# 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

			RURAL EI	MISSIONS		URBAN-1 EMISSIONS								
112(k) Pollutant	Total Emissions (Urban and Rural)	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	Combined Urban Emissions
11007	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-Tetrachloroethar	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

			RURAL EN	MISSIONS			URBAN-1	EMISSIONS			URBAN-2	EMISSIONS		
112(k) Pollutant	Total Emissions (Urban and Rural) Tons/yr	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Rural	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Urban-1 Tons/yr	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Urban-2 Tons/yr	Combined Urban Emissions
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

Trichloroethylene

Section 112 Reports:

Perchloroethylene

Methylene Chloride

Carbon Tetrachloride

Benzene

1,3-Butadiene

Formaldehyde

3-4

Locating and Estimating Lead Compounds

Documents Styrene

Dioxin/Furans

Cadmium Compounds

Vinylidene Chloride

**Chromium Compounds** 

Ethylene Dichloride

National Air Pollutant Emission

Lead Compounds

Trends, 1900-1994

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 ongoing 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 (<u>Federal Register</u>, 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 quantified 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:

- <u>Methodology</u>--Was an acceptable methodology used to estimate emissions?
- <u>Completeness</u>--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.
- <u>Allocations</u>--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

			UI	RBAN-1 EMISSIO	NS		U	RBAN-2 EMISSIO	NS		
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources	Area Sources	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions Tons/yr
Landfills: Chemical	42,770		Tons/yr						N/A		
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

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

Pollutant: 1,1,2-Trichloroethane

Total					URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Pulp and Paper. Non-Combustion Sources         376,00         50,00         108,51         0         N/A         108,51         0         N/A         105,81         214,32           Combustion Sources         134,00         17,82         53,67         17,89         N/A         71,56         24,74         8,25         N/A         32,99         104,55           Industrial Machinery         and Electrical         67,30         8,95         50,12         0         N/A         71,56         24,74         8,25         N/A         32,99         104,55           Mocallameous Organic Chemicals         67,30         8,95         50,12         0         N/A         28,59         2,74         6,39         N/A         9,13         37,73           Monufacturing         51,49         6,85         8,58         20,01         N/A         28,59         2,74         6,39         N/A         9,13         37,73           Monufacturing         40,00         5,32         15,43         0         N/A         15,43         10,00         0         N/A         10,00         25,43           Combustion, All Upes         22,55         3,00         15,64         0         N/A         15,40         N/A         15,40	Source Category			,	Area Sources		Total Urban-1	-	Area Sources		Total Urban-2	
Combustion Sources		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 IECETICAL BOURDMENT (SICS Combined)  Industrial Foreign (SICS Combined)  Indu	Pulp and Paper: Non-	376.00	50.00	108.51	0	N/A	108.51	105.81	0	N/A	105.81	214.32
Section   Sect	Combustion Sources											
Southment (SICs	Industrial Machinery	134.00	17.82	53.67	17.89	N/A	71.56	24.74	8.25	N/A	32.99	104.55
Miscellaneous Organic   67.30   8.95   50.12   0   N/A   50.12   8.37   0   N/A   8.37   58.48	and Electrical											
Chemical Processes (SICs combined) Chemical SICs Combined) Chemical Manufacturing: Alkalies and chlorine Unitry Boliers: Coal Combustion, All Types Industrial organic Chemicals Manufacturing: Alkalies and chlorine Unitry Boliers: Coal Combustion, All Types Industrial organic Chemicals Manufacturing Industrial organic Chemicals Manufacturing Instruments and Related Products (SICs Combined) Instruments and Instruments												
SISCs combined   S1.49   6.85   8.58   20.01   N/A   28.59   2.74   6.39   N/A   9.13   37.73	Miscellaneous Organic	67.30	8.95	50.12	0	N/A	50.12	8.37	0	N/A	8.37	58.48
Chemical Manufacturing: Alkales and chlorine	Chemical Processes											
Manufacturing: Alkalies and chlorine												
Alkalles and chlorine Utility Bollers: Coal Combustion, All Types Industrial Organic Coal Coal Coal Coal Coal Coal Coal Coal		51.49	6.85	8.58	20.01	N/A	28.59	2.74	6.39	N/A	9.13	37.73
Utility Boliers: Coal   Combustion, All Types   Combustion, All Types   Combustion, All Types   Combustinal organic chemicals manufacturing   17.74   2.36   0   15.40   N/A   15.40   0   0.95   N/A   0.95   16.36   Related Products (SICs combined)   17.74   2.36   0   11.79   N/A   11.79   0   2.41   N/A   2.41   14.20   N/A   15.40   N/A   11.79   0   2.41   N/A   2.41   14.20   N/A   11.79   N/A   11.79   N/A   11.79   N/A   11.79   N/A   11.79   N/A   11.79   N/A	Manufacturing:											
Combustion, All Types												
Industrial organic chemicals manufacturing chemicals manufacturing chemicals manufacturing chemicals manufacturing chemicals chemicals chemicals chemicals chemicals chemicals chemical		40.00	5.32	15.43	0	N/A	15.43	10.00	0	N/A	10.00	25.43
Chemicals   Chem												
manufacturing	Ü	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) Landfills: Chemical Maste Emissions Chemical Preparations (SICs combined) Landfills: C												
Related Products (SICs combined) Landfills: Chemical 17.00												
Combined   Cambridis   Chemical   17.00   2.26   0   11.79   N/A   11.79   0   2.41   N/A   2.41   14.20   N/A		17.74	2.36	0	15.40	N/A	15.40	0	0.95	N/A	0.95	16.36
Landfills: Chemical   17.00   2.26   0   11.79   N/A   11.79   0   2.41   N/A   2.41   14.20	7											
Waste Emissions   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   (SICs combined)   15.01   2.00   11.02   0.58   N/A   11.60   0.33   0.02   N/A   0.34   11.95   (SICs combined)   15.01   15.01   2.00   11.02   0.58   N/A   2.35   2.75   0.03   N/A   2.78   5.13   1.95   (SICs combined)   1.04   2.23   0.30   1.89   0   N/A   1.89   0.15   0   N/A   0.15   2.04   0.06   0.01   0.01   N/A   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.02   0.02   0.02   0.03   0.05												
Chemical Preparations   15.01   2.00   11.02   0.58   N/A   11.60   0.33   0.02   N/A   0.34   11.95   (SiCs combined)   15.01   2.00   11.02   0.58   N/A   11.60   0.33   0.02   N/A   0.34   11.95   (SiCs combined)   1.89   0.15   0.03   N/A   2.78   5.13   2.75   0.03   N/A   2.78   5.13   2.75   0.03   N/A   2.78   5.13   2.75   0.03   N/A   0.15   0.04   0.15   0.04   0.15   0.0		17.00	2.26	0	11.79	N/A	11.79	0	2.41	N/A	2.41	14.20
SICs combined   SICs combine												
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           products         1.04         0.14         0.44         0.54         N/A         0.98         0.01         0.01         N/A         0.02         1.00           Foundries: Steel Investment Foundries         1.04         0.51         0.07         0.41         0.02         N/A         0.44         0.06         0         N/A         0.06         0.00         N/A         0.06         0         N/A         0.06         0.00         0		15.01	2.00	11.02	0.58	N/A	11.60	0.33	0.02	N/A	0.34	11.95
Paints and allied products   Paints and allied products   2.23   0.30   1.89   0   N/A   1.89   0.15   0   N/A   0.15   2.04		. 05	0.01	0.00	0.00	N1/A	0.05	0.75	0.00	N1/A	0.70	F 40
Description												
Iron and Steel   1.04   0.14   0.44   0.54   N/A   0.98   0.01   0.01   N/A   0.02   1.00		2.23	0.30	1.89	Ü	N/A	1.89	0.15	Ü	N/A	0.15	2.04
Foundries: Steel Investment Foundries Chemicals and allied products Minerals, ground or treated production Petroleum Refining: Cyclic Crude and Intermediate Production Food Products (SICs combined) Hazardous Waste Investment Foundries		1.04	0.14	0.44	0.54	NI/A	0.00	0.01	0.01	NI/A	0.00	1.00
Investment Foundries   Chemicals and allied   0.51   0.07   0.41   0.02   N/A   0.44   0.06   0   N/A   0.06   0.50		1.04	0.14	0.44	0.54	IV/A	0.98	0.01	0.01	IV/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												
Description		0 E1	0.07	0.41	0.02	NI/A	0.44	0.04	0	NI/A	0.04	0.50
Minerals, ground or treated production  Petroleum Refining:		0.51	0.07	0.41	0.02	IV/A	0.44	0.06	U	IV/A	0.06	0.50
treated production         Combined)         Combined)         Combined)         Combined)         Combined)         Combined)         Combined         Combi		0.16	0.02	0	0.02	NI/A	0.02	0	0.02	NI/Λ	0.02	0.05
Petroleum Refining:		0.10	0.02	U	0.02	IV/A	0.02	U	0.03	IV/A	0.03	0.05
Cyclic Crude and Intermediate Production         N/A		0.08	0.01	0.04	0	Ν/Δ	0.04	0.01	0	NI/Δ	0.01	0.06
Intermediate		0.00	0.01	0.04	Ü	14/7-4	0.04	0.01	Ŭ	14/7-4	0.01	0.00
Production         9	,											
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:         0.01         0         0.01         0         N/A         0.01         0         N/A         0.01         0												
combined)         0.01         0         0.01         0         N/A         0.01         0         N/A         0.01         0         N/A         0.00         0.01         0         0         0.01         0         0         0         0         0         0         0         0         0         0 <th< td=""><td></td><td>0.04</td><td>0.01</td><td>n</td><td>0.02</td><td>N/A</td><td>0.02</td><td>n</td><td>0.02</td><td>N/A</td><td>0.02</td><td>0.04</td></th<>		0.04	0.01	n	0.02	N/A	0.02	n	0.02	N/A	0.02	0.04
Hazardous Waste         0.01         0         0.01         0         N/A         0.01         0         N/A         0.00         0.01           Incineration:		5.04	5.61	J	0.02	14/73	0.02		0.02	14/73	5.02	5.04
Incineration:		0.01	Ο	0.01	Ω	N/A	0.01	Ω	0	N/A	0.00	0.01
		5.5.	Ŭ	0.0.			0.0.	Ŭ			5.55	0.0.
LIEUR GIEU HIVID	Dedicated HWIs											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>1,2-Dichloropropane</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions 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

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

Pollutant: <u>1,3-Butadiene</u>

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

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>1,3-Dichloropropene</u>

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

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

Pollutant: <u>1,4-Dichlorobenzene</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	294	35.17	228	0	N/A	228	0	0	N/A	0	228
Manufacturing: p-											
Dichlorobenzene (1,4-)											
Abrasive Grain (Media)	183	21.83	6.35	121	N/A	127	0.61	11.58	N/A	12.19	139
Manufacturing											
Chemical	173	20.70	28.82	67.25	N/A	96.07	9.21	21.48	N/A	30.69	127
Manufacturing:											
Alkalies and chlorine											
Miscellaneous Organic	70.75	8.46	52.68	0	N/A	52.68	8.79	0.00	N/A	8.79	61.48
Chemical Processes											
(SICs combined)											
Petroleum Refining:	42.36	5.07	24.05	0	N/A	24.05	8.23	0	N/A	8.23	32.28
Cyclic Crude and											
Intermediate											
Production											
Sewage Sludge	36.31	4.34	0	27.97	N/A	27.97	0	3.18	N/A	3.18	31.15
Incineration											
Chemical	17.65	2.11	13.68	0	N/A	13.68	0	0	N/A	0	13.68
Manufacturing: p-											
Dichlorobenzene											
(Storage Emissions)	7.75	0.00	- 10	0.07		5.45	1.10	2.22		4.70	
Cleaning Products (SICs	7.75	0.93	5.18	0.27	N/A	5.45	1.63	0.09	N/A	1.72	7.17
combined)		0.70	0.05	0.00	N1/A	0.07	0.77	0.00	N1 / A	0.40	4.05
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	3.43	0.41	2.38	0	N/A	2.38	0.44	0.00	N/A	0.44	2.82
chemicals											
manufacturing Industrial Boilers:	1.26	0.15	0.59	0.25	N/A	0.85	0.13	0.06	N/A	0.19	1.04
Bituminous and Lignite	1.20	0.15	0.59	0.25	IV/A	0.85	0.13	0.06	N/A	0.19	1.04
Coal Combustion											
Structural Clay	0.23	0.03	0	0	N/A	0.00	0	0	N/A	0	0.00
Products, Nec	0.23	0.03	U	U	IV/A	0.00	U		IV/ A	U	0.00
Portland Cement	0.02	0	0.01	0	N/A	0.01	0	0	N/A	0	0.01
Manufacture: All Fuels	0.02	U	0.01	U	IV/A	0.01	U		IV/ A	U	0.01
Agricultural Chemicals	0.00	0	0	0	N/A	0.00	0	0	N/A	0	0.00
Industrial Boilers: Waste	0.00	0	0	0	N/A	0.00	0	0	N/A	0	0.00
	0.00	U	U	U	IV/A	0.00	U	'	IV/A	U	0.00
Oil Combustion											

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

# Pollutant: <u>Acetaldehyde</u>

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	38,580	27.23	0	26,701	N/A	26,701	0	5,625	N/A	5,625	32,326
Combustion											
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	6,394	4.51	N/A	N/A	4,436	4,436	N/A	N/A	905	905	5,342
Equipment - Other Miscellaneous Organic Chemical Processes	2,326	1.64	1,732	0	N/A	1,732	289	0	N/A	289	2,021
(SICs combined) Mobile Sources: Non-Road Vehicles and	2,090	1.48	N/A	N/A	1,797	1,797	N/A	N/A	230	230	2,027
Equipment - Aircraft Formaldehyde, Acrolein, Acetaldehyde,	1,404	0.99	249	0	N/A	249	1,155	0	N/A	1,155	1,404
Butvraldehvde 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	831	0.59	485	25.53	N/A	511	34.70	1.83	N/A	36.53	547
manufacturing 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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining:	156	0	88.59	0	N/A	88.59	30.32	0	N/A	30.32	119
Cyclic Crude and											
Intermediate											
Production											
Industrial inorganic	88.69	0	64.12	0	N/A	64.12	2.63	0	N/A	2.63	66.75
chemical											
Pulp and Paper:	84.00	0	6.46	0	N/A	6.46	12.92	0	N/A	12.92	19.38
Semichemical Recovery											
Pulp and Paper: Sulfite	81.00	0	27.00	0.00	N/A	27.00	40.50	0	N/A	40.50	67.50
Recovery											
Instruments and Related	70.50	0	0.00	61.22	N/A	61.22	0.00	3.79	N/A	3.79	65.01
Products (SICs											
combined)											
Utility Boilers: Coal	58.00	0	22.37	0	N/A	22.37	14.50	0	N/A	14.50	36.87
Combustion, All Types											
Chemical	53.39	0	53.39	0	N/A	53.39	0	0	N/A	0.00	53.39
Manufacturing:											
Organic Acid											
Industrial Boilers:	32.72	0	15.37	6.59	N/A	21.96	3.42	1.46	N/A	4.88	26.84
Bituminous and Lignite	02.72	ŭ	10.07	0.07		21170	0.12				20.01
Coal Combustion											
Unsupported plastics	27.05	0	14.94	0.15	N/A	15.09	5.03	0.05	N/A	5.08	20.17
film and sheet	27.03	O	14.74	0.13	11/7	13.07	3.03	0.03	11/7	3.00	20.17
manufacturing											
Stationary	24.02	0	9.67	6.45	N/A	16.12	2.15	1.43	N/A	3.58	19.70
~	24.02	U	9.07	0.43	IV/A	10.12	2.13	1.43	IV/A	3.30	19.70
Reciprocating IC											
Engines: Natural gas -											
fired Stationary	7.26	0	3.41	1.46	N/A	4.87	0.76	0.32	N/A	1.08	5.95
3	7.20	U	3.41	1.40	IV/A	4.07	0.76	0.32	IV/A	1.00	5.95
Reciprocating IC											
Enaines: Diesel - fired Utility Boilers: Oil	5.00	0	2.06	2.06	N/A	4.12	0.34	0.34	N/A	0.69	4.80
•	5.00	U	2.06	2.06	N/A	4.12	0.34	0.34	N/A	0.69	4.80
Combustion, All Types Reconstituted wood	4.68	0	0.20	0	N/A	0.20	0.79	0	N/A	0.79	0.99
	4.08	U	0.20	U	IN/A	0.20	0.79	U	IN/A	0.79	0.99
products (1987)	2 / /	0	277	0	NI/A	277	0.00	0	NI/A	0.00	2.//
Chemical	3.66	0	2.66	0	N/A	2.66	0.00	0	N/A	0.00	2.66
Manufacturing: Phenol											
Manufacturing	2.25		4.05	0.00	N1/A	0.05	0.00	0.00	N1 / A	0.50	0.75
Industrial Turbines:	3.35	0	1.35	0.90	N/A	2.25	0.30	0.20	N/A	0.50	2.75
Natural gas - fired	0	_		1		0 - :	0	_		0	0
Chemical Preparations	3.28	0	2.41	0.13	N/A	2.54	0.07	0	N/A	0.08	2.61
(SICs combined)	0			1		0.7-	0				2
Commercial/Institutiona	2.90	0	0.44	1.78	N/A	2.22	0.08	0.32	N/A	0.40	2.61
l Boilers: Wood/Wood											
Residue Combustion											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Urban Emissions Tons/yr
Commercial/Institutiona I Boilers: POTW Digester Gas Combustion	2.80	0	0	1.94	N/A	1.94	TOTIS/ YI	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/Institutiona I 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

#### Pollutant: Acrolein

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	5,376	6.88	N/A	N/A	3,730	3,730	N/A	N/A	761	761	4,491
Equipment - Other Chemical Manufacturing:	4,538	5.80	4,538	0	N/A	4,538	0	0	N/A	0	4,538
Organic Acid Residential Boilers: Wood/Wood Residue	3,927	5.02	0	2,718	N/A	2,718	0	573	N/A	573	3,290
Combustion Mobile Sources: Non- Road Vehicles and	989	1.26	N/A	N/A	851	851	N/A	N/A	109	109	959
Equipment - Aircraft 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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources Tons/yr	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions Tons/yr
Petroleum Refining:	2.17	% of Total	1.23	0	N/A	1.23	0.42	0	N/A	0.42	1.65
Cyclic Crude and Intermediate Production	2.17	U	1.23	U	IV/A	1.23	0.42	Ü	IV/A	0.42	1.00
Commercial/Institutiona I 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/Institutiona I Boilers: Bituminous and Lignite Coal Combustion	0.52	0	80.0	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/Institutiona I 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

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

Pollutant: <u>Acrylamide</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions Tons/vr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources	Mobile Sources	Total Urban-1	Major Sources Tons/vr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions Tons/vr
OII MI II											
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.

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

Pollutant: <u>Acrylonitrile</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	728	27.32	453	0	N/A	453.12	183.26	0	N/A	183.26	636.38
resins manufacturing											
Landfills: Chemical	511	19.19	0	355	N/A	354.62	0	72.37	N/A	72.37	426.99
Waste Emissions											
Miscellaneous Organic	475	17.83	354	0	N/A	353.64	59.03	0	N/A	59.03	412.66
Chemical Processes											
(SICs combined)											
Agricultural Chemicals	249	9.34	95.92	0	N/A	95.92	152.56	0	N/A	152.56	248.48
Publicly owned	201	7.53	0	139	N/A	139.19	0.00	28.41	N/A	28.41	167.60
treatment works											
(POTWs)											
Acrylic and Modacrylic	150	5.62	66.29	7.37	N/A	73.65	68.52	7.61	N/A	76.14	149.79
Fiber Production											
Industrial organic	99.88	3.75	69.30	0	N/A	69.30	12.89	0	N/A	12.89	82.19
chemicals											
manufacturing											
Synthetic rubber	81.89	3.07	70.28	0	N/A	70.28	10.39	0	N/A	10.39	80.68
manufacturing											
Nitrogenous fertilizers	49.00	1.84	1.93	0	N/A	1.93	45.99	0	N/A	45.99	47.92
Petroleum Refining:	46.36	1.74	26.31	0	N/A	26.31	9.01	0	N/A	9.01	35.32
Cyclic Crude and											
Intermediate											
Production											
Industrial inorganic	25.39	0.95	18.36	0	N/A	18.36	0.75	0	N/A	0.75	19.11
chemical								<b>.</b>			
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	13.65	0.51	0	10.51	N/A	10.51	0	1.19	N/A	1.19	11.70
Incineration	- 10	0.40	0.10	4.04			0.10	0.00		0.11	4.00
Ship Building & Repair	5.13	0.19	3.13	1.04	N/A	4.17	0.10	0.03	N/A	0.14	4.30
(Surface Coating)	0.40	0.10	0.00	0.45	N1/A	0.05			N1/A		0.05
Industrial gases	3.19	0.12	2.80	0.15	N/A	2.95	0	0	N/A	0	2.95
manufacturing	2.40	0.09	1.00	0.10	N/A	2.03	0.28	0.01	N/A	0.20	2.22
Surface active agents	2.40	0.09	1.93	0.10	N/A	2.03	0.28	0.01	N/A	0.29	2.33
manufacturing	1.87	0.07	0.00	0.01	N/A	0.99	0.57	0.01	N/A	0.57	1.57
Plastics foam products	1.87	0.07	0.98	0.01	IN/A	0.99	0.56	0.01	N/A	0.56	1.56
manufacturing Paints and allied	1.74	0.07	1.48	0	N/A	1.48	0.12	0	N/A	0.12	1.60
products	1./4	0.07	1.48	U	IV/A	1.48	0.12	0	IV/A	0.12	1.00
Instruments and	1.69	0.06	0	1.47	N/A	1.47	0	0.09	N/A	0.09	1.56
Related Products (SICs	1.09	0.00	U	1.47	IV/A	1.47	U	0.09	IN/A	0.09	1.00
,											
combined)											

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

				URBAN-1 E	MISSIONS		URBAN-2 EMISSIONS				
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions Tons/yr
Chemical	0.67	0.03	0.11	0.26	N/A	0.37	0.04	0.08	N/A	0.12	0.49
Manufacturing: Alkalies and chlorine	0.67	0.03	0.11	0.26	IN/A	0.37	0.04	0.08	IV/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

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

# Pollutant: <u>Arsenic & Compounds (inorganic including arsine)</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Hazardous Waste	906	74.71	608	0	N/A	608	135	0	N/A	135	743
Incineration:											
Dedicated HWIs											
Primary Copper	76.55	6.31	3.19	9.56	N/A	12.75	10.69	32.08	N/A	42.77	55.51
Smelting											
Utility Boilers: Coal	54.00	4.45	20.83	0	N/A	20.83	13.50	0.00	N/A	13.50	34.33
Combustion, All Types				<b>.</b>							
Commercial/Institution	27.63	2.28	4.32	17.27	N/A	21.59	0.70	2.81	N/A	3.51	25.10
al Boilers: Bituminous											
and Lignite Coal											
Combustion	23.54	1.94	11.07	4.74	N/A	15.80	2.4/	1.05	N/A	2.51	10.21
Industrial Boilers:	23.54	1.94	11.06	4.74	IN/A	15.80	2.46	1.05	N/A	3.51	19.31
Bituminous and Lignite											
Coal Combustion Primary nonferrous	22.81	1.88	4.75	5.81	N/A	10.56	2.54	3.11	N/A	5.65	16.21
metals production	22.01	1.00	4.75	3.01	IV/A	10.56	2.34	3.11	IV/A	5.05	10.21
Industrial Boilers: Waste	16.96	1.40	7.97	3.42	N/A	11.38	1.77	0.76	N/A	2.53	13.91
Oil Combustion	10.70	1.40	1.71	3.42	IV/A	11.30	1.77	0.70	IV/A	2.55	13.71
Pulp and Paper: Kraft	14.00	1.15	4.04	0	N/A	4.04	3.94	0	N/A	3.94	7.98
Recovery Furnaces	11.00	1.10	1.01	Ü	14// (	1.01	3.71	Ü	14//	0.71	7.70
Food and Agricultural	12.94	1.07	0.00	0	N/A	0.00	0	0	N/A	0.00	0.00
Products: Cotton											5.55
Ginning											
Commercial/Institution	12.47	1.03	1.95	7.80	N/A	9.75	0.32	1.27	N/A	1.58	11.33
al Boilers: Residual Oil											
Combustion											
Pressed and blown	9.48	0.78	0.09	1.62	N/A	1.70	0.20	3.78	N/A	3.98	5.69
glass and glassware											
manufacturing											
Industrial Boilers:	7.73	0.64	3.80	0.95	N/A	4.75	0.98	0.24	N/A	1.22	5.97
Wood/Wood Residue											
Combustion											
Secondary Lead	5.53	0.46	2.03	1.87	N/A	3.90	0.40	0.36	N/A	0.76	4.66
Smelting											
Utility Boilers: Oil	5.00	0.41	2.06	2.06	N/A	4.12	0.34	0.34	N/A	0.69	4.80
Combustion, All Types	2.45	0.00	0.00	1.22	NI/A	1.22	0	0.70	N1 / A	0.70	2.04
Wood Treatment/Wood	3.45	0.28	0.00	1.33	N/A	1.33	0	0.72	N/A	0.72	2.04
Preserving	1.93	0.17	0.75		N1/A	0.75	1 10	0.00	N/A	1.10	1.00
Agricultural Chemicals	1.93	0.16 0.16	0.75	0.94	N/A N/A	0.75 1.71	1.19 0.03	0.00	N/A N/A	1.19	1.93 1.78
Other Secondary	1.90	U.10	0.77	0.94	IV/A	1.71	0.03	0.04	IV/A	0.07	1./8
Nonferrous Metals											
Recovery											

