.573	4.368	0.485	N/A	4.854	86.427
Gray and ductile iron foundries	101.728	0.152	19.474	23.801	N/A	43.275	8.679	10.608	N/A	19.288	62.562
Other Secondary Nonferrous Metals Recovery	98.800	0.147	39.992	48.879	N/A	88.871	1.684	2.058	N/A	3.743	92.613
Mechanical rubber goods manufacturing	84.000	0.125	58.819	0.594	N/A	59.413	0.000	0.000	N/A	0.000	59.413
Electrical industrial apparatus, nec	81.285	0.121	0.006	0.002	N/A	0.007	2.444	0.815	N/A	3.259	3.266
Industrial organic chemicals manufacturing	77.670	0.116	53.887	0.000	N/A	53.887	10.027	0.000	N/A	10.027	63.915
Miscellaneous Organic Chemical Processes (SICs combined)	71.981	0.107	53.604	0.000	N/A	53.604	8.947	0.000	N/A	8.947	62.551
Office furniture, except wood manufacturing	65.000	0.097	23.621	0.000	N/A	23.621	40.690	0.000	N/A	40.690	64.311
Unsupported plastics film and sheet manufacturing	61.099	0.091	33.746	0.341	N/A	34.087	11.366	0.115	N/A	11.481	45.568
Consumer Products Usage (SICs combined)	60.436	0.090	0.000	41.931	N/A	41.931	0.000	8.558	N/A	8.558	50.489
Public building and related furniture	51.281	0.076	8.220	0.000	N/A	8.220	1.732	0.000	N/A	1.732	9.953
Lubricating oils and greases	44.742	0.067	41.623	0.000	N/A	41.623	2.506	0.000	N/A	2.506	44.129

Table 6-40. Base Year 1990 National Emission Estimates for Trichloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Plastics materials and resins manufacturing	34.550	0.051	21.511	0.000	N/A	21.511	8.700	0.000	N/A	8.700	30.211
Chemicals and allied products	31.600	0.047	25.460	1.340	N/A	26.800	3.617	0.190	N/A	3.808	30.608
Blankbooks and looseleaf binders	28.400	0.042	25.844	2.556	N/A	28.400	0.000	0.000	N/A	0.000	28.400
Commercial printing, lithographic	27.262	0.041	20.732	2.050	N/A	22.782	4.076	0.403	N/A	4.479	27.262
Coke Ovens: By-product Recovery Plants	27.210	0.041	24.396	0.000	N/A	24.396	1.877	0.000	N/A	1.877	26.274
Utility Boilers: Coal Combustion, All Types	27.000	0.040	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Vitreous plumbing fixtures	26.260	0.039	0.727	13.818	N/A	14.545	0.585	11.119	N/A	11.704	26.249
Chemical Manufacturing: Trichloroethylene	25.100	0.037	8.193	0.000	N/A	8.193	16.907	0.000	N/A	16.907	25.100
Products of purchased glass	24.700	0.037	0.226	4.299	N/A	4.525	0.467	8.872	N/A	9.339	13.864
Construction (SICs combined)	16.825	0.025	5.436	0.000	N/A	5.436	0.000	0.000	N/A	0.000	5.436
Ship Building & Repair (Surface Coating)	15.982	0.024	9.737	3.246	N/A	12.982	0.318	0.106	N/A	0.425	13.407
Miscellaneous Plastics Products	15.760	0.023	6.266	0.063	N/A	6.329	6.136	0.062	N/A	6.198	12.528
Porcelain electrical supplies	13.986	0.021	0.003	0.066	N/A	0.069	0.000	0.001	N/A	0.001	0.071
Storage batteries manufacturing	13.000	0.019	0.397	7.538	N/A	7.935	0.200	3.801	N/A	4.001	11.937
Fiber cans, drums, and similar products	12.005	0.018	10.921	1.080	N/A	12.001	0.000	0.000	N/A	0.000	12.001
Wood partitions and fixtures	10.923	0.016	4.720	0.000	N/A	4.720	5.078	0.000	N/A	5.078	9.797
Rubber and plastic hose and belting manufacturing	10.000	0.015	0.769	0.008	N/A	0.777	7.391	0.075	N/A	7.466	8.243
Carbon and Graphite Products	9.919	0.015	2.302	0.767	N/A	3.070	1.658	0.553	N/A	2.211	5.281
Folding paperboard boxes (1987)	6.400	0.010	2.896	0.286	N/A	3.183	2.165	0.214	N/A	2.380	5.562
Partitions and fixtures, except wood	6.375	0.010	0.064	0.000	N/A	0.064	3.962	0.000	N/A	3.962	4.026
Furniture and fixtures manufacturing	5.826	0.009	5.826	0.000	N/A	5.826	0.000	0.000	N/A	0.000	5.826