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

Total % Contribution of Major Mobile Major Mobile Urban					URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Industrial Bolless   183   0.15   0.86   0.37   N/A   1.23   0.19   0.08   N/A   0.27   1.50	Source Category	Emissions	Total Emissions	Sources		Sources		Sources		Sources		Combined Urban Emissions
Residual Oil   Combustion   N/A   0.75   0.75   0.75   0.75   0.76   0.77   0		Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Cambustion	Industrial Boilers:	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-   151	Residual Oil											
Road Products (SICs   1.43	Combustion											
Combined		1.51	0.12	N/A	N/A	0.75	0.75	N/A	N/A	0.26	0.26	1.00
Industrial inorganic chemical commercial/institution at 80eless: Desililate Oil Commercial/institution of the state o	-	1.43	0.12	0.04	0.68	N/A	0.71	0.03	0.61	N/A	0.65	1.36
Commercial/Institution   1.02   0.08   0.16   0.64   N/A   0.80   0.03   0.10   N/A   0.13   0.93   0.93   1.00   N/A   0.13   0.93   1.00   N/A   0.13   0.93   1.00   N/A   0.13   0.93   1.00   N/A   0.13   0.73   Natural Gas   0.89   0.07   0.42   0.18   N/A   0.60   0.09   0.04   N/A   0.13   0.73   0.73   Natural Gas   0.089   0.04   0.23   0.10   N/A   0.32   0.05   0.02   N/A   0.07   0.39   0.00	Industrial inorganic	1.19	0.10	0.86	0	N/A	0.86	0.04	0	N/A	0.04	0.90
al Bollers: Distillate Oil Combustion Inclustrial Bollers: 0.89		1.02	0.00	0.16	0.64	NI/A	0.90	0.02	0.10	NI/A	0.12	0.02
Industrial Boilers: 0.89 0.07 0.42 0.18 N/A 0.60 0.09 0.04 N/A 0.13 0.73 Natural Gas Combustion   Industrial Boilers: 0.48 0.04 0.23 0.10 N/A 0.32 0.05 0.02 N/A 0.07 0.39   Distillate Oil Combustion   Sewage Studge	al Boilers: Distillate Oil	1.02	0.08	0.10	0.04	N/A	0.60	0.03	0.10	IVA	0.13	0.93
Natural Cas   Combustion   Co		0.90	0.07	0.42	0.10	NI/A	0.40	0.00	0.04	NI/A	0.12	0.72
Combustion		0.89	0.07	0.42	υ. ιδ	IV/A	0.00	0.09	0.04	IV/A	0.13	0.73
Industrial Boilers:   0.48   0.04   0.23   0.10   N/A   0.32   0.05   0.02   N/A   0.07   0.39												
Distillate Oil   Combustion   Communication   Combustion   Combustion   Combustion   Combined)   Combustion   Combined)   Combustion   Combined)   Combustion   Combined)   Combustion   Combined)   Combustion   Combined)		0.49	0.04	0.22	0.10	NI/A	0.22	0.05	0.02	NI/A	0.07	0.20
Combustion   Com		0.46	0.04	0.23	0.10	IV/A	0.32	0.05	0.02	IV/A	0.07	0.39
Sewage Sludge												
Incineration   Structural Clay   0.26   0.02   0   0   0   N/A   0.00   0   0   0   N/A   0.00   0		0.26	0.02	0.00	0.20	NI/Λ	0.20	Û	0.02	NI/A	0.02	0.23
Structural Clay		0.20	0.02	0.00	0.20	IV/A	0.20	U	0.02	IV/A	0.02	0.23
Products, Nec	Structural Clay	0.26	0.02	0	0	NI/Λ	0.00	0	0	NI/A	0.00	0.00
Blast furnaces and steel   0.25   0.02   0.09   0.11   N/A   0.20   0.02   0.02   N/A   0.04   0.24   0.25   0.08   0.09   0.06   0.07   N/A   0.12   0.06   0.07   N/A   0.13   0.25   0.09   0.09   0.00   0.07   N/A   0.13   0.25   0.02   0.06   0.07   N/A   0.08   0.03   N/A   0.08   0.03   N/A   0.03   0.19   0.02   0.04   0.05   N/A   0.05   0.05   N/A   0.05   0		0.20	0.02	O	O	IV/A	0.00	O	O	IV/ A	0.00	0.00
mills         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           Combustion         0.17         0.01         0.08         0.03         N/A         0.11         0.02         0.01         N/A         0.03         0.14           Fired         0.17         0.01         0.08         0.03         N/A         0.11         0.02         0.01         N/A         0.03         0.14           Fired         0.13         0.16         0.01         0         0.09         N/A         0.09         0         0.04         N/A         0.04         0.13           Gas Combustion         0.13         0.01         0.02         0.08         N/A         0.10         0.01         N/A         0.02		0.25	0.02	0.00	0.11	NI/Λ	0.20	0.02	0.02	NI/Λ	0.04	0.24
Primary smelting and refining of zinc   0.02   0.06   0.07   N/A   0.12   0.06   0.07   N/A   0.13   0.25   0.06   0.07   N/A   0.08   0.09   0.		0.23	0.02	0.07	0.11	14/7-4	0.20	0.02	0.02	14/74	0.04	0.24
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           Combustion         0.17         0.01         0.08         0.03         N/A         0.11         0.02         0.01         N/A         0.03         0.14           Utility Boilers: 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         0.02         0.08         N/A         0.09         N/A         0.09         0         0.04         N/A         0.04         0.13           A Boilers: Wood/Wood Residue Combustion         0.13         0.01         0.04         0.05         N/A         0.08         0.01         0.01         N/A         0.02         0.10           Preparations and Manufacturing (SICs combined)         0.13         0.01         0.10         0.01         N/A <td></td> <td>0.20</td> <td>0.02</td> <td>0.00</td> <td>0.07</td> <td></td> <td>0.12</td> <td>0.00</td> <td>0.07</td> <td></td> <td>00</td> <td>0.20</td>		0.20	0.02	0.00	0.07		0.12	0.00	0.07		00	0.20
Incineration   Municipal Waste   0.19   0.02   0.14   0.01   N/A   0.15   0.02   0   N/A   0.02   0.17   0.01   Utility Turbines: Diesel-Fired   Utility Turbines: Diesel-Fired   Utility Boilers: Natural   0.16   0.01   0   0.09   N/A   0.09   0   0.04   N/A   0.03   0.14   0.15   0.02   0.01   N/A   0.03   0.14   0.15   0.05   0.01   0.04   0.05   0.01   0.00   0.01   0.01   0.01   0.01   0.02   0.01   0.01   0.02   0.01   0.01   0.02		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           Fired         Utility Boilers: Natural 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           Gas Combustion Commercial/Institution al Boilers: Wood/Wood Residue Combustion Primary metal products manufacturing (SICs combined)         0.13         0.01         0.02         0.08         N/A         0.10         0         0.01         N/A         0.02         0.12           Pharmaceuticals combined)         0.13         0.01         0.10         0.01         N/A         0.11         0.01         0         N/A         0.01         N/A         0.01         0.12		0.21	0.02	0.02	0.10		0.10	Ü	0.00		0.00	0.17
Combustion   Utility Turbines: Diesel -   0.17   0.01   0.08   0.03   N/A   0.11   0.02   0.01   N/A   0.03   0.14		0.19	0.02	0.14	0.01	N/A	0.15	0.02	0	N/A	0.02	0.17
Utility Turbines: Diesel -	'						2.1.2					2
Utility Boilers: Natural Gas Combustion	Utility Turbines: Diesel -	0.17	0.01	0.08	0.03	N/A	0.11	0.02	0.01	N/A	0.03	0.14
Gas Combustion   Commercial/Institution   0.13   0.01   0.02   0.08   N/A   0.10   0   0.01   N/A   0.02   0.12		0.16	0.01	0	0.09	N/A	0.09	0	0.04	N/A	0.04	0.13
Commercial/Institution   0.13   0.01   0.02   0.08   N/A   0.10   0   0.01   N/A   0.02   0.12				-			2.2.					2112
al Boilers: Wood/Wood Residue Combustion       0.13       0.01       0.04       0.05       N/A       0.08       0.01       0.01       N/A       0.02       0.10         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       0.01       0.12		0.13	0.01	0.02	0.08	N/A	0.10	0	0.01	N/A	0.02	0.12
Residue Combustion         Drimary 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		0.10	0.01	0.02	0.00		0.10	Ü	0.0.		0.02	0112
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												
manufacturing (SICs combined)         0.13         0.01         0.10         0.01         N/A         0.11         0.01         0         N/A         0.01         0.12           Preparations and Manufacturing (SICs combined)         We combined         We		0.13	0.01	0.04	0.05	N/A	0.08	0.01	0.01	N/A	0.02	0.10
combined)         0.13         0.01         0.10         0.01         N/A         0.11         0.01         0         N/A         0.01         0.12           Preparations and Manufacturing (SICs combined)         4 <td></td> <td>0.10</td> <td>0.01</td> <td>0.01</td> <td>0.00</td> <td></td> <td>0.00</td> <td>0.0.</td> <td>0.01</td> <td></td> <td>0.02</td> <td>0.10</td>		0.10	0.01	0.01	0.00		0.00	0.0.	0.01		0.02	0.10
Pharmaceuticals         0.13         0.01         0.10         0.01         N/A         0.11         0.01         0         N/A         0.01         0.12           Preparations and Manufacturing (SICs combined)         SICs         SICs <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
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
Manufacturing (SICs combined)						-				-		-
combined)	·											
		0.05	0.00	0.01	0.03	N/A	0.04	0	0	N/A	0.01	0.04
al Boilers: Anthracite												
Coal Combustion												

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers:	0.04	0.00	0.02	0.01	N/A	0.02	0	0	N/A	0.01	0.03
Anthracite Coal											
Combustion											
Storage batteries	0.02	0.00	0	0.01	N/A	0.01	0	0.01	N/A	0.01	0.02
manufacturing											
Pulp and Paper: Sulfite	0.01	0.00	0	0	N/A	0.00	0.01	0	N/A	0.01	0.01
Recovery											
Open Burning: Scrap	0.01	0.00	0	0.01	N/A	0.01	0	0	N/A	0.00	0.01
Tires											
Plastics products	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.01
manufacturing Miscellaneous	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
	0.01	0.00	U	Ü	N/A	0.00	U	U	N/A	0.00	0.00
Manufacturing (SICs											
combined) Custom compound	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
purchased resins	0.01	0.00	U	U	IV/A	0.00	U	U	IV/A	0.00	0.00
manufacturing											
Porcelain electrical	0.01	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
supplies	0.01	0.00	Ü		14//1	0.00	Ü		14//1	0.00	0.00
Converted paper and	0.01	0.00	0	0	N/A	0.01	0	0	N/A	0.00	0.01
paperboard products,											
nec (disc)											
Fabricated metal	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
products											
manufacturing (SICs											
Miscellaneous Organic	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Chemical Processes											
(SICs combined)											
Gray and ductile iron	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
foundries											
Softwood veneer and	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
plywood											
Chromium Plating:	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Chromic Anodizing							_	_			
Sawmills and planing	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
mills, general	0.00	0.00	0	1	NI/A	0.00	0		NI/A	0.00	0.00
Petroleum Refining:	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
(ALL PROCESSES)	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
Industrial organic	0.00	0.00	U	0	IV/A	0.00	U	U	IV/A	0.00	0.00
chemicals manufacturing											
Crematories	0.00	0.00	0	0	N/A	0.00	0	0	N/A	0.00	0.00
CIEITIATORES	0.00	0.00	U	U	IN/A	0.00	U	U	IV/A	U.UU	0.00

# Pollutant: <u>Benzene</u>

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

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	651	1.41E-01	560	0	N/A	560	70.0	0	N/A	70.0	630
(disc. 1987, 4491)											
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/Institutiona I 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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Carbon Black	35.9	7.77E-03	2.19	5.11	N/A	7.30	6.28	14.7	N/A	20.9	28.2
Manufacture											
Industrial Boilers: Coal,	34.7	7.50E-03	16.3	6.98	N/A	23.3	3.62	1.55	N/A	5.17	28.4
All Types											
Stationary	21.6	4.68E-03	10.2	4.35	N/A	14.5	2.26	0.967	N/A	3.22	17.7
Reciprocating IC											
Engines: Diesel - fired											
Utility Boilers: Coal	21.0	4.54E-03	8.10	0	N/A	8.10	5.25	0	N/A	5.25	13.3
Combustion, All Types											
Food Products (SICs	20.4	4.42E-03	0.511	9.70	N/A	10.2	0.462	8.79	N/A	9.25	19.5
combined)											
Commercial/Institutiona	15.0	3.25E-03	2.30	9.20	N/A	11.5	0.410	1.64	N/A	2.05	13.6
l Boilers: Wood/Wood											
Residue Combustion											
Structural Clay	14.5	3.14E-03	0	0	N/A	0	0	0	N/A	0	0
Products, Nec											
Paints and allied	9.50	2.05E-03	8.07	0	N/A	8.07	0.642	0	N/A	0.642	8.71
products											
Chemicals and allied	8.50	1.84E-03	6.85	0.360	N/A	7.21	0.973	0.0512	N/A	1.02	8.23
products											
Sewage Sludge	8.26	1.79E-03	0	6.36	N/A	6.36	0	0.723	N/A	0.723	7.08
Incineration											
Ship Building & Repair	8.13	1.76E-03	4.95	1.65	N/A	6.60	0.162	0.054	N/A	0.216	6.82
(Surface Coating)											
Lubricating oils and	7.72	1.67E-03	7.18	0	N/A	7.18	0.432	0	N/A	0.432	7.61
greases											
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	7.13	1.54E-03	2.30	0	N/A	2.30	0	0	N/A	0	2.30
combined)											
Chemical Preparations	6.99	1.51E-03	5.14	0.270	N/A	5.41	0.153	8.03E-03	N/A	0.161	5.57
(SICs combined)											
Paper coated and	5.51	1.19E-03	3.74	0.370	N/A	4.11	1.23	0.122	N/A	1.35	5.46
laminated, packaging											
Paper coating and	5.50	1.19E-03	3.61	0.357	N/A	3.97	1.40	0.138	N/A	1.54	5.50
glazing manufacturing											
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	4.26	9.21E-04	0.47	2.66	N/A	3.14	0.096	0.545	N/A	0.641	3.78
Incineration											
Industrial inorganic	4.14	8.96E-04	3.00	0	N/A	3.00	0.123	0	N/A	0.123	3.12
chemical		32 0 ,	2.00			2,00				21.20	
Utility Turbines: Diesel -	3.35	7.25E-04	1.57	0.674	N/A	2.25	0.350	0.150	N/A	0.499	2.75
Fired	5.55	7.202 0 .				2.20	0.000	000		5,	2.70
Industrial Turbines:	3.30	7.14E-04	1.33	0.886	N/A	2.21	0.295	0.197	N/A	0.492	2.71
Natural gas - fired	3.50			0.500	/ / .		5.275	5.177		5.172	2.71
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Table 6-12. Base Year 1990 National Emission Estimates for Benzene

				URBAN-1 E	MISSIONS	_		URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	3.00	6.49E-04	0	0	N/A	0	2.85	0	N/A	2.85	2.85
Foundries: All Processes											
Commercial/Institutiona I 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	2.10	4.53E-04	0.839	0.280	N/A	1.12	0.387	0.129	N/A	0.516	1.64
Equipment (SICs 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/Institutiona I 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	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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>Beryllium Compounds</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Camabina d
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	6.600	37.822	2.55	0	N/A	2.546	2	0	N/A	1.650	4.196
Combustion, All Types											
Commercial/Institution	3.760	21.547	0.588	2.351	N/A	2.938	0	0.382	N/A	0.478	3.416
al Boilers: Bituminous											
and Lignite Coal											
Combustion											
Industrial Boilers:	1.206	6.909	0.566	0.243	N/A	0.809	0	0.054	N/A	0.180	0.989
Bituminous and Lignite											
Coal Combustion											
Industrial Boilers:	1.036	5.934	0.509	0.127	N/A	0.636	0	0.033	N/A	0.163	0.800
Wood/Wood Residue											
Combustion											
Commercial/Institution	0.790	4.527	0.123	0.494	N/A	0.617	0	0.080	N/A	0.100	0.718
al Boilers: Residual Oil											
Combustion											
Commercial/Institution	0.609	3.490	0.0952	0.381	N/A	0.476	0	0.062	N/A	0.077	0.553
al Boilers: Distillate Oil											
Combustion											
Pulp and Paper: Kraft	0.600	3.438	0.173	0	N/A	0.173	0	0	N/A	0.169	0.342
Recovery Furnaces											
Primary nonferrous	0.553	3.166	0.115	0.141	N/A	0.256	0	0.075	N/A	0.137	0.393
metals production											
Industrial Boilers: Waste	0.531	3.043	0.249	0.107	N/A	0.356	0	0.024	N/A	0.079	0.436
Oil Combustion							_				
Utility Boilers: Oil	0.450	2.579	0.185	0.185	N/A	0.371	0	0.0309	N/A	0.0618	0.432
Combustion, All Types	0.050	0.007	0.0147	0.0407	N1 / A	0.0500	-	0.447	N1/A	0.107	0.054
Primary Copper	0.350	2.006	0.0146	0.0437	N/A	0.0583	0	0.147	N/A	0.196	0.254
Smelting Industrial Boilers:	0.287	1 / 12	0.125	0.050	N/A	0.100	0	0.0120	NI/A	0.0407	0.235
	0.287	1.643	0.135	0.058	N/A	0.192	U	0.0128	N/A	0.0427	0.235
Distillate Oil											
Combustion Primary metal products	0.237	1.355	0.0678	0.0829	N/A	0.151	0	0.0172	N/A	0.0312	0.182
manufacturing (SICs	0.237	1.500	0.0676	0.0629	IV/A	0.151	U	0.0172	IN/A	0.0312	0.162
combined)											
Utility Boilers: Coke	0.210	1.203	0.188	0	N/A	0.188	0	0	N/A	0.0145	0.203
Commercial/Institution	0.210	0.436	0.0119	0.0475	N/A	0.0594	0	7.72E-03	N/A	9.65E-03	0.203
al Boilers: Anthracite	0.0700	0.430	0.0117	0.0473	1 1/ 🔼	0.0374	J	7.72L-03	1 V/ 🔼	7.03L-03	0.0070
Coal Combustion											
Industrial Boilers:	0.0605	0.346	0.0284	0.0122	N/A	0.0406	0	2.70E-03	N/A	9.01E-03	0.0496
Anthracite Coal	0.0000	0.010	0.0201	0.0122	14//1	0.0100	J	2.702 00	14//	7.012 00	0.0170
Combustion				1							
SOTTINUSTION											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>Bis(2-ethylhexyl)phthalate</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Cambinad
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Transportation	255	31.2	127	42.204	N/A	169	33.79	11.262	N/A	45.050	213.866
Equipment											
Manufacture (SICs											
Wood household	127	15.5	21.8	0	N/A	21.835	8.01	0	N/A	8.007	29.842
furniture manufacturing											
Plastics products	58.4	7.133	32.8	0.332	N/A	33.180	13.0	0.131	N/A	13.106	46.286
manufacturing											
Unsupported plastics	56.1	6.855	31.0	0.313	N/A	31.288	10.4	0.105	N/A	10.538	41.825
film and sheet											
manufacturing											
Miscellaneous	38.4	4.688	21.3	3.763	N/A	25.086	4.51	0.795	N/A	5.300	30.386
Manufacturing (SICs											
combined)											
Utility Boilers: Coal	35.0	4.278	13.5	0	N/A	13.500	8.75	0	N/A	8.750	22.250
Combustion, All Types											
Secondary Lead	34.9	4.266	12.8	11.808	N/A	24.601	2.50	2.303	N/A	4.799	29.400
Smelting											
Other Miscellaneous	31.5	3.844	22.0	2.450	N/A	24.500	1.31	0.146	N/A	1.458	25.958
(SICs combined)											
Commercial printing,	25.0	3.060	19.0	1.883	N/A	20.920	3.74	0.370	N/A	4.113	25.033
lithographic											
Fabricated metal	23.9	2.927	15.1	5.025	N/A	20.100	1.44	0.480	N/A	1.921	22.020
products, nec											
Miscellaneous Plastics	16.5	2.021	6.57	0.066	N/A	6.639	6.44	0.065	N/A	6.502	13.142
Products											
Structural Clay	9.70	1.186	0	0	N/A	0	0	0	N/A	0	0
Products, Nec											
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	7.51	0.917	5.21	0	N/A	5.208	0.97	0	N/A	0.969	6.177
chemicals	7.01	0.717	0.21	Ü	14//(	0.200	0.77	Ü	14//	0.707	0.177
manufacturing											
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	7.35	0.898	6.85	0.069	N/A	6.918	0.04	0.000	N/A	0.019	6.937
profile shapes (1987)	7.55	5.576	5.05	0.507	14/73	5.710	0.02	5.566	14/73	5.517	5.757
Sewage Sludge	6.43	0.786	0	4.951	N/A	4.951	0	0.562	N/A	0.562	5.514
Incineration	0.75	0.700	0	7.751	14/7-1	4.751	J	0.302	1 1/ / 1	0.302	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	6.21	0.759	3.26	0.033	N/A	3.293	1.85	0.019	N/A	1.868	5.161
manufacturing	U.Z I	0.757	3.20	0.033	IN/ A	3.273	1.00	0.017	IN/ A	1.000	5.101
Synthetic rubber	6.03	0.738	5.18	0	N/A	5.179	0.77	0	N/A	0.766	5.945
manufacturing	0.03	0.730	5.10	U	IV/A	5.177	0.77	U	IN/ A	0.700	3.743
manufacturing											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Upholstered household	5.92	0.724	0	0	N/A	0	0.00	0	N/A	0.001	0.001
furniture											
Paints and allied	5.79	0.708	4.92	0	N/A	4.916	0.39	0	N/A	0.391	5.307
products											
Pharmaceuticals	4.73	0.579	3.81	0.201	N/A	4.014	0.38	0.020	N/A	0.400	4.414
Preparations and											
Manufacturing (SICs											
combined)											
Fabricated metal	4.47	0.546	2.10	0.702	N/A	2.806	0.57	0.190	N/A	0.761	3.568
products											
manufacturing (SICs											
Fabricated rubber	4.40	0.538	4.36	0.044	N/A	4.401	0	0	N/A	0	4.401
products											
Rubber and plastic	4.36	0.533	0.34	0.003	N/A	0.339	3.22	0.033	N/A	3.253	3.592
hose and belting	1.00	0.000	0.0 .	0.000		0.007	0.22	0.000		0.200	0.072
manufacturing											
Industrial Boilers:	4.19	0.512	1.97	0.844	N/A	2.812	0.44	0.187	N/A	0.625	3.437
Bituminous and Lignite	4.17	0.512	1.77	0.044	14/74	2.012	0.44	0.107	14/74	0.025	3.437
Coal Combustion											
Plastics materials and	3.64	0.445	2.27	0	N/A	2.267	0.92	0	N/A	0.917	3.183
resins manufacturing	3.04	0.443	2.21	U	IV/A	2.207	0.72	U	11/7	0.717	3.103
Organic fibers, non-	3.26	0.399	1.91	0.100	N/A	2.005	0.14	0.007	N/A	0.143	2.149
cellulosic	3.20	0.377	1.71	0.100	IV/A	2.003	0.14	0.007	11/7	0.143	2.147
manufacturing											
Custom compound	1.59	0.195	1.19	0.012	N/A	1.201	0.13	0.001	N/A	0.128	1.329
purchased resins	1.57	0.173	1.17	0.012	IV/A	1.201	0.13	0.001	11/7	0.120	1.327
manufacturing											
Electronic and other	1.25	0.153	0.5169	0.172	N/A	0.689	0.22	0.074	N/A	0.296	0.985
electric equipment	1.25	0.155	0.5109	0.172	IV/A	0.009	0.22	0.074	IV/A	0.290	0.703
manufacturing (SICs											
<b>.</b>											
combined) 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	0.649	0.138	0.3836	0.004	N/A	0.436	0.45	0.0290	N/A	0.458	0.846
	0.649	0.079	0.3049	0.131	IN/A	0.436	0.0677	0.0290	IN/A	0.0968	0.532
Oil Combustion	0.635	0.078	0	0.551	N/A	0.551	0	0.0342	N/A	0.0342	0.586
Instruments and	0.035	0.078	U	0.551	IN/A	0.551	U	0.0342	IN/A	0.0342	0.586
Related Products (SICs											
combined)	0.440	0.054	0.2072	0.0000	NI/A	0.410	7.505.00	0.000	NI/A	7.015.00	0.407
Adhesives and Sealants	0.442	0.054	0.3972	0.0209	N/A	0.418	7.52E-03	0.000	N/A	7.91E-03	0.426
(SICs combined)	0.375	0.046	0.2475	2.50E-03	N/A	0.250	0	_	N/A	0	0.250
Rubber and plastic	0.375	0.046	0.2475	2.5UE-U3	IN/A	0.250	U	0	IN/A	U	0.250
footwear	0.275	0.047	0.1704	0.0177	NI/A	0.107	0.1/10	0.01/0	NI/A	0.170	0.275
Paper Coated &	0.375	0.046	0.1794	0.0177	N/A	0.197	0.1619	0.0160	N/A	0.178	0.375
Laminated, Packaging	0.270	0.022	10/505	( 205.07	NI/A	2.405.05	0.105.00	2.715.02	NI/A	0.0100	0.0100
Electrical industrial	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
apparatus, nec											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	0.260	0.032	0.0746	0.0911	N/A	0.166	0.0155	0.0189	N/A	0.0343	0.200
manufacturing (SICs											
combined)											
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	0.250	0.031	0.2275	0.0225	N/A	0.250	0	0	N/A	0	0.250
paperboard products,											
nec (disc)											
Millwork	0.230	0.028	0.0245	0	N/A	0.025	0.1987	0	N/A	0.199	0.223
Commercial/Institution	0.130	0.016	0.0203	0.0813	N/A	0.102	3.30E-03	0.0132	N/A	0.0165	0.118
al Boilers: Bituminous											
and Lignite Coal											
Combustion											
Commercial printing,	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
gravure											
Industrial inorganic	0.125	0.015	0.0904	0	N/A	0.0904	3.71E-03	0	N/A	3.71E-03	0.0941
chemical											
Abrasive Grain (Media)	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
Manufacturing											
Rubber and plastic	0.125	0.015	0	0	N/A	0	0	0	N/A	0	0
footwear											
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	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
and Electrical											
Equipment (SICs											
Mechanical rubber	1.95E-02	2.38E-03	0.0137	1.38E-04	N/A	0.0138	0	0	N/A	0	0.0138
goods manufacturing											
Converted Paper	1.85E-02	2.26E-03	0.0168	1.67E-03	N/A	0.0185	0	0	N/A	0	0.0185
Products											
Commercial printing,	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
letterpress, and screen											
(disc											
Plastics products inc.	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
plastic bottles											
Chemical Preparations	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
(SICs combined)											
Nonmetallic mineral	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
products											
Paper coated and	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
laminated, packaging								<u>                                      </u>			
Paper coating and	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
glazing manufacturing											
Asphalt paving mixtures	2.50E-03	3.06E-04	2.50E-03	0	N/A	2.50E-03	0	0	N/A	0	2.50E-03
and blocks											