Table 6-40. Base Year 1990 National Emission Estimates for Trichloroethylene

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Paper Coated & Laminated, Packaging	5.664	0.008	2.709	0.268	N/A	2.977	2.444	0.242	N/A	2.686	5.664
Adhesives and Sealants (SICs combined)	2.783	0.004	2.501	0.132	N/A	2.632	0.047	0.002	N/A	0.050	2.682
Minerals, ground or treated production	1.850	0.003	0.010	0.181	N/A	0.190	0.018	0.335	N/A	0.352	0.543
Petroleum Refining: (ALL PROCESSES)	1.403	0.002	1.025	0.000	N/A	1.025	0.302	0.000	N/A	0.302	1.327
Asphalt Production - Other	1.275	0.002	1.236	0.000	N/A	1.236	0.013	0.000	N/A	0.013	1.249
Agricultural Chemicals	1.037	0.002	0.400	0.000	N/A	0.400	0.636	0.000	N/A	0.636	1.035
Paints and allied products	1.015	0.002	0.861	0.000	N/A	0.861	0.069	0.000	N/A	0.069	0.930
Chemical Preparations (SICs combined)	0.950	0.001	0.698	0.037	N/A	0.734	0.021	0.001	N/A	0.022	0.756
Secondary Lead Smelting	0.631	0.001	0.231	0.214	N/A	0.445	0.045	0.042	N/A	0.087	0.532
Industrial inorganic chemical	0.600	0.001	0.433	0.000	N/A	0.433	0.018	0.000	N/A	0.018	0.451
Portland Cement Manufacture: All Fuels	0.558	0.001	0.275	0.048	N/A	0.323	0.089	0.016	N/A	0.104	0.428
Wood Products	0.500	0.001	0.037	0.000	N/A	0.037	0.239	0.000	N/A	0.239	0.275
Sewage Sludge Incineration	0.366	0.001	0.000	0.282	N/A	0.282	0.000	0.032	N/A	0.032	0.314
Cleaning Products (SICs combined)	0.330	0.000	0.220	0.012	N/A	0.232	0.070	0.004	N/A	0.073	0.305
Pressed and blown glass and glassware manufacturing	0.169	0.000	0.002	0.029	N/A	0.030	0.004	0.067	N/A	0.071	0.101
Industrial gases manufacturing	0.128	0.000	0.112	0.006	N/A	0.118	0.000	0.000	N/A	0.000	0.118
Medical Waste Incineration	0.028	0.000	0.003	0.018	N/A	0.021	0.001	0.004	N/A	0.004	0.025
Landfills: Gas Flares	0.010	0.000	0.000	0.007	N/A	0.007	0.000	0.001	N/A	0.001	0.008
Nonmetallic mineral products	0.003	0.000	0.000	0.000	N/A	0.000	0.000	0.000	N/A	0.000	0.001
Petroleum Refining: Cyclic Crude and Intermediate Production	0.001	0.000	0.001	0.000	N/A	0.001	0.000	0.000	N/A	0.000	0.001

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-41. Base Year 1990 National Emission Estimates for Vinyl Chloride