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

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

# Pollutant: Cadmium & Compounds

		% Contribution of Total Emissions		URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Cbi
Source Category	Total Emissions		Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Secondary Lead	89.8	38.547	32.9	30.4	N/A	63.3	6.42	5.93	N/A	12.3	75.6
Smelting			V=								
Commercial/Institution	21.3	9.135	3.33	13.3	N/A	16.6	0.541	2.16	N/A	2.70	19.3
al Boilers: Residual Oil	20	71100	0.00	10.0		10.0	0.011	20		2.70	.,.0
Combustion											
Primary nonferrous	21.2	9.102	4.42	5.40	N/A	9.816	2.37	2.89	N/A	5.26	15.1
metals production	21.2	7.102	1.12	0.10	14//	7.010	2.07	2.07	14//1	0.20	10.1
Primary Copper	16.2	6.958	0.67	2.02	N/A	2.699	2.26	6.79	N/A	9.06	11.8
Smelting	10.2	0.700	0.07	2.02	14//	2.077	2.20	0.77	14//1	7.00	11.0
Municipal Waste	5.60	2.403	4.10	0.216	N/A	4.318	0.672	0.035	N/A	0.707	5.03
Combustion	0.00	2.100	1.10	0.210	14//	1.010	0.072	0.000	14//1	0.707	0.00
Medical Waste	4.83	2.072	0.533	3.02	N/A	3.556	0.109	0.618	N/A	0.727	4.28
Incineration	1.00	2.072	0.000	0.02	14//	0.000	0.107	0.010	14//1	0.727	1.20
Secondary Copper	4.80	2.060	1.94	2.37	N/A	4.318	0.0818	0.100	N/A	0.182	4.50
Smelting	1.00	2.000	1.71	2.07	14//	1.010	0.0010	0.100	14//1	0.102	1.00
Cadmium Refining and	4.66	1.998	1.98	2.42	N/A	4.405	0.113	0.138	N/A	0.250	4.66
Cadmium Oxide	1.00	1.770	1.70	2.12	14//	1.100	0.110	0.100	14//1	0.200	1.00
Production											
Industrial inorganic	4.62	1.985	3.34	0	N/A	3.343	0.137	0	N/A	0.137	3.48
chemical	1.02	1.700	0.01	Ü	14//	0.010	0.107		14//1	0.107	0.10
Cadmium Stabilizers	3.67	1.575	3.67	0	N/A	3.670	0	0	N/A	0	3.67
Production											
Industrial organic	3.54	1.521	2.46	0	N/A	2.458	0.457	0	N/A	0.457	2.92
chemicals											
manufacturing											
Portland Cement	3.30	1.417	1.63	0.287	N/A	1.912	0.524	0.093	N/A	0.617	2.53
Manufacture: All Fuels											
Pulp and Paper: Kraft	3.30	1.417	0.95	0	N/A	0.952	0.929	0	N/A	0.929	1.88
Recovery Furnaces											
Industrial Boilers:	2.93	1.257	1.38	0.589	N/A	1.965	0.306	0.131	N/A	0.437	2.40
Bituminous and Lignite											
Coal Combustion											
Commercial/Institution	2.68	1.150	0.419	1.676	N/A	2.094	0.0681	0.272	N/A	0.340	2.43
al Boilers: Distillate Oil											
Combustion											
Custom compound	2.29	0.981	1.70	0.017	N/A	1.721	0.181	0.002	N/A	0.183	1.90
purchased resins											
manufacturing				<u> 1</u>				<u> </u>			
Commercial/Institution	2.20	0.944	0.344	1.375	N/A	1.719	0.0559	0.224	N/A	0.279	2.00
al Boilers: Bituminous				1							
and Lignite Coal											
Combustion				<u> 1</u>				<u> </u>			
Inorganic Pigments:	2.16	0.927	1.91	0	N/A	1.91	2.59E-03	0	N/A	2.59E-03	1.91
Cadmium Pigments in											
Plastics											

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

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

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

		% Contribution of Total Emissions		URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Combined
Source Category	Total Emissions		Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers:	0.372	0.160	0	0.258	N/A	0.258	0	0.0543	N/A	0.0543	0.312
Wood/Wood Residue											
Combustion											
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	0.260	0.112	0.146	1.48E-03	N/A	0.148	0.0578	5.84E-04	N/A	0.0584	0.206
manufacturing	0.200	0.112	0.110	1.102.00	14//	0.110	0.0070	0.012 01	14//	0.0001	0.200
Miscellaneous Organic	0.260	0.112	0.194	0	N/A	0.194	0.0323	0	N/A	0.0323	0.226
Chemical Processes	0.200	0.112	0.174	Ü	14/7-4	0.174	0.0323	O	14/7-4	0.0323	0.220
(SICs combined)											
Paints and allied	0.256	0.110	0.217	0	N/A	0.217	0.0173	0	N/A	0.0173	0.235
products	0.230	0.110	0.217	Ü	14/74	0.217	0.0173	O	14/74	0.0173	0.233
Pressed and blown	0.255	0.109	2.29E-03	0.044	N/A	0.046	5.35E-03	0.102	N/A	0.1071	0.153
glass and glassware	0.200	0.107	2.2/L-UJ	0.044	14/7	0.040	J.JJL-03	0.102	14/7	0.1071	0.100
manufacturing											
Electronic and other	0.255	0.109	0.105	0.035	N/A	0.141	0.0452	0.0151	N/A	0.0603	0.201
electric equipment	0.233	0.109	0.105	0.033	IN/A	0.141	0.0432	0.0131	IV/ A	0.0003	0.201
manufacturing (SICs											
combined)											
	0.255	0.109	0.126	0.042	N/A	0.169	0.034	0.0113	N/A	0.0450	0.214
Transportation	0.233	0.109	0.120	0.042	IV/A	0.109	0.034	0.0113	IV/A	0.0450	0.214
Equipment Manufacture (SICs											
Other Miscellaneous	0.250	0.107	0.175	0.019	N/A	0.195	0.0104	1.16E-03	N/A	0.0116	0.206
(SICs combined)	0.230	0.107	0.175	0.019	IN/A	0.195	0.0104	1.10E-03	IN/A	0.0116	0.200
Miscellaneous	0.250	0.107	0.139	0.025	N/A	0.164	0.0294	5.18E-03	N/A	0.0346	0.198
Manufacturing (SICs	0.230	0.107	0.137	0.023	IN/A	0.104	0.0274	J. 10L-03	IN/A	0.0340	0.170
combined)											
Fabricated metal	0.250	0.107	0.157	0.052	N/A	0.210	0.0150	5.01E-03	N/A	0.0201	0.230
products, nec	0.230	0.107	0.137	0.032	IN/A	0.210	0.0130	3.01L-03	IN/A	0.0201	0.230
Unsupported plastics	0.171	0.073	0.0944	9.54E-04	N/A	0.095	0.0318	3.21E-04	N/A	0.0321	0.128
film and sheet	0.171	0.073	0.0744	7.54L-04	IN/A	0.075	0.0310	J.21L-04	IV/ A	0.0321	0.120
manufacturing											
Residential Boilers:	0.152	0.065	0	0.105	N/A	0.105	0	0.0215	N/A	0.0215	0.127
Anthracite Coal	0.132	0.003	U	0.105	IV/A	0.105	U	0.0215	IV/A	0.0213	0.127
Combustion											
Utility Turbines: Diesel -	0.150	0.064	0.0705	0.030	N/A	0.101	0.0157	6.71E-03	N/A	0.0224	0.123
Fired	0.150	0.004	0.0703	0.030	IN/A	0.101	0.0137	0.71L-03	IN/A	0.0224	0.123
Gray and ductile iron	0.143	0.061	0.0274	3.35E-02	N/A	0.061	0.0122	0.0149	N/A	0.0271	0.0879
foundries	0.143	0.001	0.0274	J.JJE-UZ	IN/A	0.001	0.0122	0.0149	IN/A	0.0271	0.0079
Miscellaneous Plastics	0.128	0.055	0.0507	5.12E-04	N/A	0.051	0.0496	5.01E-04	N/A	0.0501	0.101
Products	0.120	0.055	0.0307	J. 12L-04	IN/ A	0.031	0.0470	5.01L-04	IV/ A	0.0301	0.101
Commercial printing,	0.125	0.054	0.114	0.011	N/A	0.125	0	0	N/A	0	0.125
. 0	0.123	0.004	0.114	0.011	IN/A	0.123	U	U	IV/A	U	0.123
letterpress, and screen											
(disc	0.105	0.054	0.11/	1 105 00	NI/A	0.110	2 225 04	2 275 07	NI/A	2 275 04	0.110
Unsupported plastics	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
profile shapes (1987)											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Machinery	0.125	0.054	0.0501	0.017	N/A	0.0668	0.0231	7.69E-03	N/A	0.0308	0.0975
and Electrical											
Equipment (SICs											
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	0.0940	0.040	0	0	N/A	0	0	0	N/A	0	0
Products, Nec											
Carbon Black	0.0803	0.034	4.90E-03	0.0114	N/A	0.0163	0.0141	0.0328	N/A	0.0468	0.0632
Manufacture											
Utility Boilers: Natural	0.0540	0.023	0	0.0303	N/A	0.0303	0	0.0148	N/A	0.0148	0.0451
Gas Combustion	0.0400	0.001	0.0000	0	NI/A	0.0200	0.0101	0	N1/A	0.0101	0.0420
Plastics materials and	0.0480	0.021	0.0299	0	N/A	0.0299	0.0121	0	N/A	0.0121	0.0420
resins manufacturing Pulp and Paper: Sulfite	0.0300	0.013	1.00E-02	0	N/A	0.0100	0.0150	0	N/A	0.0150	0.0250
Recovery	0.0300	0.013	1.00E-02	U	IV/A	0.0100	0.0130	U	IV/A	0.0150	0.0230
Commercial/Institution	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
al Boilers: Wood/Wood	0.0300	0.013	4.57E 05	0.0104	14/74	0.0230	0.102 04	3.272 03	14/7-4	4.072 03	0.0271
Residue Combustion											
Secondary Aluminum	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
Smelting											
Petroleum Refining:	0.0230	0.010	0.0131	0	N/A	0.0131	4.47E-03	0	N/A	4.47E-03	0.0175
Cyclic Crude and											
Intermediate											
Production											
Commercial/Institution	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
al Boilers: Anthracite											
Coal Combustion											
Industrial Boilers:	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
Anthracite Coal											
Combustion	5.00E-03	2.15E-03	1.04E-03	1.04E-03	N/A	2.08E-03	2.05E-04	2.05E-04	NI/A	4.105.04	2.49E-03
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	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
manufacturing			_								
Chemical Preparations	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
(SICs combined)	2 505 22	1.075.00	^		N1 / A				N1 / A		^
Other Cadmium	2.50E-03	1.07E-03	0	0	N/A	0	0	0	N/A	0	0
Compound Production	1 005 02	4 205 04	4.045.04	1 / 1 5 0 /	NI/A	4 AEE 04	7 445 05	2 405 05	NI/A	0.035.05	7.445.04
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	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
Incineration			Ü			272.00	Ĭ			2,2 0,	
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

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

## Pollutant: <u>Carbon Tetrachloride</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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-	4270	82.197	1232	0	0	1232	1202	0	0	1202	2434
Combustion Sources											
Miscellaneous Organic	282	5.42	210	0	0	210	35.0	0	0	35.0	245
Chemical Processes											
(SICs combined)											
Industrial inorganic	106	2.03	76.3	0	0	76.288	3.13	0	0	3.13	79.4
chemical											
Other Miscellaneous	84.13	1.62	59.0	6.553	0	65.533	3.51	0.390	0	3.90	69.4
(SICs combined)											
Synthetic rubber	84.00	1.62	72.1	0	0	72.097	10.7	0	0	10.7	82.8
manufacturing											
Agricultural Chemicals	73.40	1.41	28.3	0	0	28.302	45.0	0	0	45.0	73.3
Industrial organic	57.97	1.12	40.2	0	0	40.223	7.48	0	0	7.48	47.7
chemicals											
manufacturing											
Publicly owned	52.8	1.02	0	36.633	0	36.633	0	7.476	0	7.48	44.1
treatment works											
(POTWs)											
Chemicals and allied	49.9	0.961	40.2	2.12	0	42.329	5.71	0.301	0	6.01	48.3
products											
Utility Boilers: Coal	28.0	0.539	10.8	0	0	10.800	7.00	0	0	7.00	17.8
Combustion, All Types				<del>                                     </del>							
Petroleum Refining:	27.5	0.530	16	0	0	15.632	5.35	0	0	5.35	21.0
Cyclic Crude and											
Intermediate											
Production	22.0	0.440	17	0	0	1/ 7/1	4.04	0		4.04	21.7
Petroleum Refining:	22.9	0.442	17	0	0	16.761	4.94	0	0	4.94	21.7
(ALL PROCESSES) Pharmaceuticals	20.5	0.395	17	0.869	0	17.386	1.64	0.087	0	1.73	19.1
	20.5	0.395	17	0.869	U	17.380	1.04	0.087	Ü	1.73	19.1
Preparations and Manufacturing (SICs											
combined) Chemical	13.0	0.250	2.17	5.05	0	7.22	0.69	1.614	0	2.31	9.525
Manufacturing:	13.0	0.230	2.17	3.03	U	1.22	0.07	1.014	U	2.51	7.323
Alkalies and chlorine											
Tire Manufacturing	8.6	0.166	2.93	0.0296	0	2.96	3.46	0.0350	0	3.50	6.451
Industrial gases	5.00	0.096	4.40	0.231	0	4.63	0	0.0330	0	0	4.627
manufacturing	0.00	0.070	1.10	0.201	Ü	1.00	J		Ü	Ĭ	1.027
Organic fibers, non-	4.50	0.087	2.63	0.138	0	2.77	0	9.90E-03	0	0.198	2.967
cellulosic	1.00	0.007	2.00	0.100	Ü	2.77	J	7.702 00	Ü	0.170	2.707
manufacturing				1							
manaractanny										1	

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: Chloroform

				URBAN-1 E	MISSIONS			URBAN-2 E	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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-	18,500	69.892	5,339	0	N/A	5,339	5,206	0	N/A	5,206	10,545
Combustion Sources											
Chemical	4,651	17.570	2,146	0	N/A	2,146	1,061	0	N/A	1,061	3,207
Manufacturing:											
Ethylene Dichloride											
Publicly owned	484	1.828	0	336	N/A	336	0	69	N/A	69	404
treatment works											
(POTWs)											
Sawmills and planing	452	1.708	0	0	N/A	0	439	0	N/A	439	439
mills, general											
Chemical	415	1.568	69	161	N/A	230	22.1	51.529	N/A	73.6	304
Manufacturing:											
Alkalies and chlorine											
Pharmaceuticals	398	1.503	321	17	N/A	337	31.9	1.679	N/A	33.6	371
Preparations and											
Manufacturing (SICs											
combined)	050	4.000	0.05			225				_	005
Chemical	352	1.330	235	0	N/A	235	0	0	N/A	0	235
Manufacturing:											
Chloroform Production											
(storage emissions)	260	0.983	181	0	N/A	181	33.6	0	N/A	33.6	214
Industrial organic	260	0.983	181	U	N/A	181	33.6	U	N/A	33.6	214
chemicals manufacturing											
Miscellaneous Organic	224	0.847	167	0	N/A	167	27.9	0	N/A	27.9	195
Chemical Processes	224	0.647	107	U	IV/A	107	27.9	U	IN/A	21.9	190
(SICs combined)											
Formaldehyde,	125	0.472	22.2	0	N/A	22.2	103	0	N/A	103	125
Acrolein,	120	0.172	22.2	Ü	14//1	22.2	100	Ü	14//	100	120
Acetaldehyde,											
Butyraldehyde											
Chemical	119	0.450	79.4	0	N/A	79.4	0	0	N/A	0	79.4
Manufacturing:		22						-			
Chloroform Production											
Chemical	77.3	0.292	22.8	0	N/A	22.8	12.8	0	N/A	12.8	35.6
Manufacturing:							-				
Chloromethanes											
Production											
Fluorocarbon	45.9	0.173	43.0	0	N/A	43.0	0	0	N/A	0	43.0
Production											
Landfills: Chemical	41.1	0.155	0	28.494	N/A	28.5	0	5.816	N/A	5.82	34.3
Waste Emissions											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	37.5	0.142	23.3	0	N/A	23.3	9.43	0	N/A	9.43	32.8
resins manufacturing											
Organic fibers, non- cellulosic	36.5	0.138	21.3	1.122	N/A	22.4	1.53	0.080	N/A	1.61	24.0
manufacturing	20.5	0.445	24.6	1.004	N1/A	05.0	0.40	0.104	N1/A	2.40	20.7
Chemicals and allied	30.5	0.115	24.6	1.294	N/A	25.9	3.49	0.184	N/A	3.68	29.6
products	00.0	0.400	0.7	10.7/0		4.5	0.44	40.474		40.4	07.4
Food Products (SICs	29.0	0.109	0.7	13.762	N/A	14.5	0.66	12.461	N/A	13.1	27.6
combined)											
Utility Boilers: Coal	28.0	0.106	10.8	0	N/A	10.8	7.00	0	N/A	7.00	17.8
Combustion, All Types											
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	24.3	0.092	17.1	1.896	N/A	19.0	1.02	0.113	N/A	1.13	20.1
(SICs combined)	24.0	0.072	17.1	1.070	14/74	17.0	1.02	0.113	14/74	1.15	20.1
Synthetic rubber	24.3	0.092	20.9	0	N/A	20.9	3.09	0	N/A	3.09	24.0
manufacturing	24.5	0.072	20.7	U	11/7	20.7	3.07	O	11/7	3.07	24.0
Industrial gases	16.0	0.060	14.0	0.739	N/A	14.8	0	0	N/A	0	14.8
manufacturing	10.0	0.000	14.0	0.739	IV/A	14.0	U	U	IV/A	U	14.0
Industrial inorganic	11.8	0.045	8.56	0	N/A	8.56	0.35	0	N/A	0.351	8.92
chemical	11.0	0.043	0.50	U	IV/A	0.50	0.33	U	IV/A	0.331	0.72
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:	3.39	0.034	1.59	0.682	N/A	2.27	0	0.152	N/A	0.505	2.78
	3.39	0.013	1.39	0.062	IV/A	2.21	U	0.132	IV/A	0.505	2.70
Bituminous and Lignite											
Coal Combustion	3.25	0.012	1.61	0.537	N/A	2.15	0	0.143	N/A	0.574	2.72
Transportation	3.25	0.012	1.01	0.537	IV/A	2.15	U	0.143	IN/A	0.574	2.12
Equipment											
Manufacture (SICs	2.15	0.008	0	1.65	N/A	1.65	0	0.188	N/A	0.188	1.84
Sewage Sludge	2.15	0.008	Ü	1.05	IV/A	1.05	U	0.188	IN/A	0.188	1.84
Incineration	1.98	0.007	1.00	0.000	N/A	1.00	0	0	NI/A	0	1.98
Biological products	1.98	0.007	1.88	0.099	N/A	1.98	U	U	N/A	U	1.98
(disc.198,2835or2836)	1.40	0.005	0.000		N1/A	0.000			N1/A	0.075	1.00
Petroleum Refining:	1.42	0.005	0.803	0	N/A	0.803	0	0	N/A	0.275	1.08
Cyclic Crude and											
Intermediate											
Production											
Unsupported plastics	1.08	0.004	0.595	6.01E-03	N/A	0.601	0	2.02E-03	N/A	0.202	0.803
film and sheet											
manufacturing											
Hazardous Waste	0.772	0.003	0.518	0	N/A	0.518	0	0	N/A	0.115	0.633
Incineration:											
Dedicated HWIs											
Secondary Lead	0.328	0.001	0	0.111	N/A	0.231	0	0.0216	N/A	0.0451	0.276
Smelting						1	1				1

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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/Institution al 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

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

## Pollutant: Chromium & Compounds

Total Primary metal products combustion   Major Majo				URBAN-1	EMISSIONS			URBAN-2 I	EMISSIONS		
Chromium Plating	ource Category			Area Sources		Total Urban-1	•	Area Sources		Total Urban-2	Combined Urban Emissions
Hard Chromium Plating		Tons/yr	Tons/yr % of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fabricated metal products products petroleum Refining: (SICS petroleum Refining: (ALL PROCESSES) Utility Boliers: Coal Combustion, All Types Primary metal products density and a series of the primary metal products of the pr	mium Plating:	6.82	160 15.016	130	N/A	136	0.44	8.41	N/A	8.86	145
Products   Products   Pretroleum Refining:   81.28   7.647   59.40   0   N/A   59.40   17.51   0   N/A   17.50   0   N	Chromium Plating										
Manufacturing (SICs   Petroleum Refining: (ALL PROCESSES)   S1.28   7.647   59.40   0   N/A   59.40   17.51   0   N/A   17.51   (ALL PROCESSES)   Utility Boilers: Coal   Combustion, All Types   Combustion, Combustion, Combustion   Combustion   Combustion   Combustion   Combustion   Combustion   Combustion   Communical Boilers: Waste   Oil Combustion   Communical Industrial Boilers: Waste   Oil Combustion   Communical Industrial Inorganic   Combustion   Communical Industrial Inorganic   Combustion   Communical Industrial Inorganic   Combustion   Combu	cated metal	40.73	86.42 8.130	13.58	N/A	54.30	11.05	3.68	N/A	14.73	69.04
Petroleum Refining: (ALL PROCESSES)   (ALL PRO											
CALL PROCESSES    Utility Boilers: Coal   Combustion   Commutation   C											
Utility Boilers: Coal   Combustion, All Types   Coal   Combustion, All Types   Coal   Combustion, All Types   Coal   Combustion, All Types   Coal		59.40	81.28 7.647	0	N/A	59.40	17.51	0	N/A	17.51	76.91
Combustion, All Types         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           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           mills         17ansportation         43.83         4.124         21.74         7.25         N/A         28.99         5.80         1.93         N/A         7.74           Equipment Manufacture (SICs 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           Oil Combustion         32.89         3.094         5.14         20.56         N/A         25.70         0.84         3.34         N/A         4.18 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Primary metal products manufacturing (SICs combined)   S.721		27.00	70.00 6.586	0	N/A	27.00	17.50	0	N/A	17.50	44.50
manufacturing (SICs   combined)   SI23		47.44	(0.01	24.04		00.75	0.44	4.40	21/2	0.00	44.70
Combined   Blast furnaces and steel   51.23   4.820   18.60   22.74   N/A   41.34   3.91   4.78   N/A   8.69   mills   Transportation   43.83   4.124   21.74   7.25   N/A   28.99   5.80   1.93   N/A   7.74   Equipment   Manufacture (SICs   Industrial Boilers: Waste   38.35   3.608   18.02   7.72   N/A   25.74   4.00   1.72   N/A   5.72   Oil Combustion   Commercial/Institution   32.89   3.094   5.14   20.56   N/A   25.70   0.84   3.34   N/A   4.18   al Boilers: Bituminous and Lignite Coal   Combustion   Commission   Solution   Solu	,	17.44	60.81 5.721	21.31	N/A	38.75	3.61	4.42	N/A	8.03	46.78
Blast furnaces and steel   51.23   4.820   18.60   22.74   N/A   41.34   3.91   4.78   N/A   8.69   mills   Transportation   43.83   4.124   21.74   7.25   N/A   28.99   5.80   1.93   N/A   7.74   Equipment   Manufacture (SICs   Industrial Bollers: Waste   Oil Combustion   Combustion   Sollers: Bituminous											
Transportation		10.70	E1 22 4 820	22.74	NI/A	41.24	2.01	4.70	NI/A	0.40	50.03
Transportation	umaces and steel	18.60	51.23 4.820	22.74	IV/A	41.34	3.91	4.78	IN/A	8.09	50.03
Equipment   Manufacture (SICs   Industrial Boilers: Waste   38.35   3.608   18.02   7.72   N/A   25.74   4.00   1.72   N/A   5.72   Old Combustion   Commercial/Institution   32.89   3.094   5.14   20.56   N/A   25.70   0.84   3.34   N/A   4.18   Alberta	nortation	21.74	43.83 4.124	7 25	N/Δ	28 99	5.80	1 93	N/Δ	7 74	36.73
Manufacture (SICs 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           Oil Combustion         32.89         3.094         5.14         20.56         N/A         25.70         0.84         3.34         N/A         4.18           al Boilers: Bituminous and Lignite Coal Combustion         Combustion         N/A         23.39         0         N/A         23.39         0.96         0         N/A         0.96           Chemical         Nonclay refractories         30.17         2.838         1.35         25.67         N/A         27.02         0.01         0.11         N/A         0.12           Industrial Process         25.00         2.352         13.42         3.36         N/A         16.78         2.98         0.75         N/A         3.73           Cooling Towers         Industrial Machinery         24.53         2.308         9.82         3.27         N/A         13.10         4.53         1.51         N/A         6.04           Equipment (SICs         1.51         1.51         1.51         1.51         1.51         1.51         1.51         1.51         1.51         1.51		21.74	43.03	7.23	IV/A	20.77	3.00	1.73	IN/A	7.74	30.73
Industrial Boilers: Waste											
Oil Combustion         32.89         3.094         5.14         20.56         N/A         25.70         0.84         3.34         N/A         4.18           al Boilers: Bituminous and Lignite Coal Combustion         1         20.56         N/A         25.70         0.84         3.34         N/A         4.18           Industrial inorganic chemical         32.36         3.044         23.39         0         N/A         23.39         0.96         0         N/A         0.96           Nonclay refractories         30.17         2.838         1.35         25.67         N/A         27.02         0.01         0.11         N/A         0.12           Industrial Process         25.00         2.352         13.42         3.36         N/A         16.78         2.98         0.75         N/A         3.73           Cooling Towers         Industrial Machinery         24.53         2.308         9.82         3.27         N/A         13.10         4.53         1.51         N/A         6.04           Equipment (SICs         2.00         2.00         2.00         2.00         2.00         2.00         2.00         2.00         2.00         2.00         2.00         2.00         3.00         3.73         3		18.02	38 35 3 608	7 72	N/A	25 74	4 00	1 72	N/A	5.72	31.45
Commercial/Institution   32.89   3.094   5.14   20.56   N/A   25.70   0.84   3.34   N/A   4.18     Industrial inorganic   32.36   3.044   23.39   0   N/A   23.39   0.96   0   N/A   0.96     Chemical   Nonclay refractories   30.17   2.838   1.35   25.67   N/A   27.02   0.01   0.11   N/A   0.12     Industrial Process   25.00   2.352   13.42   3.36   N/A   16.78   2.98   0.75   N/A   3.73     Industrial Machinery   24.53   2.308   9.82   3.27   N/A   13.10   4.53   1.51   N/A   6.04     Equipment (SICs   Situminous   3.34   N/A   4.18     4.18   4.18     5.10   N/A   4.18     5.10   N/A   4.18     6.04   1.18     6.04   1.18     7.10   1.1		10.02	0.000	7.72		2017 1		2		0.72	01110
al Boilers: Bituminous and Lignite Coal       200		5.14	32.89 3.094	20.56	N/A	25.70	0.84	3.34	N/A	4.18	29.88
Combustion         32.36         3.044         23.39         0         N/A         23.39         0.96         0         N/A         0.96           chemical         Nonclay refractories         30.17         2.838         1.35         25.67         N/A         27.02         0.01         0.11         N/A         0.12           Industrial Process         25.00         2.352         13.42         3.36         N/A         16.78         2.98         0.75         N/A         3.73           Cooling Towers         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	lers: Bituminous										
Combustion         32.36         3.044         23.39         0         N/A         23.39         0.96         0         N/A         0.96           chemical         Nonclay refractories         30.17         2.838         1.35         25.67         N/A         27.02         0.01         0.11         N/A         0.12           Industrial Process         25.00         2.352         13.42         3.36         N/A         16.78         2.98         0.75         N/A         3.73           Cooling Towers         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	ignite Coal										
Industrial inorganic   32.36   3.044   23.39   0   N/A   23.39   0.96   0   N/A   0.96	oustion										
Nonclay refractories         30.17         2.838         1.35         25.67         N/A         27.02         0.01         0.11         N/A         0.12           Industrial Process         25.00         2.352         13.42         3.36         N/A         16.78         2.98         0.75         N/A         3.73           Cooling Towers         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		23.39	32.36 3.044	0	N/A	23.39	0.96	0	N/A	0.96	24.35
Industrial Process   25.00   2.352   13.42   3.36   N/A   16.78   2.98   0.75   N/A   3.73	nical										
Cooling Towers         9.82         3.27         N/A         13.10         4.53         1.51         N/A         6.04           Industrial Machinery and Electrical Equipment (SICs         Equipment (SICs         8.82         3.27         N/A         13.10         4.53         1.51         N/A         6.04	lay refractories	1.35		25.67		27.02	0.01	0.11	N/A		27.14
Industrial Machinery         24.53         2.308         9.82         3.27         N/A         13.10         4.53         1.51         N/A         6.04           and Electrical Equipment (SICs         Equipment (SICs)         4.53         1.51         N/A         6.04		13.42	25.00 2.352	3.36	N/A	16.78	2.98	0.75	N/A	3.73	20.51
and Electrical Equipment (SICs											
Equipment (SICs	,	9.82	24.53 2.308	3.27	N/A	13.10	4.53	1.51	N/A	6.04	19.14
14   1   0   0   0   0   0   0   0   0   0			00.01		44 50001/400/	44.54			0.05411/4544	0.05	15.10
Mobile Sources: On- 23.31 2.193 0 0 11.538N/A986 11.54 0 0 3.954N/A544 3.95		0	23.31 2.193	0	11.538N/A986	11.54	0	0	3.954N/A544	3.95	15.49
Road Vehicles         Iron and Steel         20.79         1.956         6.29         7.69         N/A         13.97         2.96         3.62         N/A         6.58		4.20	20.70 1.05/	7.40	NI/A	12.07	2.04	2.42	NI/A	/ F0	20.56
		0.29	20.79 1.956	7.09	IV/A	13.97	2.90	3.02	IN/A	0.58	20.56
Foundries: Steel Foundries											
Mobile Sources: Non- 17.47 1.644 0 0 12.12N/A686 12.12 0 0 2.47 2.47		0	17 //7 1 6///	0	12 12NI/A404	12 12	0	0	2.47	2.47	14.59
Road Vehicles and		U	17.47	U	12.12IN/A000	12.12	U	U	2.41	2.47	14.57
Equipment - Other											
Gray and ductile iron 16.17 1.521 3.10 3.78 N/A 6.88 1.38 1.69 N/A 3.07		3 10	16 17 1 521	3 78	N/A	6.88	1.38	1 69	N/A	3.07	9.94
foundries		5.10	1.021	5.75	14//	0.00	1.00	1.07	14// \	0.07	,,,,

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

				URBAN-1 E	MISSIONS			URBAN-2 I	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers:	14.93	1.404	7.01	3.01	N/A	10.02	1.56	0.67	N/A	2.23	12.24
Bituminous and Lignite											
Coal Combustion											
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	14.13	1.330	6.95	1.74	N/A	8.69	1.78	0.45	N/A	2.23	10.92
Combustion											
Commercial/Institution al 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/Institution al 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/Institution al 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

				URBAN-1 E	MISSIONS			URBAN-2 E	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	4.70	0.442	1.94	1.94	N/A	3.87	0.32	0.32	N/A	0.65	4.52
Combustion, All Types											
Coke Ovens: By-	4.36	0.410	3.91	0	N/A	3.91	0.30	0	N/A	0.30	4.21
product Recovery											
Plants											
Custom compound	4.33	0.407	3.23	0.03	N/A	3.26	0.34	0.00	N/A	0.35	3.61
purchased resins											
manufacturina											
Industrial Boilers:	4.25	0.400	2.00	0.86	N/A	2.85	0.44	0.19	N/A	0.63	3.49
Natural Gas											
Combustion											
Minerals, ground or	3.99	0.376	0.02	0.39	N/A	0.41	0.04	0.72	N/A	0.76	1.17
treated production	5.,,	5.576	0.02	3.57	, , ,	5.11	3.01	5.72	. 4// 1	5.75	,
Chromium Plating:	3.90	0.367	0.17	3.17	N/A	3.33	0.01	0.21	N/A	0.22	3.55
Chromic Anodizing	3.70	0.307	0.17	5.17	IN/A	3.33	0.01	0.21	IV/A	0.22	3.33
Primary Copper	3.61	0.340	0.15	0.45	N/A	0.60	0.50	1.51	N/A	2.02	2.62
Smelting	3.01	0.340	0.15	0.43	IV/A	0.00	0.50	1.51	IN/A	2.02	2.02
Industrial Turbines:	3.38	0.318	1.36	0.91	N/A	2.27	0.30	0.20	N/A	0.50	2.77
	3.30	0.316	1.30	0.91	IV/A	2.27	0.30	0.20	IV/A	0.50	2.11
Natural gas - fired	0.00	0.000	-	0.50	N/A	0.50		0.00	N/A	0.00	2.81
Sewage Sludge	3.28	0.308	0	2.52	N/A	2.52	0	0.29	N/A	0.29	2.81
Incineration	0.07	0.007	0.05	0.40	N1 / A	0.74	0.00	0.07	N1 / A	0.07	2.00
Fabricated metal	3.26	0.307	2.05	0.68	N/A	2.74	0.20	0.07	N/A	0.26	3.00
products, nec	0.00	0.070	0.10	0.44		0.04	0.07	0.00		0.07	0.00
Chemical Preparations	2.90	0.272	2.13	0.11	N/A	2.24	0.06	0.00	N/A	0.07	2.30
(SICs combined)								_			
Industrial organic	2.49	0.234	1.72	0	N/A	1.72	0.32	0	N/A	0.32	2.05
chemicals											
manufacturing											
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	2.18	0.205	1.24	0.41	N/A	1.65	0.00	0.00	N/A	0.00	1.65
finishing											
Other Secondary	2.17	0.204	0.88	1.07	N/A	1.95	0.04	0.05	N/A	0.08	2.04
Nonferrous Metals											
Recovery											
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	1.88	0.176	1.51	0.08	N/A	1.59	0.21	0.01	N/A	0.23	1.82
products											
Miscellaneous	1.85	0.174	1.03	0.18	N/A	1.21	0.22	0.04	N/A	0.26	1.47
Manufacturing (SICs	ĺ										
combined)											
Plastics products	1.77	0.166	0.99	0.01	N/A	1.00	0.39	0.00	N/A	0.40	1.40
manufacturing	ĺ										
Utility Turbines: Diesel -	1.72	0.162	0.81	0.35	N/A	1.15	0.18	0.08	N/A	0.26	1.41
Fired	=	*****									
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	0.01	N/A	0.06	1.50	0.01	N/A	1.50	1.56
ivitiogerious rectilizers	1.00	0.131	0.00	U	IN/ A	0.00	1.50	U	IV/ A	1.50	1.50

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Instruments and	1.58	0.149	0	1.37	N/A	1.37	0	0.09	N/A	0.09	1.46
Related Products (SICs											
combined)											
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	1.20	0.113	0	0.67	N/A	0.67	0	0.33	N/A	0.33	1.00
Gas Combustion	1.20	0.113	O	0.07	14/74	0.07	O	0.33	14/74	0.55	1.00
Industrial Boilers:	1.17	0.110	0.55	0.24	N/A	0.79	0.12	0.05	N/A	0.17	0.96
Residual Oil	1.17	0.110	0.55	0.24	14/74	0.77	0.12	0.03	14/74	0.17	0.70
Combustion											
Plastics materials and	1.08	0.102	0.68	0	N/A	0.68	0.27	0	N/A	0.27	0.95
resins manufacturing	1.00	0.102	0.00	U	11/7	0.00	0.27	O	11/7	0.27	0.73
Cleaning Products (SICs	1.00	0.094	0.67	0.04	N/A	0.70	0.21	0.01	N/A	0.22	0.93
combined)	1.00	0.074	0.07	0.04	IV/A	0.70	0.21	0.01	IV/A	0.22	0.73
Primary Aluminum	0.91	0.086	0.05	0.07	N/A	0.12	0.14	0.17	N/A	0.30	0.42
Production	0.71	0.000	0.03	0.07	11/7	0.12	0.14	0.17	11/7	0.50	0.42
Pressed and blown	0.87	0.081	0.01	0.15	N/A	0.16	0.02	0.35	N/A	0.36	0.52
glass and glassware	0.07	0.001	0.01	0.15	14/74	0.10	0.02	0.33	14/74	0.50	0.52
manufacturing											
Other Miscellaneous	0.79	0.074	0.55	0.06	N/A	0.62	0.03	0.00	N/A	0.04	0.65
(SICs combined)	0.77	0.074	0.55	0.00	14/74	0.02	0.03	0.00	14/74	0.04	0.03
Iron and Steel Foundries	0.75	0.071	0	0	N/A	0	0.32	0.39	N/A	0.71	0.71
non and steem oundres	0.75	0.071	O	J	14/7-4	Ü	0.52	0.57	14/7-3	0.71	0.71
Municipal Waste	0.72	0.068	0.53	0.03	N/A	0.55	0.09	0.00	N/A	0.09	0.65
Combustion											
Medical Waste	0.70	0.066	0.08	0.44	N/A	0.52	0.02	0.09	N/A	0.11	0.62
Incineration											
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	0.53	0.050	0.01	0.25	N/A	0.26	0.01	0.23	N/A	0.24	0.50
combined)											
Unsupported plastics	0.50	0.047	0.47	0.00	N/A	0.47	0.00	0.00	N/A	0.00	0.47
profile shapes (1987)											
Sawmills and planing	0.50	0.047	0.00	0	N/A	0.00	0.49	0	N/A	0.49	0.49
mills, general											
Steel and Iron	0.50	0.047	0.13	0.38	N/A	0.50	0	0	N/A	0	0.50
Reclamation- Auto											
Scrap Burning											
Mineral Wool	0.46	0.043	0.01	0.23	N/A	0.25	0.01	0.16	N/A	0.17	0.42
Manufacturing					-				•	-	
Primary nonferrous	0.41	0.039	0.09	0.11	N/A	0.19	0.05	0.06	N/A	0.10	0.29
metals production											
Ship Building & Repair	0.41	0.039	0.25	0.08	N/A	0.33	0.01	0.00	N/A	0.01	0.34
(Surface Coating)											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Plastics	0.40	0.037	0.16	0.00	N/A	0.16	0.15	0.00	N/A	0.16	0.31
Products											
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/Institution al 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	0.14	0.013	0	0.09	N/A	0.09	0	0.02	N/A	0.02	0.11
Tires											
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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions Tons/yr	% Contribution of Total Emissions % of Total	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-1	Major Sources Tons/yr	Area Sources	Mobile Sources Tons/yr	Total Urban-2	Combined Urban Emissions 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

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

Pollutant: Coke Oven Emissions

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

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.

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

				URBAN-1	EMISSIONS			URBAN-2	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Carbon Black	1.14	81.593	0.0693	0.1616	N/A	0.231	0.199	0.463	N/A	0.662	0.893
Manufacture											
Industrial organic	0.250	17.972	0.173	0	N/A	0.173	0.0323	0	N/A	0.0323	0.206
chemicals											
manufacturing											
Municipal Waste	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
Combustion											
Medical Waste	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
Incineration											
Portland Cement	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
Manufacture:											
Hazardous Waste-fired											
Residential Boilers:	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
Anthracite Coal											
Combustion						_	_				
Secondary Aluminum	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
Smelting	4 (05.01	0.010		0.005.05		0.005.05		0.445.05		0.445.05	4.405.04
Other Biological	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
Incineration	4 505 04	0.011	F 70F 0F		N1 / A	F 70F 0F	0.755.05	^	N1 / A	0.755.05	0.545.05
Utility Boilers: Coal	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
Combustion, All Types Industrial Boilers:	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
Wood/Wood Residue	1.13E-04	0.008	5.50E-U5	1.39E-05	IV/A	0.94E-U5	1.43E-05	3.57E-U0	IN/A	1.78E-05	8.73E-U5
Combustion											
Mobile Sources: On-	9.50E-05	0.007	0	0	N/A.N/AN/A	4.70E-05	0	0	N/A.N/AN/A	1.61E-05	6.31E-05
Road Vehicles	7.302 03	0.007	o		N/AN/A47N/ A155	4.702 03	O		N/AN/A16112	1.012 03	0.312 03
Open Burning: Forest	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
and Wildfires											
Portland Cement	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
Manufacture: Non-											
Hazardous Waste fired											
Open Burning:	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
Prescribed Burnings											
Wood Treatment/Wood	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
Preserving											
Residential Boilers:	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
Wood/Wood Residue											
Combustion											
Hazardous Waste	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
Incineration:											
Dedicated HWIs					<u> </u>						

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>Ethyl Acrylate</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	641	80.024	641	0	N/A	641	0	0	N/A	0	641
Manufacturing:											
Organic Acid											
Plastic Material and	50.9	6.356	33.1	3.68	N/A	36.8	8.74	0.971	N/A	9.71	46.5
Resins Manufacture											
Miscellaneous Organic	50.8	6.351	37.9	0	N/A	37.9	6.32	0	N/A	6.32	44.2
Chemical Processes											
(SICs combined)											
Industrial organic	35.1	4.383	24.3	0	N/A	24.3	4.53	0	N/A	4.53	28.9
chemicals											
manufacturing											
Petroleum Refining:	8.47	1.057	6.19	0	N/A	6.19	1.82	0	N/A	1.82	8.01
(ALL PROCESSES)											
Paints and allied	3.45	0.430	2.93	0	N/A	2.93	0.23	0	N/A	0.2329	3.16
products											
Chemical Preparations	2.41	0.301	1.77	0.093	N/A	1.86	0.05	0.003	N/A	0.0553	1.92
(SICs combined)	1.0	0.011		4.47		4.47		0.0000		0.0000	3.54
Instruments and	1.69	0.211	0	1.47	N/A	1.47	0	0.0909	N/A	0.0909	1.56
Related Products (SICs											
combined)	1.25	0.457	4.40	0.050	N1/A	4.40	0.0010	0.004	N1/A	0.0004	1.00
Adhesives and Sealants	1.25	0.156	1.12	0.059	N/A	1.18	0.0213	0.001	N/A	0.0224	1.20
(SICs combined) Industrial inorganic	1.14	0.143	0.825	0	N/A	0.825	0.0338	0	N/A	0.0338	0.8587
chemical	1.14	0.143	0.825	U	N/A	0.825	0.0338	U	N/A	0.0338	0.8387
Cleaning Products (SICs	0.975	0.122	0.651	0.034	N/A	0.686	0.2055	0.0108	N/A	0.2164	0.9021
combined)	0.975	0.122	0.051	0.034	IN/A	0.080	0.2033	0.0108	IV/A	0.2104	0.9021
Plastics products	0.677	0.085	0.381	0.004	N/A	0.385	0.1505	1.52E-03	N/A	0.1521	0.5370
manufacturing	0.077	0.000	0.001	0.001	14//	0.000	0.1000	1.022 00	14// (	0.1021	0.0070
Unsupported plastics	0.550	0.069	0.304	0.003	N/A	0.307	0.1023	1.03E-03	N/A	0.1033	0.4102
film and sheet	0.000	0.007	0.001	0.000		0.007	0020	1.002 00		0.1000	002
manufacturing											
Pharmaceuticals	0.546	0.068	0.439	0.023	N/A	0.463	0.0437	2.30E-03	N/A	0.0460	0.5086
Preparations and											
Manufacturing (SICs											
combined)											
Synthetic rubber	0.452	0.056	0.388	0	N/A	0.388	0.0574	0	N/A	0.0574	0.4453
manufacturing											
Other Miscellaneous	0.452	0.056	0.317	0.035	N/A	0.352	0.0189	2.10E-03	N/A	0.0210	0.3731
(SICs combined)											
Miscellaneous Plastics	0.375	0.047	0.149	1.51E-03	N/A	0.151	0.146	1.47E-03	N/A	0.1475	0.2981
Products											

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

				URBAN-1 E	MISSIONS						
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: <u>Ethylene Dibromide</u>

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

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

Pollutant: <u>Ethylene Dichloride</u>

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

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

I		% Contribution of Total Emissions		URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions		Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	32.70	0.202	26.34	1.39	N/A	27.73	3.74	0.20	N/A	3.94	31.67
products											
Miscellaneous Plastics	30.15	0.187	11.99	0.12	N/A	12.11	11.74	0.12	N/A	11.86	23.97
Products											
Fabricated metal	30.04	0.186	18.91	6.30	N/A	25.22	1.81	0.60	N/A	2.41	27.63
products, nec											
Utility Boilers: Coal	27.00	0.167	10.41	0	N/A	10.41	6.75	0	N/A	6.75	17.16
Combustion, All Types											
Synthetic rubber	23.70	0.147	20.34	0	N/A	20.34	3.01	0	N/A	3.01	23.35
manufacturing											
Plastics materials and	22.10	0.137	13.76	0	N/A	13.76	5.56	0	N/A	5.56	19.32
resins manufacturing											
Transportation	15.60	0.097	7.74	2.58	N/A	10.32	2.06	0.69	N/A	2.75	13.07
Equipment											
Manufacture (SICs											
Instruments and	11.70	0.072	0	10.16	N/A	10.16	0	0.63	N/A	0.63	10.79
Related Products (SICs											
combined)											
Petroleum Refining:	4.90	0.030	3.58	0	N/A	3.58	1.06	0	N/A	1.06	4.64
(ALL PROCESSES)											
Industrial gases	4.81	0.030	4.22	0.22	N/A	4.45	0	0	N/A	0	4.45
manufacturing											
Cleaning Products (SICs	4.38	0.027	2.92	0.15	N/A	3.08	0.92	0.05	N/A	0.97	4.05
combined)											
Chemical Preparations	4.19	0.026	3.08	0.16	N/A	3.24	0.09	0.00	N/A	0.10	3.33
(SICs combined)											
Chemical	4.00	0.025	0.69	0	N/A	0.69	3.14	0	N/A	3.14	3.83
Manufacturing:											
Tetrachloroethylene											
Industrial Boilers:	2.30	0.014	1.08	0.46	N/A	1.54	0.24	0.10	N/A	0.34	1.88
Bituminous and Lignite											
Coal Combustion	0.70	0.005	0.00	0.50		0.50	0.00	0.10		0.10	0.70
Medical Waste	0.79	0.005	0.09	0.50	N/A	0.58	0.02	0.10	N/A	0.12	0.70
Incineration	0.50	0.004	0	0.40	N1 / A	0.40		0.00	N1/0	0.00	0.40
Consumer Products	0.58	0.004	0	0.40	N/A	0.40	0	0.08	N/A	0.08	0.48
Usage (SICs combined)	0.38	0.002	0.20	0.00	N/A	0.20	0.11	0.00	N/A	0.11	0.31
Plastics foam products	0.38	0.002	0.20	0.00	IV/A	0.20	0.11	0.00	IV/A	0.11	0.31
manufacturing Ship Building & Repair	0.13	0.001	0.08	0.03	N/A	0.10	0.00	0.00	N/A	0.00	0.11
Snip Building & Repair (Surface Coating)	0.13	0.001	0.08	0.03	IN/A	0.10	0.00	0.00	IV/A	0.00	0.11
(Surrace Coating) Portland Cement	0.12	0.001	0.06	0.01	N/A	0.07	0.02	0.00	N/A	0.02	0.09
Portiand Cement Manufacture: All Fuels	0.12	0.001	0.06	0.01	IN/A	0.07	0.02	0.00	IN/A	0.02	0.09
Commercial/Institution	0.07	0.000	0.01	0.05	N/A	0.06	0.00	0.01	N/A	0.01	0.07
al Boilers: Bituminous	0.07	0.000	0.01	0.05	IV/A	0.00	0.00	0.01	IV/A	0.01	0.07
and Lignite Coal											
and Lighile Coal  Combustion											
COTTIDUSTION								ı			

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

			URBAN-1 EMISSIONS								
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: Ethylene Oxide

Source Category   Total   Scontinbution of   Major   Sources   Area Sources   Source					URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Chemical Manufacturing:	Source Category		Total Emissions	Sources		Sources		Sources		Sources		Combined Urban Emissions
Manufacturing: Ethylene Oxide   Storage and handling:   Storage and handling				Tons/yr	Tons/yr		Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Ethylene Oxide (ctorage and handling) Chemical Manufacturing: Ethylene Oxide Consumer Products (Consumer Products) 1,878 11,296 0 1,303 N/A 1,303 0 266 N/A 266 1,566 N/A 266 N/A 266 1,566 N/A 266		7,895	47.495	6,184	0	N/A	6,184	1,000	0	N/A	1,000	7,185
Storage and handling    Chemical   3,167   19.054   2,481   0   N/A   2,481   401   0   N/A   401   2,862   401   401   0   N/A   401   2,862   401   401   0   N/A   401   2,862   401   401   401   401   401   2,862   401   40	O O											
Chemical Manufacturing:   Ethylene Oxide   Consumer Products   1,878   11.296   0   1.303   N/A   1.303   0   266   N/A   266   1.569   N/A	,											
Manufacturing: Ethylene Oxide   Strive   Striv												
Ethylene Oxide Consumer Products Usage (SICs combined) Commercial sterilization 1,878 11.296 0 1,303 N/A 1,303 0 266 N/A 266 1,565 Usage (SICs combined) 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 1,872 211 0 N/A 211 39 0 N/A 39,20 250 Chemicals Chemicals Chemical Products (SICs Combined) Chemical Chemical Products (SICs Chemical Processes (SICs combined) Industrial inorganic 200 1,203 145 0 N/A 145 0 N/A 145 38 0 N/A 38.16 183 Manufacturing: Polyether Polyols Miscellaneous Organic (SICs combined) Industrial inorganic Chemical Ususupported plastics film and sheet Chemical Chemic		3,167	19.054	2,481	0	N/A	2,481	401	0	N/A	401	2,882
Consumer Products   1,878   11,296   0   1,303   N/A   1,303   0   266   N/A   266   1,565												
Usage (SICs combined)   Commercial sterilization   1,225   7.369   0   850   N/A   850   0   173   N/A   173   1,023												
Commercial sterilization   1,225		1,878	11.296	0	1,303	N/A	1,303	0	266	N/A	266	1,569
Hospital sterilizers												
Industrial organic   Chemicals   Chemicals   Chemical	Commercial sterilization	1,225	7.369	0	850	N/A	850	0	173	N/A	173	1,023
Chemicals   Chemicals   Chemicals   Chemicals   Chemicals   Chemicals   Chemicals   Chemicals   Chemical   C	Hospital sterilizers				871			0	126	N/A		
Manufacturing   Manufacturin	Industrial organic	304	1.827	211	0	N/A	211	39	0	N/A	39.20	250
Instruments and Related Products (SICs combined)	chemicals											
Related Products (SICs combined) Chemical 200 1.203 145 0 N/A 145 38 0 N/A 38.16 183 Manufacturing: Polyether Polyols Miscellaneous Organic 142 0.857 106 0 N/A 106 18 0 N/A 17.70 124 Chemical Processes (SICs combined) Industrial inorganic 90.80 0.546 65.64 0 N/A 65.64 2.69 0 N/A 2.69 68.33 Chemical Unsupported plastics film and sheet manufacturing Industrial Machinery and Electrical Equipment (SICs Food Products (SICs 40.94 0.250 16.62 5.54 N/A 22.16 7.66 2.55 N/A 10.22 32.38 Equipment (SICs Food Products (SICs 40.94 0.246 1.02 19.45 N/A 20.48 0.93 17.61 N/A 18.54 39.02 combined) Surface active agents 29.05 0.175 23.44 1.23 N/A 24.67 3.37 0.18 N/A 3.55 28.22 manufacturing Miscellaneous Plastics 91.00 N/A 8.60 17.42 Products	manufacturing											
Combined   Chemical   Chemical Processes   Clics combined   Chemical Processes   Clics combined   Chemical Industrial inorganic   Chemical Processes   Clics combined   Chemical   Chemic	Instruments and	229	1.377	0	199	N/A	199	0	12.315	N/A	12.32	211
Chemical   200   1.203   145   0   N/A   145   38   0   N/A   38.16   183     Manufacturing: Polyether Polyols     Miscellaneous Organic   142   0.857   106   0   N/A   106   18   0   N/A   17.70   124     Chemical Processes (SICs combined)     Industrial inorganic   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     Industrial Machinery and Electrical Equipment (SICs   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   29.05   0.175   23.44   1.23   N/A   24.67   3.37   0.18   N/A   3.55   28.22     Products   Products   21.91   0.132   8.71   0.09   N/A   8.80   8.53   0.09   N/A   8.62   17.42     Only Alexandra   1.20	Related Products (SICs											
Manufacturing:   Polyether Polyols   Miscellaneous Organic   142   0.857   106   0   N/A   106   18   0   N/A   17.70   124   17.70   17.70   124   17.70   124   17.70   124   17.70   17.70   124   17.70   17.70   124   17.70   17.70   124   17.70	combined)											
Polyether Polyols   Miscellaneous Organic   142   0.857   106   0   N/A   106   18   0   N/A   17.70   124		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												
Chemical Processes (SICs combined) Industrial inorganic chemical Unsupported plastics If manufacturing Industrial Machinery and Electrical Equipment (SICs Food Products (SICs agents manufacturing  Surface active agents manufacturing  Surface active agents manufacturing  Miscellaneous Plastics (SICs combined)  0.546 0.5564 0.00 0.0546 0.0564 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.												
Silcs combined   Silc	<u> </u>	142	0.857	106	0	N/A	106	18	0	N/A	17.70	124
Industrial inorganic												
Chemical         Unsupported plastics         55.65         0.335         30.74         0.31         N/A         31.05         10.35         0.10         N/A         10.46         41.50           film and sheet manufacturing         Industrial Machinery and Electrical         41.50         0.250         16.62         5.54         N/A         22.16         7.66         2.55         N/A         10.22         32.38           and Electrical Equipment (SICs         Equipment (SICs         40.94         0.246         1.02         19.45         N/A         20.48         0.93         17.61         N/A         18.54         39.02           combined)         Surface active agents and facturing         29.05         0.175         23.44         1.23         N/A         24.67         3.37         0.18         N/A         3.55         28.22           Miscellaneous Plastics         21.91         0.132         8.71         0.09         N/A         8.80         8.53         0.09         N/A         8.62         17.42												
Unsupported plastics   55.65   0.335   30.74   0.31   N/A   31.05   10.35   0.10   N/A   10.46   41.50   film and sheet manufacturing   Industrial Machinery   41.50   0.250   16.62   5.54   N/A   22.16   7.66   2.55   N/A   10.22   32.38   and Electrical Equipment (SICs   Food Products (SICs   40.94   0.246   1.02   19.45   N/A   20.48   0.93   17.61   N/A   18.54   39.02   20.05   20.07		90.80	0.546	65.64	0	N/A	65.64	2.69	0	N/A	2.69	68.33
film and sheet manufacturing												
manufacturing         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           Equipment (SICs 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		55.65	0.335	30.74	0.31	N/A	31.05	10.35	0.10	N/A	10.46	41.50
Industrial Machinery   41.50   0.250   16.62   5.54   N/A   22.16   7.66   2.55   N/A   10.22   32.38     Equipment (SICs   Food Products (SICs   40.94   0.246   1.02   19.45   N/A   20.48   0.93   17.61   N/A   18.54   39.02     Combined   Surface active agents   29.05   0.175   23.44   1.23   N/A   24.67   3.37   0.18   N/A   3.55   28.22     Miscellaneous Plastics   21.91   0.132   8.71   0.09   N/A   8.80   8.53   0.09   N/A   8.62   17.42     Products   Products   2.55   N/A   10.22   32.38     N/A   22.16   7.66   2.55   N/A   10.22   32.38     N/A   20.48   0.93   17.61   N/A   18.54   39.02     N/A   24.67   3.37   0.18   N/A   3.55   28.22     N/A												
and Electrical Equipment (SICs Food Products (SICs 40.94 0.246 1.02 19.45 N/A 20.48 0.93 17.61 N/A 18.54 39.02 combined) Surface active agents 29.05 0.175 23.44 1.23 N/A 24.67 3.37 0.18 N/A 3.55 28.22 manufacturing Miscellaneous Plastics 21.91 0.132 8.71 0.09 N/A 8.80 8.53 0.09 N/A 8.62 17.42 Products		44.50	0.050	1/ /0	5.54	N1/A	00.47	7.//	0.55	N1/A	40.00	20.00
Equipment (SICs         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 combined)           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 combined)           Miscellaneous Plastics Plastics         21.91         0.132         8.71         0.09         N/A         8.80         8.53         0.09         N/A         8.62         17.42 combined)	,	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 combined)           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 combined)           Miscellaneous Plastics Ploucts         21.91         0.132         8.71         0.09         N/A         8.80         8.53         0.09         N/A         8.62         17.42 combined)												
combined)         Surface active agents         29.05         0.175         23.44         1.23         N/A         24.67         3.37         0.18         N/A         3.55         28.22           manufacturing         Miscellaneous Plastics         21.91         0.132         8.71         0.09         N/A         8.80         8.53         0.09         N/A         8.62         17.42           Products		40.04	0.247	1.00	10.45	N1/A	20.40	0.00	17 / 1	N1/A	10.54	20.02
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	,	40.94	0.246	1.02	19.45	N/A	20.48	0.93	17.61	N/A	18.54	39.02
manufacturing         Image: Control of the Contr	,	29.05	0.175	23.44	1 23	Ν/Δ	24.67	3 37	0.18	Ν/Δ	3 55	28 22
Miscellaneous Plastics 21.91 0.132 8.71 0.09 N/A 8.80 8.53 0.09 N/A 8.62 17.42 Products	S	27.00	0.175	23.44	1.23	IV/A	24.07	3.37	0.10	IV/A	3.33	20.22
Products		21 Q1	0.132	8 71	0.09	N/Δ	8 80	8 53	0.09	NI/Δ	8.62	17 //2
		∠1.71	0.132	0.71	0.09	13/ 🗸	0.00	0.55	0.07	11/ 🔼	0.02	17.44
Fabricated rubber   21.90   0.132   21.68   0.22   N/A   21.90   0   0   N/Δ   0   21.90	Fabricated rubber	21.90	0.132	21.68	0.22	N/A	21.90	0	0	N/A	0	21.90
products 0.132 21.70 0.132 21.70 0.22 10/A 21.70 0 10/A 0 21.70		21.70	0.102	21.00	0.22	14//-1	21.70	J		14//-1		21.70