Pollutant: Vinyl Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Vinyl Chloride	24177.580	93.716	10425.372	0.000	N/A	10425.372	5502.817	0.000	N/A	5502.817	15928.190
Landfills: Chemical Waste Emissions	586.920	2.275	0.000	407.205	N/A	407.205	0.000	83.108	N/A	83.108	490.313
Plastics materials and resins manufacturing	507.150	1.966	315.751	0.000	N/A	315.751	127.700	0.000	N/A	127.700	443.452
Miscellaneous Organic Chemical Processes (SICs combined)	351.658	1.363	261.879	0.000	N/A	261.879	43.711	0.000	N/A	43.711	305.590
Chemical Manufacturing: Tetrachloroethylene	66.997	0.260	11.590	0.000	N/A	11.590	52.586	0.000	N/A	52.586	64.176
Industrial organic chemicals manufacturing	37.702	0.146	26.157	0.000	N/A	26.157	4.867	0.000	N/A	4.867	31.025
Industrial gases manufacturing	26.713	0.104	23.482	1.236	N/A	24.718	0.000	0.000	N/A	0.000	24.718
Chemical Manufacturing: Alkalies and chlorine	16.660	0.065	2.775	6.476	N/A	9.251	0.887	2.069	N/A	2.955	12.206
Tire Manufacturing	9.030	0.035	3.065	0.031	N/A	3.096	3.625	0.037	N/A	3.662	6.758
Unsupported plastics film and sheet manufacturing	7.200	0.028	3.977	0.040	N/A	4.017	1.339	0.014	N/A	1.353	5.370
Petroleum Refining: Cyclic Crude and Intermediate Production	4.650	0.018	2.639	0.000	N/A	2.639	0.903	0.000	N/A	0.903	3.543
Sewage Sludge Incineration	2.970	0.012	0.000	2.288	N/A	2.288	0.000	0.260	N/A	0.260	2.548
Chemical Manufacturing: Methyl Chloroform	2.150	0.008	1.422	0.000	N/A	1.422	0.728	0.000	N/A	0.728	2.150
Agricultural Chemicals	0.657	0.003	0.253	0.000	N/A	0.253	0.403	0.000	N/A	0.403	0.656
Transportation Equipment Manufacture (SICs	0.426	0.002	0.211	0.070	N/A	0.282	0.056	0.019	N/A	0.075	0.357
Chemicals and allied products	0.205	0.001	0.165	0.009	N/A	0.174	0.023	0.001	N/A	0.025	0.199

Table 6-41. Base Year 1990 National Emission Estimates for Vinyl Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Landfills: Gas Flares	0.032	0.000	0.000	0.022	N/A	0.022	0.000	0.005	N/A	0.005	0.027
Hazardous Waste Incineration: Dedicated HWIs	0.002	0.000	0.001	0.000	N/A	0.001	0.000	0.000	N/A	0.000	0.002

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

Table 6-42. Base Year 1990 National Emission Estimates for Vinylidene Chloride

Pollutant: Vinylidene Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical Manufacturing: Alkalies and chlorine	108.893	28.146	18.140	42.328	N/A	60.468	5.795	13.522	N/A	19.318	79.786
Chemical Manufacturing: Trichloroethylene	100.119	25.878	32.679	0.000	N/A	32.679	67.440	0.000	N/A	67.440	100.119
Utility Boilers: Coal Combustion, All Types	84.000	21.712	32.399	0.000	N/A	32.399	21.000	0.000	N/A	21.000	53.399
Plastics materials and resins manufacturing	38.400	9.925	23.908	0.000	N/A	23.908	9.669	0.000	N/A	9.669	33.577
Landfills: Chemical Waste Emissions	27.170	7.023	0.000	18.851	N/A	18.851	0.000	3.847	N/A	3.847	22.698
Miscellaneous Organic Chemical Processes (SICs combined)	13.990	3.616	10.418	0.000	N/A	10.418	1.739	0.000	N/A	1.739	12.157
Chemical Manufacturing: Tetrachloroethylene	7.602	1.965	1.315	0.000	N/A	1.315	5.967	0.000	N/A	5.967	7.282
Petroleum Refining: Cyclic Crude and Intermediate Production	1.114	0.288	0.632	0.000	N/A	0.632	0.216	0.000	N/A	0.216	0.849
Industrial organic chemicals manufacturing	1.053	0.272	0.730	0.000	N/A	0.730	0.136	0.000	N/A	0.136	0.866
Unsupported plastics film and sheet manufacturing	0.856	0.221	0.473	0.005	N/A	0.478	0.159	0.002	N/A	0.161	0.638
Organic fibers, non-cellulosic manufacturing	0.800	0.207	0.467	0.025	N/A	0.492	0.033	0.002	N/A	0.035	0.527
Chemical Manufacturing: Ethylene Dichloride	0.660	0.171	0.305	0.000	N/A	0.305	0.151	0.000	N/A	0.151	0.455
Chemical Preparations (SICs combined)	0.503	0.130	0.369	0.019	N/A	0.389	0.011	0.001	N/A	0.012	0.400
Synthetic rubber manufacturing	0.500	0.129	0.429	0.000	N/A	0.429	0.063	0.000	N/A	0.063	0.493
Other Miscellaneous (SICs combined)	0.500	0.129	0.351	0.039	N/A	0.390	0.021	0.002	N/A	0.023	0.413