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions % of Total	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Urban Emissions
	Tons/yr		Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	21.60	0.130	3.60	8.40	N/A	11.99	1.15	2.68	N/A	3.83	15.83
Manufacturing:											
Alkalies and chlorine	10.40	0.110	40.70	0.70	N1/A	44.45	0.44	0.00	N1/A	0.40	1100
Chemical Preparations	18.69	0.112	13.73	0.72	N/A	14.45	0.41	0.02	N/A	0.43	14.88
(SICs combined) Pharmaceuticals	17.70	0.106	14.27	0.75	N/A	15.01	1.42	0.07	N/A	1.49	16.50
	17.70	0.106	14.26	0.75	N/A	15.01	1.42	0.07	N/A	1.49	16.50
Preparations and											
Manufacturing (SICs											
combined) Plastics products	12.81	0.077	7.21	0.07	N/A	7.29	2.85	0.0288	N/A	2.88	10.16
manufacturing	12.01	0.077	7.21	0.07	IV/A	1.27	2.00	0.0288	IV/A	2.00	10.10
Gum and wood	7.02	0.042	0.03	1.32E-03	N/A	0.0264	6.57	0.346	N/A	6.92	6.94
chemical	7.02	0.042	0.03	1.522 05	14/7-4	0.0204	0.57	0.540	14/7-4	0.72	0.74
Cleaning Products (SICs	6.18	0.037	4.13	0.217	N/A	4.35	1.30	0.0686	N/A	1.37	5.72
combined)	0.10	0.007	1.10	0.217	14//1	1.55	1.50	0.0000	14//1	1.07	0.72
Petroleum Refining:	5.71	0.034	3.24	0	N/A	3.24	1.11	0	N/A	1.11	4.35
Cyclic Crude and			·								
Intermediate											
Production											
Miscellaneous	3.97	0.024	2.21	0.390	N/A	2.60	0.466	0.0823	N/A	0.549	3.15
Manufacturing (SICs											
combined)											
Synthetic rubber	3.78	0.023	3.25	0	N/A	3.25	0.480	0	N/A	0.480	3.73
manufacturing											
Other Miscellaneous	3.78	0.023	2.65	0.295	N/A	2.95	0.158	0.0175	N/A	0.175	3.12
(SICs combined)											
Petroleum Refining:	3.40	0.020	2.48	0	N/A	2.48	0.732	0	N/A	0.732	3.22
(ALL PROCESSES)											
Industrial gases	1.84	0.011	1.62	0.0852	N/A	1.70	0	0	N/A	0	1.70
manufacturing											
Chemicals and allied	1.69	0.010	1.36	0.0715	N/A	1.43	0.193	0.0102	N/A	0.203	1.63
products											
Electronic and other	0.0485	0.000	0.0201	0.0067	N/A	0.0267	0.0086	0.0029	N/A	0.0115	0.0382
electric equipment											
manufacturing (SICs											
combined)				<del>                                     </del>							
Agricultural Chemicals	0.0175	0.000	0.0067	0	N/A	0.0067	0.0107	0	N/A	0.0107	0.0175

## Pollutant: Formaldehyde

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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-	97,506	35.30	N/A	N/A	48,256	48,256	N/A	N/A	16,537	16,537	64,793
Road Vehicles											
Open Burning: Forest	68,238	24.70	0	4231	N/A	4231	0	9956	N/A	9956	14,187
and Wildfires											
Open Burning:	58,610	21.22	0	8627	N/A	8627	0	13170	N/A	13170	21,797
Prescribed Burnings											
Mobile Sources: Non-	26,864	9.73	N/A	N/A	18,638	18,638	N/A	N/A	3804	3804	22,442
Road Vehicles and											
Equipment - Other											
Mobile Sources: Non-	6,790	2	N/A	N/A	5,862	5,862	N/A	N/A	724	724	6,586
Road Vehicles and											
Equipment - Aircraft	2000	1.10	000		N1 / A	000	0/7	0	N1 / A	0.47	4757
Pulp and Paper: Non-	3080	1.12	889	0	N/A	889	867	0	N/A	867	1756
Combustion Sources	2217	0.00		1500	NI/A	1520	0	21.4	NI/A	214	1050
Structure Fires Reconstituted wood	2217 1430	0.80 0.52	0 61.5	1538 0	N/A N/A	1538 61.5	242	314 0	N/A N/A	314 242	1852 303
products (1987)	1430	0.52	01.5	U	N/A	01.5	242	U	IV/A	242	303
Miscellaneous Organic	1281	0.46	954	0	N/A	954	159	0	N/A	159	1114
Chemical Processes	1201	0.40	734	U	IN/A	754	137	U	IVA	139	1114
(SICs combined)											
Industrial Turbines:	932	0.34	375	250	N/A	625	83.4	55.6	N/A	139	764
Natural gas - fired	, , , ,	0.01	0,0	200		020	00.1	00.0		107	,
Mineral Wool	811	0.29	21.9	416	N/A	438	15.2	289	N/A	304	742
Manufacturing											
Industrial organic	792	0.29	550	0	N/A	550	102	0	N/A	102	652
chemicals											
manufacturing											
Industrial Boilers:	743	0.27	365	91.3	N/A	457	93.8	23.4	N/A	117	574
Wood/Wood Residue											
Combustion											
Pulp and Paper: Kraft	657	0.24	190	0	N/A	190	185	0	N/A	185	374
Recovery Furnaces											
Stationary	630	0.23	254	169	N/A	423	56.4	37.6	N/A	93.9	517
Reciprocating IC											
Engines: Natural gas -											
fired	/00	0.22	42.4	0	NI/A	424	114		NI/A	114	F 40
Chemical	600	0.22	434	0	N/A	434	114	0	N/A	114	548
Manufacturing: Amino											
and Phenolic Resins Industrial Boilers:	599	0.22	282	121	N/A	402	62.5	26.8	N/A	89.3	491
	299	U.22	282	121	IN/A	402	02.5	20.8	IV/A	89.3	491
Natural Gas											
Combustion											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	575	0.21	358	0	N/A	358	145	0	N/A	145	503
resins manufacturing											
Pulp and Paper:	385	0.14	29.6	0	N/A	29.6	59.2	0	N/A	59.2	89
Semichemical Recovery											
Pharmaceuticals	351	0.13	283	14.9	N/A	298	28.2	1.5	N/A	29.6	327
Preparations and											
Manufacturing (SICs											
combined)											
Particleboard (disc.	329	0.12	0	0	N/A	0	173	0	N/A	173	173
1987, 2493)			-	-		-					
Wood Products	326	0.12	24.0	0	N/A	24.0	155	0	N/A	155	179
Pressed and blown	214	0.08	1.92	36.5	N/A	38.4	4.49	85.4	N/A	89.9	128
glass and glassware	۷۱۲	0.00	1.72	30.3	13/ 🔿	50.4	7.47	00.4	14/ 🔼	07.7	120
manufacturing											
	201	0.07	41.8	41.8	N/A	83.5	8.24	8.24	N/A	16.5	100
Textiles (SICs combined)	201	0.07	41.8	41.8	N/A	83.5	8.24	8.24	IV/A	10.5	100
Consumer Products	157	0.06	0	109	N/A	109	0	22.2	N/A	22.2	131
Usage (SICs combined)											
Industrial inorganic	121	0.04	87.1	0	N/A	87.1	3.58	0	N/A	3.58	90.7
chemical											
Transportation	119	0.04	59.1	19.7	N/A	78.7	15.8	5.25	N/A	21.0	100
Equipment								1			
Manufacture (SICs											
Petroleum Refining:	115	0.04	84.2	0	N/A	84.2	24.8	0	N/A	24.8	109
(ALL PROCESSES)	115	0.04	04.2	O	14/74	04.2	24.0	U	14/74	24.0	107
Hardwood veneer and	102	0.04	0	0	N/A	0	7.85	0	N/A	7.85	7.85
plywood	102	0.04	O	U	IV/A	U	7.03	U	IV/A	7.05	7.03
Gray and ductile iron	95.5	0.03	18.3	22.3	N/A	40.6	8.15	10.0	N/A	18.1	58.7
foundries	75.5	0.03	10.5	22.3	IV/A	40.0	0.15	10.0	IVA	10.1	36.7
Petroleum Refining:	86.6	0.03	49.1	0	N/A	49.1	16.8	0	N/A	16.8	66.0
~	80.0	0.03	49.1	U	N/A	49.1	10.8	U	IV/A	10.8	00.0
Cyclic Crude and											
Intermediate											
Production											
Commercial/Institutiona	84.3	0.03	13.2	52.7	N/A	65.9	2.14	8.56	N/A	10.7	76.6
l Boilers: Distillate Oil											
Combustion											
Millwork, Plywood, and	71.8	0.03	0.550	0	N/A	0.550	71.2	0	N/A	71.2	71.8
Structural Members				1							
Paper coated and	60.1	0.02	40.8	4.04	N/A	44.9	13.4	1.33	N/A	14.7	59.6
laminated, packaging											
Pulp and Paper: Sulfite	60.0	0.02	20.0	0	N/A	20.0	30.0	0	N/A	30.0	50.0
Recovery											
Industrial Boilers:	58.8	0.02	27.6	11.8	N/A	39.4	6.13	2.63	N/A	8.76	48.2
Residual Oil Combustion											

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

I				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	56.6	0.02	27.4	9.13	N/A	36.5	4.21	1.40	N/A	5.61	42.1
and wet,											
Utility Boilers: Natural	55.0	0.02	0	30.9	N/A	30.9	0	15.0	N/A	15.0	45.9
Gas Combustion Commercial/Institutiona	53.2	0.02	8.32	33.3	N/A	41.6	1.35	5.41	N/A	6.76	48.4
l Boilers: Residual Oil	33.2	0.02	0.32	33.3	IV/A	41.0	1.55	5.41	IV/A	0.76	40.4
Combustion											
Miscellaneous Plastics	49.1	0.02	19.5	0	N/A	19.7	19.1	0.193	N/A	19.3	39.0
Products											
Industrial Boilers:	39.3	0.01	18.5	7.91	N/A	26.4	4.10	1.76	N/A	5.86	32.2
Distillate Oil Combustion											
Chemical Preparations	37.6	0.01	27.6	1.45	N/A	29.1	0.820	0.043	N/A	0.86	29.9
(SICs combined)	37.0	0.01	27.0	1.45	1 4/ /-1	27.1	0.020	0.040	1 1/ / 7	0.00	27.7
Utility Turbines: Diesel -	37.0	0.01	17.4	7.46	N/A	24.9	3.87	1.66	N/A	5.52	30.4
Fired											
Utility Boilers: Coal	35.0	0.01	13.5	0	N/A	13.5	8.75	0	N/A	8.75	22.2
Combustion, All Types											
Municipal Waste	33.2	0.01	24.3	1.28	N/A	25.6	3.98	0.209	N/A	4.19	29.8
Combustion											
Industrial Machinery	31.0	0.01	12.4	4.13	N/A	16.5	5.72	1.91	N/A	7.62	24.2
and Electrical											
Equipment (SICs											
Softwood veneer and	27.8	0.01	1.70	0	N/A	1.70	7.90	0	N/A	7.90	9.60
plywood											
Abrasive Grain (Media)	27.8	0.01	0.97	18.4	N/A	19.3	0.0929	1.76	N/A	1.86	21.2
Manufacturing											
Iron and Steel	25.3	0.01	7.65	9.35	N/A	17.0	3.61	4.41	N/A	8.01	25.0
Foundries: Steel											
Foundries											
Cellulosic man-made	25.0	0.01	25.0	0	N/A	25.0	0	0	N/A	0	25.0
fibers											
Electronic and other	24.7	0.01	10.2	3.41	N/A	13.6	4.39	1.46	N/A	5.85	19.5
electric equipment											
manufacturing (SICs											
combined)											
Chemical	20.7	0.01	3.20	0	N/A	3.20	17.5	0	N/A	17.5	20.7
Manufacturing:											
Polyacetal Resins											
Utility Boilers: Oil	19.0	0.01	7.82	7.82	N/A	15.6	1.30	1.30	N/A	2.61	18.3
Combustion, All Types											
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	18.3	0.01	0	0	N/A	0.0146	17.75	0	N/A	17.7	17.8
mills, general											
Asphalt Production -	17.9	0.01	17.3	0	N/A	17.3	0.180	0	N/A	0.180	17.5
Other											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Converted Paper	17.7	0.01	16.1	1.59	N/A	17.7	0	0	N/A	0	17.7
Products											
Instruments and Related	16.5	0.01	0	14.3	N/A	14.3	0	0.887	N/A	0.887	15.2
Products (SICs											
combined)											
Surface active agents	15.2	0.01	12.3	0.646	N/A	12.9	1.77	0.0929	N/A	1.86	14.8
manufacturing											
Stationary	14.6	0.01	6.86	2.94	N/A	9.80	1.52	0.653	N/A	2.18	12.0
Reciprocating IC											
Engines: Diesel - fired											
Plastics products	14.4	0.01	8.12	0.0820	N/A	8.20	3.21	0.0324	N/A	3.24	11.4
manufacturing				1							
Industrial Boilers:	13.8	0.00	6.47	2.77	N/A	9.25	1.44	0.616	N/A	2.05	11.3
Bituminous and Lignite											
Coal Combustion											
Paints and allied	12.4	0.00	10.6	0	N/A	10.6	0.841	0	N/A	0.841	11.4
products											
Commercial/Institutiona	12.4	0.00	1.90	7.59	N/A	9.48	0.338	1.35	N/A	1.69	11.2
l Boilers: Wood/Wood											
Residue Combustion											
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	12.0	0.00	0	0	N/A	0	0	0	N/A	0	0
Mineral Products											
Wood television and	10.0	0.00	0	0	N/A	0	0	0	N/A	0	0
radio cabinets											
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	9.38	0.00	0	3.61	N/A	3.61	0	1.95	N/A	1.95	5.55
Preserving											
Miscellaneous	9.28	0.00	5.16	0.910	N/A	6.07	1.09	0.192	N/A	1.28	7.35
Manufacturing (SICs											
combined)											
Secondary Lead	9.03	0.00	3.31	3.06	N/A	6.37	0.646	0.596	N/A	1.24	7.61
Smelting	7.4	0.00	0.007		N1 / A	. 50	0.0040	0.400	N1 / A	0.404	. 05
Chromium Plating:	7.64	0.00	0.326	6.20	N/A	6.52	0.0212	0.403	N/A	0.424	6.95
Chromic Anodizing	7.00	0.00		0.757	N1/A	7.00		0	N1 / A	0	7.00
Converted paper and	7.29	0.00	6.64	0.656	N/A	7.29	0	0	N/A	0	7.29
paperboard products,											
nec (disc)	7.07	0.00	4 77	0.470	N1 / A	F 0.4	1.05	0.400	N. / A	2.00	7.07
Paper coating and	7.27	0.00	4.77	0.472	N/A	5.24	1.85	0.182	N/A	2.03	7.27
glazing manufacturing	. 54	0.00	F 0F	0.000	N1/A	(1)	0.444	5.005.00	N1 / A	0.447	4.00
Adhesives and Sealants	6.51	0.00	5.85	0.308	N/A	6.16	0.111	5.83E-03	N/A	0.117	6.28
(SICs combined)		0.00	2.04	1.00	N1 / A	4.04	0.017	0.070	N1 / A	1.00	F 10
Fabricated metal	6.38	0.00	3.01	1.00	N/A	4.01	0.816	0.272	N/A	1.09	5.10
products											
manufacturing (SICs											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutiona	6.34	0.00	0	4.40	N/A	4.40	0	0.898	N/A	0.898	5.30
l Boilers: POTW Digester											
Gas Combustion											
Laminated plastics	5.95	0.00	4.74	0.0479	N/A	4.79	0.642	6.48E-03	N/A	0.648	5.44
plate and sheet (1987)											
Food Products (SICs	5.50	0.00	0.138	2.61	N/A	2.75	0.125	2.366	N/A	2.49	5.24
combined)											
Industrial gases	5.05	0.00	4.44	0.234	N/A	4.67	0	0	N/A	0	4.67
manufacturing											
Leather tanning and	3.95	0.00	2.25	0.749	N/A	3.00	3.64E-04	1.21E-04	N/A	0.000	3.00
finishing											
Furniture and Fixtures	3.85	0.00	3.85	0	N/A	3.85	0	0	N/A	0	3.85
Wood household	3.82	0.00	0.656	0	N/A	0.656	0.241	0	N/A	0.241	0.897
furniture manufacturing											
Iron and Steel	2.78	0.00	1.18	1.44	N/A	2.62	0.0222	0.0272	N/A	0.049	2.67
Foundries: Steel											
Investment Foundries											
Unsupported plastics	2.52	0.00	1.39	0.0141	N/A	1.41	0.469	4.74E-03	N/A	0.474	1.88
film and sheet											
manufacturing											
Utility Turbines: Natural	2.36	0.00	0.950	0.634	N/A	1.58	0.211	0.141	N/A	0.352	1.94
gas - fired											
Primary metal products	2.36	0.00	0.676	0.827	N/A	1.50	0.140	0.171	N/A	0.311	1.81
manufacturing (SICs											
combined)											
Organic fibers, non-	2.30	0.00	1.35	0.0708	N/A	1.42	0.0962	5.06E-03	N/A	0.101	1.52
cellulosic											
manufacturing											
Gum and wood	1.88	0.00	0.00670	3.53E-04	N/A	0.00706	1.76	0.0926	N/A	1.85	1.86
chemical											
Plastics foam products	1.87	0.00	0.983	9.92E-03	N/A	0.992	0.557	5.63E-03	N/A	0.563	1.56
manufacturing											
Cleaning Products (SICs	1.68	0.00	1.12	0.0592	N/A	1.18	0.355	0.0187	N/A	0.373	1.56
combined)											
Medical Waste	1.38	0.00	0.153	0.867	N/A	1.02	0.0313	0.177	N/A	0.208	1.23
Incineration											
Chemical	1.37	0.00	0.229	0.534	N/A	0.763	0.0732	0.171	N/A	0.244	1.01
Manufacturing: Alkalies	<del>-</del> ·								***		1
and chlorine											
Other Miscellaneous	1.14	0.00	0.800	0.0889	N/A	0.889	0.0476	0.0053	N/A	0.053	0.942
(SICs combined)		2.00	2.300			2.007				2.000	
Synthetic rubber	0.857	0.00	0.735	0	N/A	0.735	0.109	0	N/A	0.109	0.844
manufacturing	2.20,	2.00	2.700			21,00	2,				
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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
	Total	% Contribution of	Major		Mobile		Major		Mobile		Combined Urban
Source Category	Emissions	Total Emissions	Sources	Area Sources	Sources	Total Urban-1	Sources	Area Sources	Sources	Total Urban-2	Emissions
	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	0.500	0.00	0.0802	0	N/A	0.0802	0.0169	0	N/A	0.0169	0.0970
related furniture											
Chemicals and allied	0.473	0.00	0.381	0.0201	N/A	0.401	0.0541	0.0028	N/A	0.0570	0.458
products											
Commercial/Institutiona	0.430	0.00	0.0672	0.269	N/A	0.336	0.0109	0.0437	N/A	0.0546	0.391
l Boilers: Bituminous and											
Lignite Coal											
Combustion											
Sewage Sludge	0.321	0.00	0	0.247	N/A	0.247	0	0.0281	N/A	0.0281	0.275
Incineration											
Structural wood	0.308	0.00	0.183	0	N/A	0.183	0.125	0	N/A	0.125	0.308
members, nec											
Office furniture, except	0.285	0.00	0.104	0	N/A	0.104	0.178	0	N/A	0.178	0.282
wood manufacturing											
Inorganic Pigments	0.263	0.00	0.224	0	N/A	0.224	0.0384	0	N/A	0.0384	0.263
Manufacturing											
Fabricated rubber	0.257	0.00	0.254	2.57E-03	N/A	0.257	0	0	N/A	0	0.257
products											
Custom compound	0.250	0.00	0.186	1.88E-03	N/A	0.188	0.0198	2.00E-04	N/A	0.0200	0.208
purchased resins											
manufacturing											
Drapery hardware and	0.250	0.00	0.250	0	N/A	0.250	0	0	N/A	0	0.250
blinds and shades											
Secondary Aluminum	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
Smelting											
Furniture and fixtures	0.157	0.00	0.157	0	N/A	0.157	0	0	N/A	0	0.157
manufacturing											
Partitions And Fixtures	0.125	0.00	0	0	N/A	0	0	0	N/A	0	0
Minerals, ground or	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
treated production											
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	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
Manufacture: All Fuels											
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

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

Pollutant: <u>Hydrazine</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
source category	Tons/yr	% of Total	Tons/vr	Tons/vr	Tons/vr	Tons/yr	Tons/yr	Tons/vr	Tons/yr	Tons/vr	Tons/vr
Pharmaceuticals	108	86	87	4.59	N/A	91.7	8.67	0.456	N/A	9.128	101
Preparations and	100	00	07	4.57	14/7-4	71.7	0.07	0.430	14/7-4	7.120	101
Manufacturing (SICs											
combined)											
Industrial inorganic	6.32	5	4.57	0	N/A	4.57	0.188	0	N/A	0.188	4.76
chemical	0.02	Ü	1.07	Ü	14// (	1.07	0.100	o o	14//	0.100	1.70
Miscellaneous Organic	5.13	4	3.82	0	N/A	3.82	0.637	0	N/A	0.637	4.46
Chemical Processes											
(SICs combined)											
Petroleum Refining:	2.81	2	1.59	0	N/A	1.59	0.546	0	N/A	0.546	2.14
Cyclic Crude and											
Intermediate											
Production											
Industrial organic	1.12	0.89	0.778	0	N/A	0.778	0.145	0	N/A	0.145	0.923
chemicals											
manufacturing											
Primary metal products	0.500	0.40	0.143	0.175	N/A	0.319	0.0297	0.0363	N/A	0.066	0.385
manufacturing (SICs											
combined)											
Petroleum Refining:	0.477	0.38	0.348	0	N/A	0.348	0.103	0	N/A	0.103	0.451
(ALL PROCESSES)											
Chemicals and allied	0.432	0.34	0.348	0.0183	N/A	0.366	0.0495	2.60E-03	N/A	0.052	0.418
products											
Agricultural Chemicals	0.400	0.32	0.154	0	N/A	0.154	0.245	0	N/A	0.245	0.399
Transportation	0.383	0.30	0.190	0.0633	N/A	0.253	0.0507	0.0169	N/A	0.068	0.321
Equipment											
Manufacture (SICs	0.0/5	0.01	0.4/5		N1/A	0.475	0.0///	0	N1/A	0.047	0.004
Plastics materials and	0.265	0.21	0.165	0	N/A	0.165	0.0666	0	N/A	0.067	0.231
resins manufacturing	0.151	0.10	0.120		NI/A	0.120	0.0102		NI/A	0.010	0.140
Synthetic rubber	0.151	0.12	0.130	0	N/A	0.130	0.0192	0	N/A	0.019	0.149
manufacturing	0.151	0.10	0.10/	0.0110	N/A	0.110	/ 20F 02	7.005.04	NI/A	0.007	0.125
Other Miscellaneous	0.151	0.12	0.106	0.0118	N/A	0.118	6.30E-03	7.00E-04	N/A	0.007	0.125
(SICs combined)											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	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
Manufacturing:											
Alkalies and chlorine											
Chemical Preparations	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
(SICs combined)											

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

## Pollutant: <u>Lead Compounds</u>

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS	_	
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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-	1,690	34.05	N/A	N/A	836	836	N/A	N/A	286	286	1,122
Road Vehicles											
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					URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Industrial Bollers Wood/Wood Residue Combustion Fabricated metal Jonducts Combustion Fabricated Relies  Jonduction	Source Category		Total Emissions	-	Area Sources		Total Urban-1	-	Area Sources		Total Urban-2	Combined Urban Emissions
Wood/Wood Residue   Combustion   Fabricated metial products   Salary   Combustion   Fabricated metial products   Salary   Combustion   Salary   Combustion   Salary   Combustion   Salary   Salary   Combustion   Co		Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Combustion   Fabricated metal products   Salary   Combustion   Salary   Salary   Combustion   Salary   Sala	Industrial Boilers:	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 Gray and ductile front foundation) and tulter (SICs manufacturing (SICs crombustlen) and tulter (SICs manufacturing (SICs crombust	Wood/Wood Residue											
Decider   Deci	Combustion											
Instruction (SICs   Paint Application)		38.19	0.77	18.00	6.00	N/A	24.00	4.88	1.63	N/A	6.51	30.51
Paint Application: Smell   35.00   0.71   6.36   19.07   N/A   25.43   1.17   3.52   N/A   4.69   30.5	products											
Shops	manufacturing (SICs											
Shops	Paint Application: Small	35.00	0.71	6.36	19.07	N/A	25.43	1.17	3.52	N/A	4.69	30.12
Combustion   Industrial Bollers   24.11   0.49   11.33   4.85   N/A   16.18   2.52   1.08   N/A   3.59   19.5												
Combustion   Industrial Bollers   24.11   0.49   11.33   4.85   N/A   16.18   2.52   1.08   N/A   3.59   19.5		26.00	0.52	19.05	1.00	N/A	20.05	3.12	0.16	N/A	3.28	23.34
Inclustrial Bollers   Electronic and Lignite   Coal Combustion   Coal Coal Coal Coal Coal Coal Coal Coal								-				
Bituminous and Lignite   Coal Combustion   Petroleum Refining:   22.90   0.46   13.00   0.00   N/A   13.00   4.45   0.00   N/A   4.45   17.4		24 11	0.49	11 33	4 85	N/A	16 18	2.52	1.08	N/A	3 59	19.78
Coal Combustion   Petroleum Refining:		21.11	0.17	11.00	1.00	14//	10.10	2.02	1.00	14// (	0.07	17.70
Petroleum Reffring:   22.90   0.46   13.00   0.00   N/A   13.00   4.45   0.00   N/A   4.45   17.4   17.6	J											
Cyclic Crude and Intermediate   Production   Residential Bollers:   19.29   0.39   0.00   13.38   N/A   13.38   0.00   2.73   N/A   2.73   16.18   N/A   15.32   1.22   0.00   N/A   1.22   16.58   0.00		22.00	0.46	13.00	0.00	NI/A	13.00	1.15	0.00	NI/Λ	4.45	17.45
Intermediate   Production   Residential Boilers:   19,29   0.39   0.00   13.38   N/A   13.38   0.00   2.73   N/A   2.73   16.1   16.2   16.5   19.20   16.1   16.2   16.	S	22.70	0.40	13.00	0.00	14/7-1	13.00	4.45	0.00	14/74	4.45	17.43
Production	7											
Residential Boilers: 19.29 0.39 0.00 13.38 N/A 13.38 0.00 2.73 N/A 2.73 16.1 Bituminous and Lignite Coal Combustion  Paints and allied products  Coal Combustion 15.00 0.30 6.07 7.42 N/A 15.32 1.22 0.00 N/A 1.22 16.5 products  Secondary Aluminum 15.00 0.30 6.07 7.42 N/A 13.49 0.26 0.31 N/A 0.57 14.0 Smelling  Sewage Sludge 13.86 0.28 0.00 10.68 N/A 10.68 0.00 1.21 N/A 1.21 11.8 Incineration  Transportation 13.85 0.28 6.87 2.29 N/A 9.16 1.83 0.61 N/A 2.44 11.6 Equipment Manufacture (SICs Gray and ducille iron foundries Electronic and other electric equipment manufacturing (SICs combined)  Utility Boilers: Oil Utility Boilers: Oil Combustion, All Types Industrial Machinery 9.01 0.18 3.61 1.20 N/A 4.81 1.66 0.55 N/A 2.22 7.0 products, nec Residential Boilers: 5.86 0.12 0.00 4.06 N/A 4.06 0.00 0.83 N/A 0.83 4.8 Residential Boilers: 5.86 0.12 0.00 4.06 N/A 4.06 0.00 0.83 N/A 0.83 4.8												
Bituminous and Lignite   Coal Combustion   Paints and allied products   18.04   0.36   15.32   0.00   N/A   15.32   1.22   0.00   N/A   1.22   16.5		10.20	0.20	0.00	12.20	NI/A	12.20	0.00	2.72	NI/A	2.72	14 11
Coal Combustion   Paints and allied   18.04   0.36   15.32   0.00   N/A   15.32   1.22   0.00   N/A   1.22   16.55		19.29	0.39	0.00	13.30	IN/ A	13.30	0.00	2.73	IV/A	2.73	10.11
Paints and allied products         18.04         0.36         15.32         0.00         N/A         15.32         1.22         0.00         N/A         1.22         16.50           Secondary Aluminum Secondary Secondary Secondary Aluminum Secondary Se	<u> </u>											
Droducts   Droducts   Secondary Aluminum   Second		10.04	0.27	15.20	0.00	NI/A	15.22	1.00	0.00	NI/A	1.00	1/ 5/
Secondary Aluminum		18.04	0.36	15.32	0.00	N/A	15.32	1.22	0.00	N/A	1.22	16.54
Smelting   Sewage Sludge   13.86   0.28   0.00   10.68   N/A   10.68   0.00   1.21   N/A   1.21   11.6   11.6   11.6   11.6   11.8   11.6		45.00	0.00		7.10		10.10	0.07	0.01		0.57	44.04
Sewage Sludge	-	15.00	0.30	6.07	7.42	N/A	13.49	0.26	0.31	N/A	0.57	14.06
Incineration   Inci		10.07	0.00	0.00	40.40		10.10	0.00	4.04		4.04	44.00
Transportation		13.86	0.28	0.00	10.68	N/A	10.68	0.00	1.21	N/A	1.21	11.89
Equipment Manufacture (SICs Gray and ductile iron foundries Electronic and other electric equipment manufacturing (SICs combined) Utility Boilers: Oil Combustion, All Types Industrial Machinery and Electrical Equipment (SICs equipment (SICs combined) O.18 Solution (SICs combi												
Manufacture (SICs         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         7.4           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         8.9           Utility Boilers: Oil Combustion, All Types Industrial Machinery and Electrical Equipment (SICs         10.60         0.21         4.36         4.36         N/A         4.81         1.66         0.55         N/A         2.22         7.0           Fabricated metal Equipment (SICs Fabricated metal products, nec         6.29         0.13         3.96         1.32         N/A         5.28         0.38         0.13         N/A         0.50         5.7           Residential Boilers:         5.86         0.12         0.00         4.06         N/A         4.06         0.00         0.83         N/A         0.83         4.8	'	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   12.03   0.24   2.30   2.82   N/A   5.12   1.03   1.25   N/A   2.28   7.4	' '											
Foundries   Electronic and other   11.36   0.23   4.70   1.57   N/A   6.27   2.02   0.67   N/A   2.69   8.9												
Electronic and other electric equipment manufacturing (SICs combined) Utility Boilers: Oil Combustion, All Types Industrial Machinery 9.01 0.18 3.61 1.20 N/A 4.81 1.66 0.55 N/A 2.22 7.0 Fabricated metal 6.29 0.13 3.96 1.32 N/A 5.28 0.38 0.13 N/A 0.83 4.8 Residential Boilers: 5.86 0.12 0.00 4.06 N/A 4.06 0.00 0.83 N/A 0.83 4.8		12.03	0.24	2.30	2.82	N/A	5.12	1.03	1.25	N/A	2.28	7.40
electric equipment manufacturing (SICs combined)         4.36         4.36         N/A         8.73         0.73         0.73         N/A         1.46         10.10           Combustion, All Types         Industrial Machinery and Electrical Equipment (SICs Fabricated metal products, nec         9.01         0.18         3.61         1.20         N/A         4.81         1.66         0.55         N/A         2.22         7.0           Fabricated metal products, nec         6.29         0.13         3.96         1.32         N/A         5.28         0.38         0.13         N/A         0.50         5.7           Residential Boilers:         5.86         0.12         0.00         4.06         N/A         4.06         0.00         0.83         N/A         0.83         4.8												
manufacturing (SICs combined)         description         desc	Electronic and other	11.36	0.23	4.70	1.57	N/A	6.27	2.02	0.67	N/A	2.69	8.95
Combined	electric equipment											
Utility Boilers: Oil   10.60   0.21   4.36   4.36   N/A   8.73   0.73   0.73   N/A   1.46   10.75   1.46   1.46   10.75   1.46   1.46   10.75   1.46   1.46   10.75   1.46   1.46   10.75   1.46   1.46   1.46   10.75   1.46	manufacturing (SICs											
Combustion, All Types         Industrial Machinery         9.01         0.18         3.61         1.20         N/A         4.81         1.66         0.55         N/A         2.22         7.0           and Electrical Equipment (SICs         Equipment (SICs         8         0.13         0.13         0.13         0.13         0.13         0.13         0.13         0.13         0.13         0.50         0.57         0.50         0.7         0.00         0.00         0.00         0.00         0.83         0.14         0.83         4.8	combined)											
Industrial Machinery   9.01   0.18   3.61   1.20   N/A   4.81   1.66   0.55   N/A   2.22   7.0	Utility Boilers: Oil	10.60	0.21	4.36	4.36	N/A	8.73	0.73	0.73	N/A	1.46	10.18
and Electrical     Equipment (SICs)       Fabricated metal products, nec     6.29     0.13     3.96     1.32     N/A     5.28     0.38     0.13     N/A     0.50     5.7       Residential Boilers:     5.86     0.12     0.00     4.06     N/A     4.06     0.00     0.83     N/A     0.83     4.8	Combustion, All Types											
Equipment (SICs         Security	Industrial Machinery	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         5.7           Products, nec         Residential Boilers:         5.86         0.12         0.00         4.06         N/A         4.06         0.00         0.83         N/A         0.83         4.8	and Electrical											
products, nec         8 csidential Boilers:         5.86         0.12         0.00         4.06         N/A         4.06         0.00         0.83         N/A         0.83         4.8	Equipment (SICs											
Residential Boilers: 5.86 0.12 0.00 4.06 N/A 4.06 0.00 0.83 N/A 0.83 4.8		6.29	0.13	3.96	1.32	N/A	5.28	0.38	0.13	N/A	0.50	5.79
Residential Boilers: 5.86 0.12 0.00 4.06 N/A 4.06 0.00 0.83 N/A 0.83 4.8	products, nec											
		5.86	0.12	0.00	4.06	N/A	4.06	0.00	0.83	N/A	0.83	4.89
Anthracite Coal												
Combustion												

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

					URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Paint Application	Source Category	Emissions	Total Emissions	Sources		Sources		Sources		Sources		Urban Emissions
		Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Display   Disp	Paint Application:	5.83	0.12	1.06	3.18	N/A	4.24	0.20	0.59	N/A	0.78	5.02
Durchased resins   Banufacturing	Medium Shops											
Manufacturing   Manufacturin	Custom compound	5.76	0.12	4.29	0.04	N/A	4.34	0.46	0.00	N/A	0.46	4.80
Miscellaneous Organic         4.98         0.10         3.71         0.00         N/A         3.71         0.62         4.93         3.71         0.62         4.33         3.71         0.62         0.00         N/A         0.62         4.33         3.71         0.62         0.00         N/A         0.62         4.33         3.71         0.00         N/A         3.71         0.62         4.00         N/A         0.00         N/A         3.71         0.00         N/A         1.05         4.62         4.62         4.88         0.10         3.57         0.00         N/A         3.21         0.03         N/A         3.24         3.58         0.00         0.00         N/A         2.92         0.03         N/A         3.24         3.58         0.00         0.00         N/A         2.92         0.03         0.06         N/A         0.70         3.62         2.00         0.00         N/A         2.97         0.14         0.41         N/A         0.55         3.51         3.62         2.00         0.00         N/A         2.97         0.14         0.41         N/A         0.72         3.62         2.00         0.00         N/A         3.02         2.00         0.00         N/A         3	purchased resins											
Chemical Processes	manufacturing											
SIGS combined Herining ALL PROCESSES ALL PRO	Miscellaneous Organic	4.98	0.10	3.71	0.00	N/A	3.71	0.62	0.00	N/A	0.62	4.33
Petroleum Refining: 4.88 0.10 3.57 0.00 N/A 3.57 1.05 0.00 N/A 1.05 4.62 ALP ROCESSES Nubber and plastic noise and besting manufacturing and color of the process of the pr	Chemical Processes											
ALL PROCESSES)  With being and beiling manufacturing allows and beiling manufacturing allows and beiling manufacturing allows and beiling manufacturing allows containers  January Paper and Commencial Miscellaneous and Commencial and Co	(SICs combined)											
Aubber and plastic nose 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         nose and belting manufacturing           Joint Application: acree shops         4.08         0.08         0.74         2.23         N/A         2.97         0.14         0.41         N/A         0.55         3.51           Joint Application: acree shops         4.01         0.08         2.90         0.00         N/A         2.90         0.12         0.00         N/A         0.12         3.02           Themical         4.00         0.08         3.59         0.00         N/A         3.59         0.28         0.00         N/A         0.28         3.86           Manufacturing: Coke sombined         4.00         0.08         0.63         2.50         N/A         3.13         0.10         0.41         N/A         0.51         3.63           Manufacturing (Sics sombined)         3.28         0.07         1.83         0.32         N/A         2.15         0.39         0.07         N/A         1.55         3.06           Mainufacturing (Sics sombined)         3.00         0.06         0.68         0.83         N/A	Petroleum Refining:	4.88	0.10	3.57	0.00	N/A	3.57	1.05	0.00	N/A	1.05	4.62
December	(ALL PROCESSES)											
manufacturing	Rubber and plastic	4.34	0.09	0.33	0.00	N/A	0.34	3.21	0.03	N/A	3.24	3.58
Silass containers   4.33   0.09   0.15   2.78   N/A   2.92   0.03   0.66   N/A   0.70   3.62	hose and belting											
Paint Application: 4.08	manufacturing											
Large Shops	Glass containers	4.33	0.09	0.15	2.78	N/A	2.92	0.03	0.66	N/A	0.70	3.62
Authoritical   Auth	Paint Application:	4.08	0.08	0.74	2.23	N/A	2.97	0.14	0.41	N/A	0.55	3.51
Chemical	Large Shops											
Chemical	Industrial inorganic	4.01	0.08	2.90	0.00	N/A	2.90	0.12	0.00	N/A	0.12	3.02
Manufacturing: Coke	chemical											
Commercial/Institutional Boilers: Bituminous and Boilers: Bituminous Bituminous and Boilers: Bituminous Bitumi	Chemical	4.00	0.08	3.59	0.00	N/A	3.59	0.28	0.00	N/A	0.28	3.86
Boilers: Bituminous and ignite Coal   Combustion	Manufacturing: Coke											
Ignite Coal	Commercial/Institutiona	4.00	0.08	0.63	2.50	N/A	3.13	0.10	0.41	N/A	0.51	3.63
Ignite Coal	l Boilers: Bituminous and											
Combustion   Combustion   Combustion   Commercial/Institutiona   Commercial/Institutiona   Commercial/Institutiona   Commercial/Institutiona   Commercial/Institutiona   Commercial/Institutiona   Compusition   C	Lignite Coal											
Miscellaneous   3.28   0.07   1.83   0.32   N/A   2.15   0.39   0.07   N/A   0.45   2.60	Combustion											
Combined	Miscellaneous	3.28	0.07	1.83	0.32	N/A	2.15	0.39	0.07	N/A	0.45	2.60
Combined	Manufacturing (SICs											
Primary smelting and effining of zinc	<b>O</b> .											
Personal Computation		3.06	0.06	0.68	0.83	N/A	1.52	0.70	0.85	N/A	1.55	3.06
Industrial Boilers:												
Commercial/Institutiona   3.00   0.06   0.47   1.88   N/A   2.34   0.08   0.30   N/A   0.38   2.73	Industrial Boilers:	3.00	0.06	1.41	0.60	N/A	2.01	0.31	0.13	N/A	0.45	2.46
Boilers: Residual Oil   Combustion   Portland Cement   2.94   0.06   1.45   0.26   N/A   1.71   0.47   0.08   N/A   0.55   2.26   N/A   0.074   N/A   0.078	Residual Oil Combustion											
Boilers: Residual Oil Combustion   2.94   0.06   1.45   0.26   N/A   1.71   0.47   0.08   N/A   0.55   2.26												
Combustion   Contland Cement   2.94   0.06   1.45   0.26   N/A   1.71   0.47   0.08   N/A   0.55   2.26   N/A   0.06   N/A   0.07   0.08   N/A   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.09   0.05   0.09   0.05   0.09   0.05   0.09   0.00   0.	Commercial/Institutiona	3.00	0.06	0.47	1.88	N/A	2.34	0.08	0.30	N/A	0.38	2.73
Portland Cement 2.94 0.06 1.45 0.26 N/A 1.71 0.47 0.08 N/A 0.55 2.26 N/A 1.72 0.04 0.74 N/A 0.78 2.50 N/A 1.72 0.04 0.74 N/A 0.78 2.50 N/A 1.19 0.05 0.91 N/A 0.96 2.15 N/A 0.96 2.15 N/A 1.19 0.05 0.91 N/A 0.96 2.15 N/A 0.26 N/A 0.27 N/A 0.27 0.28 N/A 0.28 N/A 0.28 N/A 0.29 N/A 0.29 N/A 0.29 N/A 0.29 N/A 0.29 0.20 N/A 0.29 0.29 N/A 0.29 0.29 0.29 N/A 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29	l Boilers: Residual Oil											
Portland Cement 2.94 0.06 1.45 0.26 N/A 1.71 0.47 0.08 N/A 0.55 2.26 N/A 1.72 0.04 0.74 N/A 0.78 2.50 N/A 1.72 0.04 0.74 N/A 0.78 2.50 N/A 1.19 0.05 0.91 N/A 0.96 2.15 N/A 0.96 2.15 N/A 1.19 0.05 0.91 N/A 0.96 2.15 N/A 0.26 N/A 0.27 N/A 0.27 0.28 N/A 0.28 N/A 0.28 N/A 0.29 N/A 0.29 N/A 0.29 N/A 0.29 N/A 0.29 0.20 N/A 0.29 0.29 N/A 0.29 0.29 0.29 N/A 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29	Combustion											
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 2.15 0.04 0.06 1.13 N/A 1.19 0.05 0.91 N/A 0.96 2.15 ixtures  Products of purchased 1.88 0.04 0.02 0.33 N/A 0.34 0.04 0.67 N/A 0.71 1.05 class Vitreous china table 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 and kitchenware Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Portland Cement	2.94	0.06	1.45	0.26	N/A	1.71	0.47	0.08	N/A	0.55	2.26
Vitreous plumbing 2.15 0.04 0.06 1.13 N/A 1.19 0.05 0.91 N/A 0.96 2.15 ixtures  Products of purchased 1.88 0.04 0.02 0.33 N/A 0.34 0.04 0.67 N/A 0.71 1.05 class Vitreous china table 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 and kitchenware  Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Manufacture: All Fuels											
Vitreous plumbing 2.15 0.04 0.06 1.13 N/A 1.19 0.05 0.91 N/A 0.96 2.15 ixtures  Products of purchased 1.88 0.04 0.02 0.33 N/A 0.34 0.04 0.67 N/A 0.71 1.05 class Vitreous china table 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 and kitchenware  Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Pottery products, nec	2.50	0.05	0.09	1.63	N/A	1,72	0.04	0.74	N/A	<u>0</u> .78	2.50
ixtures Products of purchased 1.88 0.04 0.02 0.33 N/A 0.34 0.04 0.67 N/A 0.71 1.05 plass Vitreous china table 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Vitreous plumbing		0.04	0.06	1.13	N/A	1.19	0.05	0.91	N/A	0.96	2.15
Aglass	fixtures											
Aglass Vitreous china table 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 and kitchenware Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Products of purchased	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 1.78 0.04 0.03 0.60 N/A 0.63 0.00 0.00 N/A 0.00 0.63 and kitchenware Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	glass											
And kitchenware Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	Vitreous china table	1.78	0.04	0.03	0.60	N/A	0.63	0.00	0.00	N/A	0.00	0.63
Plastics products 1.76 0.04 0.99 0.01 N/A 1.00 0.39 0.00 N/A 0.39 1.39	and kitchenware											
'	Plastics products	1.76	0.04	0.99	0.01	N/A	1.00	0.39	0.00	N/A	0.39	1.39
	manufacturing											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers:	1.74	0.03	0.82	0.35	N/A	1.16	0.18	0.08	N/A	0.26	1.42
Anthracite Coal											
Combustion											
Plastics materials and	1.48	0.03	0.92	0.00	N/A	0.92	0.37	0.00	N/A	0.37	1.29
resins manufacturing											
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	1.36	0.03	0.94	0.00	N/A	0.94	0.18	0.00	N/A	0.18	1.12
chemicals											
manufacturing											
Primary Aluminum	1.29	0.03	0.08	0.09	N/A	0.17	0.19	0.24	N/A	0.43	0.60
Production											
Instruments and Related	1.24	0.02	0.00	1.08	N/A	1.08	0.00	0.07	N/A	0.07	1.14
Products (SICs											
combined)											
Chemical Preparations	1.17	0.02	0.86	0.05	N/A	0.90	0.03	0.00	N/A	0.03	0.93
(SICs combined)		0.02	0.00	0.00		0.70	0.00	0.00		0.00	0.70
Electroplating: Printed	1.10	0.02	0.68	0.23	N/A	0.91	0.09	0.03	N/A	0.12	1.03
Circuit Boards	1.10	0.02	0.00	0.20	14//(	0.71	0.07	0.00	14//(	0.12	1.00
Iron and Steel	1.10	0.02	0.47	0.57	N/A	1.04	0.01	0.01	N/A	0.02	1.06
Foundries: Steel	1.10	0.02	0.47	0.57	IV/A	1.04	0.01	0.01	IV/A	0.02	1.00
Investment Foundries											
Industrial Boilers:	1.05	0.02	0.49	0.21	N/A	0.70	0.11	0.05	N/A	0.16	0.86
Natural Gas	1.00	0.02	0.47	0.21	14/74	0.70	0.11	0.03	14/74	0.10	0.00
Combustion											
Industrial Boilers:	1.00	0.02	0.47	0.20	N/A	0.67	0.10	0.04	N/A	0.15	0.82
Distillate Oil Combustion	1.00	0.02	0.47	0.20	IV/A	0.07	0.10	0.04	IV/A	0.15	0.02
Distillate Oil Combustion											
Commercial/Institutiona	1.00	0.02	0.16	0.63	N/A	0.78	0.03	0.10	N/A	0.13	0.91
Boilers: Distillate Oil	1.00	0.02	0.10	0.03	IV/A	0.70	0.03	0.10	IV/A	0.15	0.71
Combustion											
Structural Clay	0.94	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Products, Nec	0.74	0.02	0.00	0.00	IV/A	0.00	0.00	0.00	IVA	0.00	0.00
Coke Ovens: By-	0.85	0.02	0.76	0.00	N/A	0.76	0.06	0.00	N/A	0.06	0.82
	0.65	0.02	0.76	0.00	IN/A	0.76	0.06	0.00	IV/A	0.06	0.62
product Recovery											
Plants Drum and Barrel	0.81	0.02	0.00	0.81	N/A	0.81	0.00	0.00	N/A	0.00	0.81
	0.81	0.02	0.00	0.81	N/A	0.81	0.00	0.00	N/A	0.00	0.81
Reclamation Chromium Plating:	0.69	0.01	0.03	0.56	N/A	0.59	0.00	0.04	N/A	0.04	0.63
· ·	0.09	0.01	0.03	0.30	IN/A	0.39	0.00	0.04	IN/A	0.04	0.03
Chromic Anodizing Commercial/Institutiona	0.67	0.01	0.10	0.41	N/A	0.51	0.02	0.07	N/A	0.09	0.60
	0.07	0.01	0.10	0.41	IV/A	0.51	0.02	0.07	IN/A	0.09	0.60
I Boilers: Wood/Wood											
Residue Combustion	0.63	0.01	0.20	0.00	N/A	0.20	0.24	0.00	N/A	0.24	0.73
Chemical Manufacturing	0.63	0.01	0.28	0.00	IN/A	0.28	0.34	0.00	N/A	0.34	0.63
Manufacturing:											
Explosives & Blasting											
Aaents											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
<u> </u>	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fabricated rubber	0.53	0.01	0.53	0.01	N/A	0.53	0.00	0.00	N/A	0.00	0.53
products	0.00	0.01	0.00	0.01		0.00	0.00	0.00		0.00	0.00
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	0.50	0.01	0.47	0.00	N/A	0.47	0.03	0.00	N/A	0.03	0.49
greases											
Asphalt paving mixtures	0.49	0.01	0.49	0.00	N/A	0.49	0.00	0.00	N/A	0.00	0.49
and blocks		0.04	0.00	0.05		0.05	0.00	0.10		0.10	0.07
Utility Boilers: Natural	0.44	0.01	0.00	0.25	N/A	0.25	0.00	0.12	N/A	0.12	0.37
Gas Combustion	0.40	0.01	0.47	0.00	N1/A	0.47	0.47	0.00	N1/A	0.47	0.04
Miscellaneous Plastics	0.43	0.01	0.17	0.00	N/A	0.17	0.17	0.00	N/A	0.17	0.34
Products	0.20	0.01	0.11	0.14	NI/A	0.27	0.05	0.07	NI/A	0.12	0.20
Iron and Steel	0.38	0.01	0.11	0.14	N/A	0.26	0.05	0.07	N/A	0.12	0.38
Foundries: Steel											
Foundries 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)	0.38	0.01	0.17	0.25	N/A	0.26	0.00	0.00	N/A	0.03	0.38
Manufacturing	0.30	0.01	0.01	0.25	IV/A	0.20	0.00	0.02	IV/A	0.03	0.29
Primary batteries, dry	0.38	0.01	0.18	0.06	N/A	0.24	0.03	0.01	N/A	0.04	0.28
and wet.	0.50	0.01	0.10	0.00	14774	0.24	0.03	0.01	14/7-4	0.04	0.20
Ship Building & Repair	0.38	0.01	0.23	0.08	N/A	0.30	0.01	0.00	N/A	0.01	0.31
(Surface Coating)	0.00	0.01	0.20	0.00		0.00	0.01	0.00	,,	0.01	0.01
Other Miscellaneous	0.29	0.01	0.20	0.02	N/A	0.23	0.01	0.00	N/A	0.01	0.24
(SICs combined)											
Unsupported plastics	0.27	0.01	0.15	0.00	N/A	0.15	0.05	0.00	N/A	0.05	0.20
film and sheet											
manufacturing											
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	0.26	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
supplies	0.20	0.01	0.00	0.00	14774	0.00	0.00	0.00	14/74	0.00	0.00
Phosphatic fertilizers	0.25	0.01	0.08	0.00	N/A	0.08	0.10	0.00	N/A	0.10	0.19
production	0.20	0.01	0.00	0.00	14//	0.00	0.10	0.00	14//1	0.10	0.17
Semivitreous Table &	0.25	0.01	0.00	0.00	N/A	0.00	0.25	0.00	N/A	0.25	0.25
Kitchenware	0.20	0.01	0.00	0.00		0.00	0.20	0.00		0.20	0.20
Food Products (SICs	0.18	0.00	0.00	0.09	N/A	0.09	0.00	0.08	N/A	0.08	0.17
combined)											
Aviation Gasoline	0.15	0.00	0.01	0.09	N/A	0.10	0.00	0.02	N/A	0.02	0.13
Distribution: Stage I & II											
Unsupported plastics	0.13	0.00	0.12	0.00	N/A	0.12	0.00	0.00	N/A	0.00	0.12
profile shapes (1987)											
Paper coated and	0.13	0.00	0.08	0.01	N/A	0.09	0.03	0.00	N/A	0.03	0.12
laminated, packaging											
Organic fibers, non-	0.13	0.00	0.07	0.00	N/A	0.08	0.01	0.00	N/A	0.01	0.08
cellulosic											
manufacturing											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