Table 6-42. Base Year 1990 National Emission Estimates for Vinylidene Chloride

Source Category	Total Emissions	% Contribution of Total Emissions	URBAN-1 EMISSIONS				URBAN-2 EMISSIONS				Combined Urban Emissions
			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Instruments and Related Products (SICs combined)	0.391	0.101	0.000	0.340	N/A	0.340	0.000	0.021	N/A	0.021	0.361
Pharmaceuticals Preparations and Manufacturing (SICs combined)	0.250	0.065	0.201	0.011	N/A	0.212	0.020	0.001	N/A	0.021	0.233
Chemicals and allied products	0.085	0.022	0.068	0.004	N/A	0.072	0.010	0.001	N/A	0.010	0.082

NOTE: The purpose of this table is to document Urban-1 and Urban-2 emissions. Rural emissions are included in the "Total Emissions" estimate; however, rural emissions are not documented separately in this table.

N/A = Not Applicable

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APPENDIX A

EMISSION ESTIMATION METHODOLOGY

Appendix A presents the details on the methods used to estimate emissions for each potential Section 112(k) pollutant. The information is presented alphabetically by source category, then by pollutant for source categories that emit multiple Section 112(k) HAPs. The information presented in this appendix is intended to provide sufficient information on the development of the national emission estimate for each pollutant by source category so that the reader can identify data sources and algorithms used to estimate emissions. The narrative for each pollutant cites all references used to estimate emissions. When appropriate, the narrative for each pollutant is also accompanied with calculations in spreadsheet format.

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APPENDIX B

TOXIC RELEASE INVENTORY DATA USED

APPENDIX C

ALLOCATION SCHEMES

Appendix C presents information on how the emissions estimates shown in Appendices A and B were allocated to urban/rural and major area proportions. Emissions were spatially allocated to U.S. counties using one of the following three general approaches, depending on the data available:

- The national- or state-level emissions estimate was apportioned to individual facilities throughout the U.S. according to facility-specific information such as plant capacity, throughput, etc. Emissions from all facilities in a given county were then summed to determine the county-level emissions for a specific pollutant in a given source category.

- The national- or state-level emissions estimate was apportioned to counties throughout the U.S. using surrogate information such as county SIC code employment, county population, etc., as specified for a given source category.

- The reported, facility-specific emissions such as those from TRI were summed to determine the county-level emissions for a specific pollutant in a specified source category.

Table C-1 provides specific information on the allocation schemes that were used to determine county-level emissions (note that the basis for all of the allocation schemes is outlined by one of the above three general approaches). Table C-2 presents the allocation scheme used for each source category, and indicates the assumed major, area, and mobile source proportions for each source category.

Table C-1.

Description of the Allocation Schemes Used to Spatially Allocate Emissions

Allocation Scheme Code	Basis for Original Emissions Estimate	Allocation Scheme Description[a]
0	County-level	Available facility-level emissions data (such as reported TRI air emissions data) were used to calculate county-level emissions.
7	State-level	State emissions were allocated to counties based on the county proportion of state SIC code employment.
10	National-level	National emissions were allocated to regions based on the regional proportion of national wood consumption. The regional emissions were then allocated to counties based on the county proportion of regional SIC code employment.
13	National-level	50% of the national emissions were allocated to states based on the state proportion of national SIC code employment. The remaining 50% of national emissions were distributed evenly among the top 8 states: an additional 6.25% of national emissions were allocated to CA, FL, KY, OH, OK, PA, TX, and VA (8*6.25%=50%). State emissions were then allocated to counties based on the county proportion of state SIC code employment.
15	National-level	National emissions were allocated to states based on the state proportion of national PCB emissions from the sewage sludge incineration category. State emissions were then allocated to counties based on the county proportion of state population.
16	State-level	State emissions were allocated to counties based on the county proportion of the state value (e.g., forested acres).
17	National-level	National emissions were allocated to counties based on the county proportion of national SIC code employment.
18	National-level	National emissions were allocated to counties based on the county proportion of national population.
21	National-level	National emissions were allocated to regions based on regional proportion of national wood consumption. The regional emissions were then allocated to counties based on the county proportion of regional population.
22	National-level	National emissions were allocated to counties according to the county proportion of national emissions. In some cases, the county proportions were determined from facility lists and associated plant capacities, throughput, etc., which were summed for each county to account for multiple facilities in the same county. In other cases, the county proportions were determined from county activity data such as vehicle miles traveled or landings and take-offs.
26	State-level	State emissions were allocated to counties based on the county proportion of the state value (e.g., agricultural acres).

Table C-1.

Description of the Allocation Schemes used to Spatially Allocate Emissions (Continued)

Allocation Scheme Code	Basis for Original Emissions Estimate	Allocation Scheme Description[a]
27	National- and state-level	National emissions were allocated to states based on the state proportion of the national value (e.g., forested acres). These state emissions were used in conjunction with other data reported at the state level. The state emissions were then allocated to counties based on the county proportion of state value (e.g., forested acres).
46	State-level	State emissions were allocated to counties based on the county proportion of state population. (This is a surrogate allocation scheme for scheme 26, until appropriate activity data are found.)

[a] *References to SIC code employment*: The SIC code or SIC code group (e.g., commercial sector) used in the allocation scheme depends on the source category

Table C-2.

Allocation Schemes Used

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Abrasive grain (media) manufacturing	5	95	0
0	Adhesives and sealants (SICs combined)	95	5	0
0	Agricultural chemicals	100	0	0
0	Asphalt paving mixtures and blocks	100	0	0
0	Asphalt production - other	100	0	0
0	Bags: plastics, laminated, & coated	91	9	0
0	Baker's yeast production	5	95	0
0	Battery manufacture	75	25	0
0	Biological products	95	5	0
0	Blankbooks and looseleaf binders	91	9	0
0	Blast furnaces and steel mills	45	55	0
0	Book printing	91	9	0
0	Carbon and graphite products	75	25	0
0	Cellulosic man-made fibers	100	0	0
0	Chemical manufacturing: explosives & blasting agents	100	0	0
0	Chemical preparations (SICs combined)	95	5	0
0	Chemicals and allied products manufacturing	95	5	0
0	Chromium plating: chromic anodizing	5	95	0
0	Chromium plating: decorative chromium plating	5	95	0
0	Chromium plating: hard chromium plating	5	95	0
0	Clay refractories	5	95	0
0	Cleaning products (SICs combined)	95	5	0
0	Commercial printing, gravure	91	9	0
0	Commercial printing, letterpress, and screen	91	9	0
0	Commercial printing, lithographic	91	9	0
0	Commercial printing, nec[b]	91	9	0
0	Concrete block and brick	5	95	0
0	Concrete products	5	95	0
0	Construction (SICs combined)	100	0	0
0	Converted paper and paperboard products, nec	91	9	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Converted paper products	91	9	0
0	Corrugated and solid fiber boxes	91	9	0
0	Crushed and broken limestone	100	0	0
0	Custom compound purchased resins manufacturing	99	1	0
0	Cut stone and stone products	5	95	0
0	Drapery hardware and blinds and shades	100	0	0
0	Electrical industrial apparatus, nec	75	25	0
0	Electronic and other electric equipment manufacturing (SICs combined)	75	25	0
0	Electroplating: printed circuit boards	75	25	0
0	Envelopes	91	9	0
0	Fabricated metal products manufacturing (SICs combined)	75	25	0
0	Fabricated metal products, nec	75	25	0
0	Fabricated rubber products manufacturing	99	1	0
0	Fabricated rubber products, nec	99	1	0
0	Fiber cans, drums, and similar products	91	9	0
0	Folding paperboard boxes	91	9	0
0	Food products (SICs combined)	5	95	0
0	Furniture and fixtures manufacturing	100	0	0
0	Gaskets, packing and sealing devices manufacturing	99	1	0
0	Glass containers	5	95	0
0	Gray and ductile iron foundries	45	55	0
0	Greeting cards	91	9	0
0	Gum and wood chemical manufacturing	95	5	0
0	Hardwood dimension and flooring mills	100	0	0
0	Hardwood veneer and plywood	100	0	0
0	Hose and belting and gaskets and packing	99	1	0
0	Household furniture	100	0	0
0	Industrial gases manufacturing	95	5	0
0	Industrial inorganic chemical manufacturing	100	0	0
0	Industrial machinery and electrical equipment (SICs combined)	75	25	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Industrial organic chemicals manufacturing	100	0	0
0	Instruments and related products (SICs combined)	0	100	0
0	Iron and steel foundries: all processes	100	0	0
0	Iron and steel foundries: steel foundries	45	55	0
0	Iron and steel foundries: steel investment foundries	45	55	0