## Pollutant: <u>Manganese Compounds</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers:	1142	30.43	561	140	N/A	701	144	36.03	N/A	180.14	882
Wood/Wood Residue											
Combustion											
Blast furnaces and steel	507	13.51	184	225	N/A	409	38.68	47.27	N/A	85.95	495
mills											
Primary metal products	450	12.00	129	158	N/A	287	26.75	32.70	N/A	59.45	346
manufacturing (SICs											
combined)											
Coke Ovens: By-	227	6.06	204	0.00	N/A	204	15.69	0.00	N/A	15.69	220
product Recovery											
Plants	100	4.04	0.4.70	10.50		77.00	45.50	10.01		24.44	440
Gray and ductile iron	182	4.84	34.78	42.50	N/A	77.28	15.50	18.94	N/A	34.44	112
foundries	100	4.00	(0.40	0.00	N1/A	(0.40	45.00	0.00	N1/A	45.00	111
Utility Boilers: Coal	180	4.80	69.43	0.00	N/A	69.43	45.00	0.00	N/A	45.00	114
Combustion, All Types	155	4.10	110	0.00	N/A	112	4.50	0.00	N/A	4.50	116
Industrial inorganic chemical	155	4.12	112	0.00	N/A	112	4.58	0.00	N/A	4.58	116
Commercial/Institution	101	2.69	15.76	63.05	N/A	78.81	2.56	10.25	N/A	12.81	91.6
al Boilers: Bituminous	101	2.09	15.70	03.03	IV/A	70.01	2.50	10.25	IV/A	12.01	91.0
and Lignite Coal											
Combustion											
Municipal Waste	86.7	2.31	63.50	3.34	N/A	66.85	10.40	0.55	N/A	10.94	77.8
Combustion	00.7	2.01	00.00	0.01		00.00		0.00		10.71	77.0
Industrial Machinery	77.2	2.06	30.93	10.31	N/A	41.24	14.26	4.75	N/A	19.01	60.3
and Electrical											
Equipment (SICs											
Residential Boilers:	75.4	2.01	0.00	52.29	N/A	52.29	0.00	10.67	N/A	10.67	63.0
Bituminous and Lignite											
Coal Combustion											
Fabricated metal	66.1	1.76	31.16	10.39	N/A	41.55	8.46	2.82	N/A	11.27	52.8
products											
manufacturing (SICs											
Vitreous plumbing	63.1	1.68	1.75	33.18	N/A	34.92	1.41	26.70	N/A	28.10	63.0
fixtures											
Iron and Steel	44.6	1.19	13.49	16.48	N/A	29.97	6.36	7.77	N/A	14.12	44.1
Foundries: Steel											
Foundries		1.10	00.07	1		00.40	5.00	1		7.05	07.0
Transportation	44.5	1.19	22.07	7.36	N/A	29.42	5.89	1.96	N/A	7.85	37.3
Equipment											
Manufacture (SICs	20.7	0.70	0.00	0.00	1474	1474	0.00	0.00	F 0.4	F 0.4	10.0
Mobile Sources: On-	29.7	0.79	0.00	0.00	14.71	14.71	0.00	0.00	5.04	5.04	19.8
Road Vehicles											

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

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

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Industrial Boilers:	4.15	0.11	1.95	0.84	N/A	2.79	0.43	0.19	N/A	0.62	3.41
Residual Oil											
Combustion											
Primary Aluminum	4.09	0.11	0.24	0.30	N/A	0.54	0.61	0.74	N/A	1.35	1.90
Production											
Industrial organic	3.93	0.10	2.73	0.00	N/A	2.73	0.51	0.00	N/A	0.51	3.23
chemicals											
manufacturing											
Petroleum Refining:	3.70	0.10	2.70	0.00	N/A	2.70	0.80	0.00	N/A	0.80	3.50
(ALL PROCESSES)											
Commercial/Institution	3.41	0.09	0.53	2.13	N/A	2.66	0.09	0.35	N/A	0.43	3.10
al Boilers: Distillate Oil											
Combustion											
Residential Boilers:	2.84	0.08	0.00	1.96	N/A	1.96	0.00	0.41	N/A	0.41	2.38
Wood/Wood Residue											
Combustion											
Fabricated metal	2.46	0.07	1.55	0.52	N/A	2.07	0.15	0.05	N/A	0.20	2.26
products, nec											
Ship Building & Repair	2.23	0.06	1.36	0.45	N/A	1.81	0.04	0.01	N/A	0.06	1.87
(Surface Coating)											
Primary smelting and	2.08	0.06	0.46	0.57	N/A	1.03	0.47	0.58	N/A	1.05	2.08
refining of zinc											
Organic fibers, non-	2.04	0.05	1.19	0.06	N/A	1.25	0.09	0.00	N/A	0.09	1.34
cellulosic											
manufacturing											
Plastics materials and	1.96	0.05	1.22	0.00	N/A	1.22	0.49	0.00	N/A	0.49	1.71
resins manufacturing											
Miscellaneous	1.75	0.05	0.97	0.17	N/A	1.15	0.21	0.04	N/A	0.24	1.39
Manufacturing (SICs											
combined)											
Phosphatic fertilizers	1.64	0.04	0.55	0.00	N/A	0.55	0.65	0.00	N/A	0.65	1.20
production											
Industrial Boilers:	1.61	0.04	0.75	0.32	N/A	1.08	0.17	0.07	N/A	0.24	1.32
Distillate Oil											
Combustion											
Industrial Boilers:	1.47	0.04	0.69	0.30	N/A	0.99	0.15	0.07	N/A	0.22	1.21
Natural Gas											
Combustion	1.00	0.04	0.00	0.07		2.27		0.00		0.00	
Residential Boilers:	1.39	0.04	0.00	0.96	N/A	0.96	0.00	0.20	N/A	0.20	1.16
Anthracite Coal											
Combustion	101	0.00	0.05	0.45		0.04		0.50		0.40	2.00
Primary Copper	1.24	0.03	0.05	0.15	N/A	0.21	0.17	0.52	N/A	0.69	0.90
Smelting	4.40	0.00	0.00	0.07	D1 / 2	0.07	0.00	0.10	N1 / 0	0.10	0.07
Sewage Sludge	1.13	0.03	0.00	0.87	N/A	0.87	0.00	0.10	N/A	0.10	0.97
Incineration											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Total Urban-2 Tons/yr 0.24 0.08 0.11 0.05 0.01 0.10 0.08 0.00 0.31 0.04 0.47 0.03 0.07 0.02 0.23 0.00 0.06 0.10 0.15 0.00	Tons/yr
Primary nonferrous	0.99	0.03	0.21	0.25	N/A	0.46	0.11	0.13	N/A	0.24	0.70
metals production											
Pharmaceuticals	0.98	0.03	0.79	0.04	N/A	0.83	0.08	0.00	N/A	0.08	0.91
Preparations and											
Manufacturing (SICs											
combined)											
Commercial/Institution	0.89	0.02	0.14	0.55	N/A	0.69	0.02	0.09	N/A	0.11	0.81
al Boilers: Anthracite											
Coal Combustion											
Instruments and	0.88	0.02	0.00	0.77	N/A	0.77	0.00	0.05	N/A	0.05	0.82
Related Products (SICs											
combined)											
Iron and Steel	0.71	0.02	0.30	0.37	N/A	0.67	0.01	0.01	N/A	0.01	0.68
Foundries: Steel	0.71	0.02	0.00	0.07	14//(	0.07	0.01	0.01	14//	0.01	0.00
Investment Foundries											
Industrial Boilers:	0.70	0.02	0.33	0.14	N/A	0.47	0.07	0.03	N/A	0.10	0.58
Anthracite Coal	0.70	0.02	0.55	0.14	14/74	0.47	0.07	0.03	14/7-4	0.10	0.50
Combustion											
Residential Boilers:	0.59	0.02	0.00	0.41	N/A	0.41	0.00	0.08	N/A	0.08	0.49
Distillate Oil	0.57	0.02	0.00	0.41	14/74	0.41	0.00	0.00	14/7-4	0.00	0.47
Combustion											
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	0.50	0.01	0.18	0.00	N/A	0.18	0.31	0.00	N/A		0.50
wood manufacturing	0.50	0.01	0.10	0.00	14/74	0.10	0.51	0.00	14/7-4	0.51	0.50
Custom compound	0.50	0.01	0.37	0.00	N/A	0.38	0.04	0.00	N/A	0.04	0.42
purchased resins	0.00	0.01	0.07	0.00	14//(	0.00	0.01	0.00	14//	0.01	0.12
manufacturing											
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)	0.50	0.01	0.02	0.33	N/A	0.35	0.00	0.03	N/A		0.38
Manufacturing	0.50	0.01	0.02	0.55	14/74	0.55	0.00	0.03	14/7-4	0.05	0.50
Medical Waste	0.49	0.01	0.05	0.31	N/A	0.36	0.01	0.06	N/A	0.07	0.44
Incineration	0.47	0.01	0.05	0.51	14/74	0.50	0.01	0.00	14/7-4	0.07	0.44
Chromium Plating:	0.39	0.01	0.02	0.32	N/A	0.33	0.00	0.02	N/A	0.02	0.35
Chromic Anodizing	0.57	0.01	0.02	0.52	11/7	0.55	0.00	0.02	IN/ A	0.02	0.55
Partitions and fixtures,	0.38	0.01	0.00	0.00	N/A	0.00	0.23	0.00	N/A	0.22	0.24
except wood	0.36	0.01	0.00	0.00	IN/A	0.00	0.23	0.00	IN/A	0.23	0.24
Porcelain electrical	0.38	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
supplies	0.30	0.01	0.00	0.00	IN/ A	0.00	0.00	0.00	IN/ PA	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	0.38	0.01	0.00	0.24	N/A	0.25	0.00	0.06	N/A		0.31
Gas Combustion	0.37	0.01	0.00	U.Z I	IV/A	U.Z I	0.00	0.10	IN/A	0.10	0.31
	0.30	0.01	0.10	0.00	N/A	0.10	0.15	0.00	N/A	0.15	0.25
Pulp and Paper: Sulfite	0.30	0.01	0.10	0.00	IV/A	0.10	0.15	0.00	IV/A	0.15	0.25
Recovery Unsupported plastics	0.26	0.01	0.24	0.00	N/A	0.24	0.00	0.00	N/A	0.00	0.24
	0.20	0.01	0.24	0.00	IN/A	0.24	0.00	0.00	IN/A	0.00	0.24
profile shapes (1987)											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Total Urban- Tons/yr 0.01 0.00 0.01 0.02 0.01 0.06 0.01 0.05 0.02 0.00 0.00 0.00 0.00 0.00 0.00	Tons/yr
Other Miscellaneous	0.25	0.01	0.18	0.02	N/A	0.20	0.01	0.00	N/A	0.01	0.21
(SICs combined)											
Concrete block and	0.25	0.01	0.01	0.24	N/A	0.25	0.00	0.00	N/A	0.00	0.25
brick											
Public building and	0.25	0.01	0.04	0.00	N/A	0.04	0.01	0.00	N/A	0.01	0.05
related furniture											
Utility Turbines: Natural	0.16	0.00	0.06	0.04	N/A	0.11	0.01	0.01	N/A	0.02	0.13
gas - fired											
Paints and allied	0.15	0.00	0.12	0.00	N/A	0.12	0.01	0.00	N/A	0.01	0.13
products											
Pressed and blown	0.15	0.00	0.00	0.02	N/A	0.03	0.00	0.06	N/A	0.06	0.09
glass and glassware											
manufacturing		2.22	0.00	0.00		0.07	0.01	0.01		2.24	0.07
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	0.14	0.00	0.05	0.00	N/A	0.05	0.05	0.00	N/A	0.05	0.11
Products	0	0.00	0.00	0.00	,,	0.00	0.00	0.00		0.00	0
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		0.12
Adhesives and Sealants	0.06	0.00	0.06	0.00	N/A	0.06	0.00	0.00	N/A	0.00	0.06
(SICs combined)											
Chemical	0.06	0.00	0.01	0.02	N/A	0.03	0.00	0.01	N/A	0.01	0.04
Manufacturing:											
Alkalies and chlorine											
Cleaning Products (SICs	0.05	0.00	0.04	0.00	N/A	0.04	0.01	0.00	N/A	0.01	0.05
combined)											
Wood household	0.02	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
furniture manufacturing											
Storage batteries	0.02	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
manufacturing											
Steel and Iron	0.01	0.00	0.00	0.01	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Reclamation- Auto											
Scrap Burning	0.01	0.00	0.01	0.00	NI/A	0.01	0.00	0.00	NI/A	0.00	0.01
Plastics products	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
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	0.01	0.00	0.01	0.00	IV/A	0.01	0.00	0.00	IV/A	0.00	0.01
products Petroleum Refining:	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Cyclic Crude and	0.01	0.00	0.00	0.00	IV/A	0.00	0.00	0.00	IV/A	0.00	0.00
Intermediate											
Production											
Semiconductors and	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
related devices	0.01	0.00	0.00	0.00	14/73	0.01	0.00	0.00	14/7-1	0.00	0.01
iciated devices								ļ			

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

								URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources		Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: Mercury Compounds

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Combined
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Municipal Waste	54.00	21.44	39.57	2.08	N/A	41.66	6.48	0.34	N/A	6.82	48.48
Combustion											
Utility Boilers: Coal	51.00	20.25	19.67	0.00	N/A	19.67	12.75	0.00	N/A	12.75	32.42
Combustion, All Types											
Medical Waste	50.00	19.85	5.53	31.31	N/A	36.84	1.13	6.40	N/A	7.53	44.37
Incineration											
Industrial Boilers: Coal,	22.02	8.74	10.35	4.43	N/A	14.78	2.30	0.99	N/A	3.28	18.06
All Types	0.00	2.00	0.75	1.75	N1/A	2.50	1 - 7	2 / 4	N1/A	F 20	7.70
Chloralkali Production	9.80 7.40	3.89 2.94	0.75	1.75	N/A	2.50	1.56	3.64	N/A	5.20	7.70
Secondary Mercury	7.40	2.94	3.70	3.70	N/A	7.40	0.00	0.00	N/A	0.00	7.40
Production  Mobile Sources: On-	5.96	2.37	N/A	N/A	2.95	2.95	N/A	N/A	1.01	1.01	3.96
Road Vehicles	3.90	2.37	IV/A	IN/A	2.90	2.93	IV/A	IV/A	1.01	1.01	3.90
Industrial Boilers: Oil	5.80	2.30	2.72	1.17	N/A	3.89	0.60	0.26	N/A	0.86	4.75
Combustion, All Types	3.00	2.50	2.72	1.17	IV/A	3.07	0.00	0.20	IV/A	0.00	4.75
Mobile Sources: Non-	4.67	1.85	N/A	N/A	3.24	3.24	N/A	N/A	0.66	0.66	3.90
Road Vehicles and	1.07	1.00	14//(	14// (	0.21	0.21	14// (	1477	0.00	0.00	0.70
Equipment - Other											
Stationary	4.47	1.78	1.80	1.20	N/A	3.00	0.40	0.27	N/A	0.67	3.67
Reciprocating IC											
Engines: Natural gas -											
fired											
Portland Cement	4.00	1.59	1.85	0.46	N/A	2.32	0.60	0.15	N/A	0.75	3.07
Manufacture: Non-											
Hazardous Waste fired											
Portland Cement	3.50	1.39	2.03	0.00	N/A	2.03	0.65	0.00	N/A	0.65	2.68
Manufacture:											
Hazardous Waste-fired	2.47	1.07	0.54	2.1/	N1/A	2.70	0.00	0.25	N1/A	0.44	2.14
Commercial/Institution al Boilers: Oil	3.46	1.37	0.54	2.16	N/A	2.70	0.09	0.35	N/A	0.44	3.14
Combustion, all types											
Hazardous Waste	3.20	1.27	2.14	0.00	N/A	2.14	0.48	0.00	N/A	0.48	2.62
Incineration:	3.20	1.27	2.14	0.00	IV/A	2.14	0.40	0.00	IV/A	0.40	2.02
Dedicated HWIs											
Residential Boilers: Oil	3.00	1.19	0.00	2.08	N/A	2.08	0.00	0.42	N/A	0.42	2.51
Combustion, All Types		,	2.00			=,00	2.00				
Pulp and Paper: Kraft	1.90	0.75	0.55	0.00	N/A	0.55	0.53	0.00	N/A	0.53	1.08
Recovery Furnaces											
Sewage Sludge	1.80	0.71	0.00	1.39	N/A	1.39	0.00	0.16	N/A	0.16	1.54
Incineration											
Industrial Turbines:	1.61	0.64	0.65	0.43	N/A	1.08	0.14	0.10	N/A	0.24	1.32
Natural gas - fired											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	1.00	0.40	0.72	0.00	N/A	0.72	0.03	0.00	N/A	0.03	0.75
chemical						0	5.55				
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/Institution al 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	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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Custom compound	0.13	0.05	0.10	0.00	N/A	0.10	0.01	0.00	N/A	0.01	0.11
purchased resins											
manufacturing											
Structural Clay	0.11	0.04	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Products, Nec											
Miscellaneous Organic	0.10	0.04	0.07	0.00	N/A	0.07	0.01	0.00	N/A	0.01	0.08
Chemical Processes											
(SICs combined)											
Industrial Turbines:	0.09	0.04	0.04	0.02	N/A	0.06	0.01	0.00	N/A	0.01	0.07
Diesel - fired											
Petroleum Refining:	0.04	0.02	0.03	0.00	N/A	0.03	0.01	0.00	N/A	0.01	0.04
(ALL PROCESSES)											
Primary batteries, dry	0.03	0.01	0.02	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
and wet,											
Utility Turbines: Diesel -	0.03	0.01	0.01	0.01	N/A	0.02	0.00	0.00	N/A	0.00	0.02
Fired		0.04	0.01	0.00		0.01	0.00	0.00		2.22	0.00
Industrial organic	0.02	0.01	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.02
chemicals											
manufacturing	0.00	0.04	0.04	0.00		0.01	0.00	0.00		0.00	0.04
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	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
Smelting Commercial/Institution	0.01	0.00	0.00	0.00	N1/A	0.01	0.00	0.00	N/A	0.00	0.01
	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
al Boilers: Wood/Wood											
Residue Combustion Paints and allied	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	IN/A	0.00	0.01
products Fluorescent Lamp	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.01
Recycling	0.01	0.00	0.00	0.00	IV/A	0.00	0.00	0.00	IVA	0.00	0.01
Inorganic Pigments	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.01
Manufacturing	0.01	0.00	0.00	0.00	IV/A	0.00	0.00	0.00	IVA	0.00	0.01
Nonmetallic mineral	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
products	0.01	0.00	0.00	0.00	IV/ A	0.00	0.00	0.00	IV/A	0.00	0.00
Plastics materials and	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
resins manufacturing	0.00	0.00	0.00	0.00	14/7-1	0.00	0.00	0.00	14/7-1	0.00	0.00
Chromium Plating:	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Chromic Anodizing	0.00	0.00	0.00	0.00	14/7-1	0.00	0.00	0.00	14/7-1	0.00	0.00
Utility Boilers: Natural	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Gas Combustion	0.00	0.00	0.00	0.00	14//1	0.00	0.00	0.00	14//1	0.00	0.00

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
	Total	% Contribution of	Major		Mobile		Major		Mobile		Combined Urban
Source Category	Emissions	Total Emissions	Sources	Area Sources	Sources	Total Urban-1	Sources	Area Sources	Sources	Total Urban-2	Emissions
	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

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

Pollutant: Methyl Chloride

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	2819	38.93	1956	0.00	N/A	1956	364	0.00	N/A	364	2320
manufacturing 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, Butvraldehyde	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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions % of Total	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
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

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

Pollutant: Methylene Chloride

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Flexible Polyurethane	19,500	23	11,856	0.00	N/A	11,856	3824	0.00	N/A	3824	15,680
Foam Production											
Pharmaceuticals	10,261	12	8,267	435	N/A	8702	823	43.30	N/A	866	9568
Preparations and											
Manufacturing (SICs											
combined)											
Halogenated Solvent	9590	11	7245.25	0.00	N/A	7245	1268	0.00	N/A	1268	8513
Cleaners (Degreasing)	F100		0404	0.00	N1/A	24.04	1000	0.00	N1/A	1000	4404
Flexible Polyurethane	5100	6.0	3101	0.00	N/A	3101	1000	0.00	N/A	1000	4101
Foam Fabrication	4700	F /	0.00	4157	NI/A	4157	0.00	250	N1/A	250	4415
Instruments and	4788	5.6	0.00	4157	N/A	4157	0.00	258	N/A	258	4415
Related Products (SICs											
combined) Consumer Products	4527	5.3	0.00	3140	N/A	3140	0.00	641	N/A	641	3781
Usage (SICs combined)	4327	5.5	0.00	3140	IV/A	3140	0.00	041	IV/A	041	3/01
Plastics materials and	3247	3.8	2022	0.00	N/A	2022	818	0.00	N/A	818	2839
resins manufacturing	3247	3.0	2022	0.00	IV/A	2022	010	0.00	IV/A	010	2037
Transportation	2743	3.2	1360	453	N/A	1814	363	121	N/A	484	2298
Equipment	2710	0.2	1000	100	14//(	1011	565	121	14//1	101	2270
Manufacture (SICs											
Publicly owned	2348	2.8	0.00	1629	N/A	1629	0.00	332	N/A	332	1961
treatment works											
(POTWs)											
Electronic and other	2342	2.7	968	323	N/A	1291	415	138	N/A	554	1845
electric equipment											
manufacturing (SICs											
combined)											
Miscellaneous Organic	2200	2.6	1638	0.00	N/A	1638	273	0.00	N/A	273	1912
Chemical Processes											
(SICs combined)											
Pulp and Paper: Non-	1740	2.0	502	0.00	N/A	502	490	0.00	N/A	490	992
Combustion Sources											
Miscellaneous Plastics	1723	2.0	685	6.92	N/A	692	671	6.78	N/A	678	1369
Products											
Landfills: Chemical	1548	1.8	0.00	1074	N/A	1074	0.00	219	N/A	219	1293
Waste Emissions	1011	1.5	/10	20/	NI/A	024	1/0	FF 00	N1/A	224	1040
Fabricated metal	1311	1.5	618	206	N/A	824	168	55.90	N/A	224	1048
products											
manufacturing (SICs Industrial Machinery	1261	1.5	505	168	N/A	673	233	77.61	N/A	310	984
3	1201	1.5	505	108	IV/A	0/3	233	77.01	IV/A	310	984
and Electrical											
Equipment (SICs Plastics products	1246	1.5	702	7.09	N/A	709	277	2.80	N/A	280	988
'	1240	1.5	102	7.07	IV/A	707	211	2.00	IV/A	200	700
manufacturing											

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

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

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	110	0.13	8.43	0.09	N/A	8.51	80.97	0.82	N/A	81.79	90.30
hose and belting											
manufacturing											
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	94.07	0.11	25.72	0.26	N/A	25.98	36.61	0.37	N/A	36.98	62.96
fixtures (1987)	74.07	0.11	25.72	0.20	14/7-4	25.70	30.01	0.57	14/7-4	30.70	02.70
Cellulosic man-made	79.57	0.09	79.57	0.00	N/A	79.57	0.00	0.00	N/A	0.00	79.57
fibers	77.57	0.07	77.57	0.00	14/7-4	17.51	0.00	0.00	14/7-4	0.00	77.57
Unsupported plastics	74.56	0.09	41.18	0.42	N/A	41.60	13.87	0.14	N/A	14.01	55.60
film and sheet	74.50	0.07	41.10	0.42	14/7-4	41.00	13.07	0.14	14/7-4	14.01	33.00
manufacturing											
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,	71.32	0.08	54.33	5.37	N/A	59.71	10.68	1.06	N/A	11.74	71.45
lithographic	71.45	0.00	34.33	3.37	IV/A	37.71	10.00	1.00	IV/A	11.74	71.45
Blast furnaces and steel	69.65	0.08	25.29	30.91	N/A	56.20	5.32	6.50	N/A	11.81	68.02
mills	04.03	0.08	25.29	30.71	IVA	30.20	5.52	0.50	IV/A	11.01	00.02
Gray and ductile iron	64.13	0.08	12.28	15.00	N/A	27.28	5.47	6.69	N/A	12.16	39.44
foundries	04.13	0.08	12.20	15.00	IV/A	27.20	5.47	0.09	IV/A	12.10	37.44
Biological products	62.63	0.07	59.49	3.13	N/A	62.63	0.00	0.00	N/A	0.00	62.63
(disc.198.2835or2836)	02.03	0.07	37.47	3.13	IV/A	02.03	0.00	0.00	IV/A	0.00	02.03
Pressed and blown	58.40	0.07	0.52	9.96	N/A	10.49	1.23	23.30	N/A	24.52	35.01
glass and glassware	30.40	0.07	0.52	7.70	IV/A	10.47	1.25	23.30	IV/A	24.32	33.01
manufacturing											
Wood household	57.77	0.07	9.94	0.00	N/A	9.94	3.64	0.00	N/A	3.64	13.58
furniture manufacturing	37.77	0.07	7.74	0.00	14/7-4	7.74	3.04	0.00	14/7-4	3.04	15.50
Metal household	54.66	0.06	0.12	0.00	N/A	0.12	0.00	0.00	N/A	0.00	0.12
furniture	34.00	0.00	0.12	0.00	IV/A	0.12	0.00	0.00	IV/A	0.00	0.12
Chemicals and allied	47.75	0.06	38.47	2.02	N/A	40.50	5.47	0.29	N/A	5.75	46.25
products	47.73	0.00	30.47	2.02	IV/A	40.50	5.47	0.27	IV/A	3.73	40.23
Wood partitions and	46.89	0.06	20.26	0.00	N/A	20.26	21.80	0.00	N/A	21.80	42.06
fixtures	10.07	0.00	20.20	0.00	14//1	20.20	21.00	0.00	14//(	21.00	12.00
Public building and	46.20	0.05	7.41	0.00	N/A	7.41	1.56	0.00	N/A	1.56	8.97
related furniture	40.20	0.03	7.41	0.00	14/7-4	7.41	1.50	0.00	14/7-4	1.50	0.77
Converted paper and	45.00	0.05	40.95	4.05	N/A	45.00	0.00	0.00	N/A	0.00	45.00
paperboard products,	43.00	0.03	40.75	4.05	14/7-4	45.00	0.00	0.00	14/7-4	0.00	45.00
nec (disc)											
Iron and Steel	39.30	0.05	11.89	14.53	N/A	26.41	5.60	6.84	N/A	12.45	38.86
Foundries: Steel	37.30	0.03	11.07	14.55	IV/A	20.41	3.00	0.04	IV/A	12.45	30.00
Foundries											
Wood television and	37.31	0.04	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
radio cabinets	37.31	0.04	0.00	0.00	IV/A	0.00	0.00	0.00	11/7	0.00	0.00
Inorganic Pigments	32.76	0.04	27.97	0.00	N/A	27.97	4.79	0.00	N/A	4.79	32.76
Manufacturing	32.70	0.04	21.71	0.00	IV/A	21.71	4./7	0.00	IV/A	4./7	32.70
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
				1				1			
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)