0	Laminated plastics plate and sheet	99	1	0
0	Leather tanning and finishing	75	25	0
0	Lime	5	95	0
0	Lubricating oils and greases	100	0	0
0	Malleable iron foundries	45	55	0
0	Manifold business forms	91	9	0
0	Mechanical rubber goods manufacturing	99	1	0
0	Metal household furniture	100	0	0
0	Millwork	100	0	0
0	Millwork, plywood, and structural members	100	0	0
0	Mineral wool manufacturing	5	95	0
0	Minerals, ground or treated production	5	95	0
0	Miscellaneous nonmetallic mineral products	5	95	0
0	Miscellaneous manufacturing (SICs combined)	85	15	0
0	Miscellaneous plastics products	99	1	0
0	Miscellaneous plastics products, nec	99	1	0
0	Miscellaneous publishing	91	9	0
0	Mobile homes	100	0	0
0	Nitrogenous fertilizers	100	0	0
0	Nonclay refractories	5	95	0
0	Nonmetallic mineral products manufacturing	5	95	0
0	Office furniture, except wood manufacturing	100	0	0
0	Organic fibers, non-cellulosic manufacturing	95	5	0
0	Other miscellaneous (SICs combined)	90	10	0
0	Paints and allied products manufacturing	100	0	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Paper & printed products	91	9	0
0	Paper coated & laminated, packaging	91	9	0
0	Paper coated and laminated, packaging	91	9	0
0	Paper coating and glazing manufacturing	91	9	0
0	Particle board	100	0	0
0	Partitions and fixtures	100	0	0
0	Partitions and fixtures, except wood	100	0	0
0	Periodicals	91	9	0
0	Petroleum refining: (all processes)	100	0	0
0	Petroleum refining: cyclic crude and intermediate production	100	0	0
0	Petroleum refining: other petroleum products	50	50	0
0	Phosphatic fertilizers production	100	0	0
0	Plastics foam products manufacturing	99	1	0
0	Plastics materials and resins manufacturing	100	0	0
0	Plastics pipe	99	1	0
0	Plastics plumbing fixtures	99	1	0
0	Plastics products inc. plastic bottles	99	1	0
0	Plastics products manufacturing	99	1	0
0	Platemaking services	91	9	0
0	Porcelain electrical supplies	5	95	0
0	Pottery products, nec	5	95	0
0	Pressed and blown glass and glassware manufacturing	5	95	0
0	Primary aluminum	45	55	0
0	Primary batteries, dry and wet, manufacturing	75	25	0
0	Primary metal products manufacturing (SICs combined)	45	55	0
0	Primary nonferrous metals production	45	55	0
0	Primary smelting and refining of zinc	45	55	0
0	Products of purchased glass	5	95	0
0	Public building and related furniture	100	0	0
0	Reconstituted wood products	100	0	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Rubber & plastic products	99	1	0
0	Rubber and plastic footwear manufacturing	99	1	0
0	Rubber and plastic hose and belting manufacturing	99	1	0
0	Sanitary food containers	91	9	0
0	Sawmills and planing mills, general	100	0	0
0	Secondary aluminum smelting	50	50	0
0	Secondary copper smelting	25	75	0
0	Secondary zinc production	45	55	0
0	Semiconductors and related devices	75	25	0
0	Semivitreous table & kitchenware	100	0	0
0	Ship building & repair (surface coating)	75	25	0
0	Softwood veneer and plywood	100	0	0
0	Steel and iron reclamation- auto scrap burning	25	75	0
0	Storage batteries manufacturing	5	95	0
0	Structural clay products, nec	5	95	0
0	Structural wood members, nec	100	0	0
0	Surface active agents manufacturing	95	5	0
0	Synthetic rubber manufacturing	100	0	0
0	Textiles (SICs combined)	50	50	0
0	Transportation equipment manufacture (SICs combined)	75	25	0
0	Unsupported plastics film and sheet manufacturing	99	1	0
0	Unsupported plastics profile shapes	99	1	0
0	Upholstered household furniture	100	0	0
0	Vitreous china table and kitchenware	5	95	0
0	Vitreous plumbing fixtures	5	95	0
0	Wood household furniture manufacturing	100	0	0
0	Wood kitchen cabinets	100	0	0
0	Wood office furniture	100	0	0
0	Wood partitions and fixtures	100	0	0
0	Wood products	100	0	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
0	Wood television and radio cabinets	100	0	0
10	Commercial/institutional boilers: wood/wood residue combustion	20	80	0
10	Industrial boilers: non-residential wood combustion	80	20	0
10	Industrial boilers: wood/wood residue combustion	80	20	0
13	Carbon reactivation furnaces	25	75	0
15	Sewage sludge incineration	0	100	0
16	Open burning: forest and wildfires	0	100	0
17	Chemical manufacturing: amino and phenolic resins	100	0	0
17	Chemical manufacturing: polyether polyols	100	0	0
17	Commercial/institutional boilers: anthracite coal combustion	20	80	0
17	Commercial/institutional boilers: bituminous and lignite coal combustion	20	80	0
17	Commercial/institutional boilers: coal combustion, all types	20	80	0
17	Commercial/institutional boilers: distillate oil combustion	20	80	0
17	Commercial/institutional boilers: natural gas combustion	20	80	0
17	Commercial/institutional boilers: oil combustion, all types	20	80	0
17	Commercial/institutional boilers: residual oil combustion	20	80	0
17	Dental preparation and use	100	0	0
17	Dry cleaning: industrial/commercial, dry-to-dry, & transfer machines	0	100	0
17	Electrical apparatus manufacturing	75	25	0
17	Ferroalloy manufacture	0	100	0
17	Flexible polyurethane foam fabrication	100	0	0
17	Flexible polyurethane foam production	100	0	0
17	Gasoline distribution stage I	10	90	0
17	Halogenated solvent cleaners (degreasing)	100	0	0
17	Hazardous waste incineration: dedicated HWIs	100	0	0
17	Hospital sterilizers	0	100	0
17	Industrial boilers: anthracite coal combustion	70	30	0
17	Industrial boilers: bituminous and lignite coal combustion	70	30	0
17	Industrial boilers: coal, all types	70	30	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
17	Industrial boilers: distillate oil combustion	70	30	0
17	Industrial boilers: natural gas combustion	70	30	0
17	Industrial boilers: oil combustion, all types	70	30	0
17	Industrial boilers: residual oil combustion	70	30	0
17	Industrial boilers: waste oil combustion	70	30	0
17	Industrial process cooling towers	80	20	0
17	Industrial turbines: diesel - fired	70	30	0
17	Industrial turbines: natural gas - fired	60	40	0
17	Instrument manufacturing	0	100	0
17	Lead oxide in pigments	100	0	0
17	Marine cargo handling	100	0	0
17	Medical waste incineration	15	85	0
17	Miscellaneous organic chemical processes (SICs combined)	100	0	0
17	Municipal waste combustion	95	5	0
17	Naphthalene: miscellaneous uses	30	70	0
17	Oil and gas production: glycol dehydrators	42	58	0
17	Other biological incineration	0	100	0
17	Other secondary nonferrous metals recovery	45	55	0
17	Paint application: large shops	25	75	0
17	Paint application: medium shops	25	75	0
17	Paint application: small shops	25	75	0
17	Pharmaceuticals preparations and manufacturing (SICs combined)	95	5	0
17	Plastic material and resins manufacture	90	10	0
17	Primary aluminum production	45	55	0
17	Pulp and paper: kraft recovery furnaces	100	0	0
17	Pulp and paper: lime kilns	100	0	0
17	Pulp and paper: non-combustion sources	100	0	0
17	Secondary lead smelting	52	48	0
17	Stationary reciprocating IC engines: diesel - fired	70	30	0
17	Stationary reciprocating IC engines: natural gas - fired	60	40	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
17	Turbines - distillate oil	70	30	0
17	Turbines - natural gas	60	40	0
17	Utility turbines: diesel - fired	70	30	0
17	Utility turbines: natural gas - fired	60	40	0
17	Wood treatment/wood preserving	0	100	0
18	Aviation gasoline distribution: stage I & II	10	90	0
18	Cigarette smoke	0	100	0
18	Commercial sterilization	0	100	0
18	Commercial/institutional boilers: POTW digester gas combustion	0	100	0
18	Consumer Products usage	0	100	0
18	Crematories	0	100	0
18	Fluorescent lamp recycling	20	80	0
18	Gasoline distribution stage II	10	90	0
18	General laboratory activities	20	80	0
18	Lamp breakage	20	80	0
18	Landfills	0	100	0
18	Landfills: gas flares	0	100	0
18	Mobile sources: non-road vehicles and equipment - other	0	0	100
18	Publicly owned treatment works (POTWS)	0	100	0
18	Residential boilers: anthracite coal combustion	0	100	0
18	Residential boilers: bituminous and lignite coal combustion	0	100	0
18	Residential boilers: coal combustion, all types	0	100	0
18	Residential boilers: distillate oil combustion	0	100	0
18	Residential boilers: natural gas combustion	0	100	0
18	Residential boilers: oil combustion, all types	0	100	0
18	Structure fires	0	100	0
21	Residential boilers: wood/wood residue combustion	0	100	0
22	Acrylic and modacrylic fiber production	90	10	0
22	Cadmium refining and cadmium oxide production	45	55	0
22	Cadmium stabilizers for plastics	100	0	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
22	Cadmium stabilizers production	100	0	0
22	Carbamate insecticides production	30	70	0
22	Carbon black manufacture	30	70	0
22	Chemical manufacturing: ABS resins	100	0	0
22	Chemical manufacturing: alkalies and chlorine	30	70	0
22	Chemical manufacturing: chloroform production	100	0	0
22	Chemical manufacturing: chloroform production (storage emissions)	100	0	0
22	Chemical manufacturing: chloromethanes production	100	0	0
22	Chemical manufacturing: chromium compounds	0	100	0
22	Chemical manufacturing: coke	100	0	0
22	Chemical manufacturing: ethylene dichloride	100	0	0
22	Chemical manufacturing: ethylene oxide	100	0	0
22	Chemical manufacturing: ethylene oxide (storage and handling)	100	0	0
22	Chemical manufacturing: methyl chloroform	100	0	0
22	Chemical manufacturing: naphthalene	70	30	0
22	Chemical manufacturing: naphthalene sulfonates	70	30	0
22	Chemical manufacturing: organic acid manufacturing	100	0	0
22	Chemical manufacturing: p-dichlorobenzene (1,4-)	100	0	0
22	Chemical manufacturing: p-dichlorobenzene (storage emissions)	100	0	0
22	Chemical manufacturing: phenol manufacturing	100	0	0
22	Chemical manufacturing: polyacetal resins	100	0	0
22	Chemical manufacturing: polycarbonate resins	100	0	0
22	Chemical manufacturing: styrene	100	0	0
22	Chemical manufacturing: styrene (storage emissions)	100	0	0
22	Chemical manufacturing: styrene-butadiene copolymer latexes	100	0	0
22	Chemical manufacturing: tetrachloroethylene	100	0	0
22	Chemical manufacturing: trichloroethylene	100	0	0
22	Chemical manufacturing: vinyl chloride	100	0	0
22	Chloralkali production	30	70	0
22	Coke ovens: all	100	0	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
22	Coke ovens: by-product recovery plants	100	0	0
22	Coke ovens: charging, topside, & door leaks	100	0	0
22	Coke ovens: emergency releases	100	0	0
22	Coke ovens: pushing, quenching, and battery stacks	100	0	0
22	Drum and barrel reclamation	0	100	0
22	Fluorocarbon production	100	0	0
22	Food and agricultural products: cotton ginning	0	100	0
22	Formaldehyde, acrolein, acetaldehyde, butyraldehyde production	100	0	0
22	Geothermal power	0	100	0
22	Inorganic pigments manufacturing	100	0	0
22	Inorganic pigments: cadmium pigments in plastics	100	0	0
22	Lightweight aggregate kilns	85	15	0
22	Mobile sources: non-road vehicles and equipment - aircraft	0	0	100
22	Mobile sources: on- road vehicles	0	0	100
22	Other cadmium compound production	45	55	0
22	Phthalic anhydride production	70	30	0
22	Polystyrene production	100	0	0
22	Portland cement manufacture: all fuels	85	15	0
22	Portland cement manufacture: hazardous waste-fired	100	0	0
22	Portland cement manufacture: non-hazardous waste fired	80	20	0
22	Primary copper smelting	25	75	0
22	Primary lead smelting	100	0	0
22	Pulp and paper: semichemical recovery	100	0	0
22	Pulp and paper: sulfite recovery	100	0	0
22	Scrap or waste tire incineration	100	0	0
22	Secondary mercury production	50	50	0
22	Tire manufacturing	99	1	0
22	Utility boilers: coal combustion, all types	100	0	0
22	Utility boilers: coke	100	0	0
22	Utility boilers: natural gas combustion	0	100	0

Table C-2.

Allocation Schemes Used (Continued)

SPATIAL ALLOCATION SCHEME	SOURCE CATEGORY	MAJOR %	AREA %	MOBILE %
22	Utility boilers: oil combustion, all types	90	10	0
27	Open burning: prescribed burnings	0	100	0
46	Open burning: scrap tires	0	100	0

[a] The spatial allocation scheme codes are described in Table C-1.

[b] Nec = Not elsewhere classified.