				URBAN-1 E	MISSIONS			URBAN-2 E	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Petroleum Refining:	25.17	0.03	14.28	0.00	N/A	14.28	4.89	0.00	N/A	4.89	19.17
Cyclic Crude and											
Intermediate											
Production											
Chemical	25.00	0.03	20.95	0.00	N/A	20.95	0.00	0.00	N/A	0.00	20.95
Manufacturing:											
Polycarbonate Resins	25.00	0.02	21.00	2.1/	N1/A	22.07	0.05	0.00	N1/A	1.05	25.00
Commercial printing,	25.00	0.03	21.80	2.16	N/A	23.96	0.95	0.09	N/A	1.05	25.00
gravure Synthetic rubber	23.15	0.03	19.87	0.00	N/A	19.87	2.94	0.00	N/A	2.94	22.81
7	23.15	0.03	19.87	0.00	IV/A	19.87	2.94	0.00	N/A	2.94	22.81
manufacturing Products of purchased	22.35	0.03	0.20	3.89	N/A	4.09	0.42	8.03	N/A	8.45	12.54
glass	22.33	0.03	0.20	3.09	IV/A	4.09	0.42	0.03	IV/A	0.45	12.54
Iron and Steel	22.29	0.03	9.47	11.58	N/A	21.05	0.18	0.22	N/A	0.40	21.45
Foundries: Steel	22.27	0.03	7.47	11.50	14/7-4	21.03	0.10	0.22	14/74	0.40	21.43
Investment Foundries											
Utility Boilers: Oil	20.00	0.02	8.24	8.24	N/A	16.47	1.37	1.37	N/A	2.75	19.22
Combustion, All Types											
Ship Building & Repair	19.30	0.02	11.76	3.92	N/A	15.68	0.38	0.13	N/A	0.51	16.19
(Surface Coating)											
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	17.19	0.02	0.09	1.68	N/A	1.77	0.16	3.11	N/A	3.28	5.04
treated production											
Industrial Boilers:	16.65	0.02	7.82	3.35	N/A	11.17	1.74	0.74	N/A	2.48	13.65
Bituminous and Lignite											
Coal Combustion											
Hose and Belting and	14.75	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Gaskets and Packing											
(1987)											
Storage batteries	13.60	0.02	0.42	7.89	N/A	8.30	0.21	3.98	N/A	4.19	12.49
manufacturing	10.05	0.01	E 44	0.05	N1/A	F F0	0.01	0.00	N1 / A	0.01	F F0
Gaskets, packing and	10.95	0.01	5.44	0.05	N/A	5.50	0.01	0.00	N/A	0.01	5.50
sealing devices manufacturing											
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	9.98	0.01	0.00	0.05	N/A	0.05	0.00	0.00	N/A	0.00	0.05
supplies	7.70	0.01	0.00	0.03	IV/A	0.03	0.00	0.00	IV/A	0.00	0.03
Nonmetallic mineral	9.17	0.01	0.08	1.61	N/A	1.70	0.06	1.16	N/A	1.22	2.92
products	7	0.01	0.00			, 0	0.00			1.22	2.72
Wood Treatment/Wood	9.00	0.01	0.00	3.46	N/A	3.46	0.00	1.87	N/A	1.87	5.33
Preserving											
Folding paperboard	8.56	0.01	3.87	0.38	N/A	4.26	2.90	0.29	N/A	3.18	7.44
boxes (1987)								<u> </u>			
Commercial printing,	8.32	0.01	6.48	0.64	N/A	7.12	1.09	0.11	N/A	1.20	8.32
nec (1987)											
Upholstered household	7.02	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
furniture											
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	6.59	0.01	2.40	0.00	N/A	2.40	4.13	0.00	N/A	4.13	6.52
wood manufacturing										1	

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

		_	URBAN-1 EMISSIONS					URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Secondary Lead	6.42	0.01	2.35	2.17	N/A	4.53	0.46	0.42	N/A	0.88	5.41
Smelting											
Industrial gases	6.20	0.01	5.45	0.29	N/A	5.74	0.00	0.00	N/A	0.00	5.74
manufacturing											
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	5.53	0.01	1.28	0.43	N/A	1.71	0.92	0.31	N/A	1.23	2.94
Products											
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)	5.10	0.01	0.18	3.37	N/A	3.55	0.02	0.32	N/A	0.34	3.89
Manufacturing											
Commercial/Institution	2.96	0.00	0.00	2.05	N/A	2.05	0.00	0.42	N/A	0.42	2.47
al Boilers: POTW											
Digester Gas											
Combustion											
Lubricating oils and	2.08	0.00	1.93	0.00	N/A	1.93	0.12	0.00	N/A	0.12	2.05
greases											
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	1.32	0.00	0.65	0.12	N/A	0.77	0.21	0.04	N/A	0.25	1.01
Manufacture: All Fuels											
Sewage Sludge	0.83	0.00	0.00	0.64	N/A	0.64	0.00	0.07	N/A	0.07	0.71
Incineration											
Medical Waste	0.58	0.00	0.06	0.37	N/A	0.43	0.01	0.07	N/A	0.09	0.52
Incineration	0.50	0.00	0.00	0.00		0.44	0.04	0.05		0.07	0.47
Commercial/Institution	0.52	0.00	0.08	0.33	N/A	0.41	0.01	0.05	N/A	0.07	0.47
al Boilers: Bituminous											
and Lignite Coal											
Combustion	0.38	0.00	0.19	0.19	N/A	0.38	0.00	0.00	N/A	0.00	0.38
Petroleum Refining:	0.38	0.00	0.19	0.19	N/A	0.38	0.00	0.00	N/A	0.00	0.38
Other Petroleum Products											
Petroleum Refining:	0.13	0.00	0.09	0.00	N/A	0.09	0.03	0.00	N/A	0.03	0.12
(ALL PROCESSES)	0.13	0.00	0.09	0.00	IV/A	0.09	0.03	0.00	IN/A	0.03	0.12
Rubber & Plastic	0.13	0.00	0.12	0.00	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Products	0.13	0.00	0.12	0.00	11/ 🔼	0.13	0.00	0.00	IN/ A	0.00	0.13
Structural Clay	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Products, Nec	0.01	0.00	0.00	0.00	11/ 🔼	0.00	0.00	0.00	IN/ A	0.00	0.00
Primary batteries, dry	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
and wet.	0.00	3.33	0.00			0.00	0.00	0.00		0.00	5.55

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

## Pollutant: <u>Methylene Diphenyl Diisocyanate</u>

	Total % Contribution o			URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Combined
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Transportation	57.91	18.43	28.72	9.57	N/A	38.30	7.67	2.56	N/A	10.22	48.52
Equipment											
Manufacture (SICs											
Flexible Polyurethane	50.00	15.91	30.40	0.00	N/A	30.40	9.81	0.00	N/A	9.81	40.21
Foam Production											
Industrial Machinery	37.29	11.87	14.93	4.98	N/A	19.91	6.89	2.30	N/A	9.18	29.09
and Electrical											
Equipment (SICs											
Gray and ductile iron	36.17	11.51	6.92	8.46	N/A	15.39	3.09	3.77	N/A	6.86	22.24
foundries											
Iron and Steel	30.58	9.73	9.25	11.30	N/A	20.55	4.36	5.33	N/A	9.68	30.23
Foundries: Steel											
Foundries											
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	18.85	6.00	7.79	2.60	N/A	10.39	3.34	1.11	N/A	4.46	14.85
electric equipment											
manufacturing (SICs											
combined) Miscellaneous	8.69	2.76	4.00	0.05	N/A	F (0	4.00	0.10	N1 / A	1.20	4.00
	8.69	2.76	4.83	0.85	N/A	5.68	1.02	0.18	N/A	1.20	6.88
Manufacturing (SICs											
combined) Plastics products	6.63	2.11	3.73	0.04	N/A	3.77	1.47	0.01	N/A	1.49	5.25
manufacturing	0.03	2.11	3.73	0.04	IVA	3.77	1.47	0.01	IV/A	1.47	5.25
Fabricated metal	6.31	2.01	2.97	0.99	N/A	3.97	0.81	0.27	N/A	1.08	5.04
products	0.51	2.01	2.77	0.77	14/7-4	3.77	0.01	0.27	14/7-4	1.00	3.04
manufacturing (SICs											
Industrial organic	4.45	1.42	3.09	0.00	N/A	3.09	0.57	0.00	N/A	0.57	3.66
chemicals		2	0.07	0.00		0.07	0.07	0.00		0.07	0.00
manufacturing											
Public building and	4.11	1.31	0.66	0.00	N/A	0.66	0.14	0.00	N/A	0.14	0.80
related furniture											
Food Products (SICs	3.80	1.21	0.10	1.81	N/A	1.90	0.09	1.63	N/A	1.72	3.62
combined)											
Miscellaneous Plastics	3.63	1.15	1.44	0.01	N/A	1.46	1.41	0.01	N/A	1.43	2.88
Products			<u> </u>								
Primary metal products	3.17	1.01	0.91	1.11	N/A	2.02	0.19	0.23	N/A	0.42	2.44
manufacturing (SICs											
combined)											
Miscellaneous Organic	3.02	0.96	2.25	0.00	N/A	2.25	0.38	0.00	N/A	0.38	2.63
Chemical Processes											
(SICs combined)											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	3.02	0.96	1.88	0.00	N/A	1.88	0.76	0.00	N/A	0.76	2.64
resins manufacturing											
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	1.15	0.36	0.05	0.00	N/A	0.05	0.19	0.00	N/A	0.19	0.24
products (1987)											
Office furniture, except	1.06	0.34	0.38	0.00	N/A	0.38	0.66	0.00	N/A	0.66	1.04
wood manufacturing											
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	1.00	0.32	0.67	0.04	N/A	0.71	0.21	0.01	N/A	0.22	0.93
combined)	1.00	0.32	0.07	0.04	14/74	0.71	0.21	0.01	14/74	0.22	0.75
Paints and allied	0.90	0.29	0.77	0.00	N/A	0.77	0.06	0.00	N/A	0.06	0.83
products											
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	0.77	0.24	0.69	0.04	N/A	0.72	0.01	0.00	N/A	0.01	0.74
(SICs combined)	0.77	0.24	0.09	0.04	IV/A	0.72	0.01	0.00	IV/A	0.01	0.74
Chemicals and allied	0.69	0.22	0.55	0.03	N/A	0.58	0.08	0.00	N/A	0.08	0.66
products	0.07	0.22	0.00	0.00	14//(	0.00	0.00	0.00	14//(	0.00	0.00
Rubber and plastic	0.56	0.18	0.04	0.00	N/A	0.04	0.41	0.00	N/A	0.42	0.46
hose and belting											
manufacturing											
Custom compound	0.51	0.16	0.38	0.00	N/A	0.39	0.04	0.00	N/A	0.04	0.43
purchased resins		22									
manufacturing											
Softwood veneer and	0.39	0.12	0.02	0.00	N/A	0.02	0.11	0.00	N/A	0.11	0.13
plowylg											
Plastics plumbing	0.39	0.12	0.11	0.00	N/A	0.11	0.15	0.00	N/A	0.15	0.26
fixtures (1987)											
Chemical	0.37	0.12	0.06	0.14	N/A	0.20	0.02	0.05	N/A	0.07	0.27
Manufacturing:											
Alkalies and chlorine											
Chemical Preparations	0.25	0.08	0.19	0.01	N/A	0.20	0.01	0.00	N/A	0.01	0.20
(SICs combined)				<u> </u>							
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	0.13	0.04	0.00	0.07	N/A	0.07	0.00	0.05	N/A	0.05	0.12
Manufacturing											
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,	0.13	0.04	0.11	0.01	N/A	0.13	0.00	0.00	N/A	0.00	0.13
Laminated, & Coated											
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

				URBAN-1 E	EMISSIONS			URBAN-2 I	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources		Total Urban-1	Major Sources	Area Sources		Total Urban-2	Combined Urban Emissions
	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

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

Pollutant: Nickel Compounds

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Combined
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	389	25.60	160	160	N/A	320	26.70	26.70	N/A	53.41	374
Combustion, All Types											
Commercial/Institution	297	19.54	46.41	186	N/A	232	7.54	30.17	N/A	37.71	270
al Boilers: Residual Oil											
Combustion											
Industrial Boilers:	117	7.70	54.96	23.55	N/A	78.52	12.21	5.23	N/A	17.44	95.96
Residual Oil											
Combustion											
Fabricated metal	55.35	3.64	26.09	8.70	N/A	34.78	7.08	2.36	N/A	9.44	44.22
products											
manufacturing (SICs											
Transportation	54.40	3.58	26.99	9.00	N/A	35.98	7.20	2.40	N/A	9.60	45.58
Equipment											
Manufacture (SICs											
Residential Boilers:	50.23	3.31	0.00	34.85	N/A	34.85	0.00	7.11	N/A	7.11	41.96
Bituminous and Lignite											
Coal Combustion											
Primary metal products	48.59	3.20	13.94	17.03	N/A	30.97	2.89	3.53	N/A	6.42	37.39
manufacturing (SICs											
combined)	40.00	2.17	10.51	0.00	NI/A	10.51	12.00	0.00	NI/A	12.00	20.51
Utility Boilers: Coal	48.00	3.16	18.51	0.00	N/A	18.51	12.00	0.00	N/A	12.00	30.51
Combustion, All Types	47.00	2.1/	7.50	20.00	N/A	27.50	1.00	4.07	N/A	4.00	42.50
Commercial/Institution	47.98	3.16	7.50	30.00	N/A	37.50	1.22	4.87	N/A	6.09	43.59
al Boilers: Bituminous											
and Lignite Coal											
Combustion Utility Turbines: Diesel -	44.01	2.90	20.67	8.86	N/A	29.54	4.59	1.97	N/A	6.56	36.10
Fired	44.01	2.70	20.07	0.00	IN/A	27.54	4.57	1.77	IV/A	0.50	30.10
Blast furnaces and steel	36.07	2.37	13.10	16.01	N/A	29.11	2.75	3.36	N/A	6.12	35.23
mills	30.07	2.57	13.10	10.01	IV/A	27.11	2.73	3.30	IV/A	0.12	33.23
Industrial Machinery	34.58	2.28	13.85	4.62	N/A	18.47	6.39	2.13	N/A	8.51	26.98
and Electrical	01.00	2.20	10.00	1.02	14//(	10.17	0.07	2.10	14//(	0.01	20.70
Equipment (SICs											
Industrial Turbines:	27.89	1.84	11.23	7.49	N/A	18.72	2.50	1.66	N/A	4.16	22.88
Natural gas - fired											
Industrial Boilers: Waste	21.73	1.43	10.21	4.38	N/A	14.58	2.27	0.97	N/A	3.24	17.82
Oil Combustion					<i>y</i> =						]
Primary nonferrous	16.58	1.09	3.45	4.22	N/A	7.67	1.85	2.26	N/A	4.11	11.78
metals production					-						
Industrial Boilers:	16.07	1.06	7.55	3.24	N/A	10.79	1.68	0.72	N/A	2.40	13.18
Bituminous and Lignite											
Coal Combustion											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	15.42	1.01	6.38	2.13	N/A	8.50	2.74	0.91	N/A	3.65	12.15
electric equipment											
manufacturing (SICs											
combined)											
Petroleum Refining:	14.77	0.97	10.79	0.00	N/A	10.79	3.18	0.00	N/A	3.18	13.97
(ALL PROCESSES)											
Mobile Sources: On-	14.66	0.96	0.00	0.00	7.26	7.26	0.00	0.00	2.49	2.49	9.74
Road Vehicles											
Industrial Boilers:	13.96	0.92	6.56	2.81	N/A	9.37	1.46	0.62	N/A	2.08	11.45
Natural Gas											
Combustion											
Petroleum Refining:	13.02	0.86	7.39	0.00	N/A	7.39	2.53	0.00	N/A	2.53	9.92
Cyclic Crude and											
Intermediate											
Production											
Industrial inorganic	12.61	0.83	9.12	0.00	N/A	9.12	0.37	0.00	N/A	0.37	9.49
chemical											
Pulp and Paper: Kraft	12.00	0.79	3.46	0.00	N/A	3.46	3.38	0.00	N/A	3.38	6.84
Recovery Furnaces											
Chromium Plating:	9.75	0.64	0.42	7.92	N/A	8.33	0.03	0.51	N/A	0.54	8.87
Chromic Anodizing											
Mobile Sources: Non-	9.48	0.62	0.00	0.00	6.58	6.58	0.00	0.00	1.34	1.34	7.92
Road Vehicles and											
Equipment - Other											
Iron and Steel	7.29	0.48	2.21	2.70	N/A	4.90	1.04	1.27	N/A	2.31	7.21
Foundries: Steel											
Foundries											
Primary Copper	6.87	0.45	0.29	0.86	N/A	1.14	0.96	2.88	N/A	3.84	4.98
Smelting											
Other Secondary	6.65	0.44	2.69	3.29	N/A	5.98	0.11	0.14	N/A	0.25	6.23
Nonferrous Metals											
Recovery		0.40	1.00	4.00		5.00	0.17	0.45		0.04	5.04
Commercial/Institution	6.40	0.42	1.00	4.00	N/A	5.00	0.16	0.65	N/A	0.81	5.81
al Boilers: Anthracite											
Coal Combustion	. 05	0.40	0.00	4.40	N1/A	4.40	0.00	0.00	N1/A	0.00	F 00
Residential Boilers:	6.35	0.42	0.00	4.40	N/A	4.40	0.00	0.90	N/A	0.90	5.30
Anthracite Coal											
Combustion	/ DE	0.41	2.07	0.77	NI/A	2.04	0.70	0.20	NI/A	0.00	4.02
Industrial Boilers:	6.25	0.41	3.07	0.77	N/A	3.84	0.79	0.20	N/A	0.99	4.83
Wood/Wood Residue											
Combustion	5.07	0.33	2.20	1.02	N/A	3.40	0.53	0.22	N/A	0.7/	4.17
Industrial Boilers:	5.07	0.33	2.38	1.02	IN/A	3.40	0.53	0.23	N/A	0.76	4.16
Anthracite Coal											
Combustion											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institution	4.39	0.29	0.69	2.74	N/A	3.43	0.11	0.45	N/A	0.56	3.99
al Boilers: Distillate Oil											
Combustion											
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	3.38	0.22	2.13	0.71	N/A	2.84	0.20	0.07	N/A	0.27	3.11
products, nec	0.00	0.22	2.10	0.71	14//1	2.01	0.20	0.07	14//	0.27	0.11
Iron and Steel	3.03	0.20	1.29	1.58	N/A	2.86	0.02	0.03	N/A	0.05	2.92
Foundries: Steel	3.03	0.20	1.27	1.50	IV/ A	2.00	0.02	0.03	IV/ A	0.03	2.72
Investment Foundries											
Miscellaneous	2.83	0.19	1.57	0.28	N/A	1.85	0.33	0.06	N/A	0.39	2.24
	2.03	0.19	1.57	0.20	IV/A	1.05	0.33	0.00	IV/A	0.39	2.24
Manufacturing (SICs											
combined) 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-	2.79	0.18	2.50 2.17	0.00	N/A	2.50	0.19	0.00	N/A	0.19	2.09
,	2.42	0.16	2.17	0.00	N/A	2.17	0.17	0.00	N/A	0.17	2.34
product Recovery											
Plants	0.07	0.47		0.00		4.1	0.00	0.00		0.00	4.04
Industrial organic	2.36	0.16	1.64	0.00	N/A	1.64	0.30	0.00	N/A	0.30	1.94
chemicals											
manufacturing								4			
Utility Boilers: Natural	2.30	0.15	0.00	1.29	N/A	1.29	0.00	0.63	N/A	0.63	1.92
Gas Combustion											
Miscellaneous Organic	2.18	0.14	1.63	0.00	N/A	1.63	0.27	0.00	N/A	0.27	1.90
Chemical Processes											
(SICs combined)											
Industrial Boilers:	2.06	0.14	0.97	0.42	N/A	1.39	0.22	0.09	N/A	0.31	1.69
Distillate Oil											
Combustion											
Chemical Preparations	1.89	0.12	1.39	0.07	N/A	1.46	0.04	0.00	N/A	0.04	1.50
(SICs combined)											
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	1.61	0.11	0.00	1.24	N/A	1.24	0.00	0.14	N/A	0.14	1.38
Incineration											
Instruments and	1.51	0.10	0.00	1.31	N/A	1.31	0.00	0.08	N/A	0.08	1.40
Related Products (SICs											
combined)											
Partitions and fixtures.	1.13	0.07	0.01	0.00	N/A	0.01	0.70	0.00	N/A	0.70	0.71
except wood											-····
Municipal Waste	0.97	0.06	0.71	0.04	N/A	0.75	0.12	0.01	N/A	0.12	0.87
Combustion	0.,,	5.55	· · · ·	0.0.		00	52	0.0.		52	5.57
Ship Building & Repair	0.93	0.06	0.57	0.19	N/A	0.75	0.02	0.01	N/A	0.02	0.78
(Surface Coating)	0.75	0.00	0.57	0.17	14/73	0.73	0.02	0.01	14/73	0.02	0.70
Storage batteries	0.90	0.06	0.03	0.52	N/A	0.55	0.01	0.26	N/A	0.28	0.82
manufacturing	0.70	0.00	0.03	0.02	14/73	0.55	0.01	0.20	14/73	0.20	0.02
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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Inorganic Pigments	0.63	0.04	0.54	0.00	N/A	0.54	0.09	0.00	N/A	0.09	0.63
Manufacturing											
Plastics products	0.60	0.04	0.34	0.00	N/A	0.34	0.13	0.00	N/A	0.13	0.47
manufacturing											
Medical Waste	0.54	0.04	0.06	0.34	N/A	0.40	0.01	0.07	N/A	0.08	0.48
Incineration											
Paints and allied	0.53	0.03	0.45	0.00	N/A	0.45	0.04	0.00	N/A	0.04	0.49
products											
Other Miscellaneous	0.51	0.03	0.36	0.04	N/A	0.40	0.02	0.00	N/A	0.02	0.42
(SICs combined)											
Steel and Iron	0.50	0.03	0.13	0.38	N/A	0.50	0.00	0.00	N/A	0.00	0.50
Reclamation- Auto											
Scrap Burning											
Structural Clay	0.45	0.03	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Products, Nec											
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	0.38	0.02	0.14	0.00	N/A	0.14	0.23	0.00	N/A	0.23	0.37
wood manufacturing											
Cleaning Products (SICs	0.27	0.02	0.18	0.01	N/A	0.19	0.06	0.00	N/A	0.06	0.25
combined)											
Custom compound	0.26	0.02	0.19	0.00	N/A	0.20	0.02	0.00	N/A	0.02	0.22
purchased resins											
manufacturing											
Pressed and blown	0.26	0.02	0.00	0.04	N/A	0.05	0.01	0.10	N/A	0.11	0.15
glass and glassware											
manufacturing											
Porcelain electrical	0.26	0.02	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
supplies											
Minerals, ground or	0.26	0.02	0.00	0.02	N/A	0.03	0.00	0.05	N/A	0.05	0.07
treated production											
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:	0.23	0.02	0.00	0.16	N/A	0.16	0.00	0.03	N/A	0.03	0.19
Wood/Wood Residue											
Combustion											
Food Products (SICs	0.20	0.01	0.00	0.09	N/A	0.10	0.00	0.08	N/A	0.09	0.19
combined)											
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

				URBAN-1 E	EMISSIONS			URBAN-2 E	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Miscellaneous Plastics	0.14	0.01	0.05	0.00	N/A	0.05	0.05	0.00	N/A	0.05	0.11
Products											
Plastics materials and	0.13	0.01	0.08	0.00	N/A	0.08	0.03	0.00	N/A	0.03	0.12
resins manufacturing											
Public building and	0.13	0.01	0.02	0.00	N/A	0.02	0.00	0.00	N/A	0.00	0.03
related furniture											
Plastics products inc.	0.13	0.01	0.13	0.00	N/A	0.13	0.00	0.00	N/A	0.00	0.13
plastic bottles											
Plastics foam products	0.13	0.01	0.07	0.00	N/A	0.07	0.04	0.00	N/A	0.04	0.11
manufacturing											
Open Burning: Scrap	0.13	0.01	0.00	0.09	N/A	0.09	0.00	0.02	N/A	0.02	0.11
Tires				<u> </u>							
Primary Aluminum	0.13	0.01	0.01	0.01	N/A	0.02	0.02	0.02	N/A	0.04	0.06
Production											
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	0.13	0.01	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
furniture	0.10	0.04	0.07	0.00		0.00	0.04	0.00		0.04	0.00
Organic fibers, non-	0.13	0.01	0.07	0.00	N/A	0.08	0.01	0.00	N/A	0.01	0.08
cellulosic											
manufacturing											
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/Institution	0.10	0.01	0.02	0.06	N/A	0.08	0.00	0.01	N/A	0.01	0.09
al Boilers: Wood/Wood											
Residue Combustion											
Utility Turbines: Natural	0.06	0.00	0.02	0.02	N/A	0.04	0.01	0.00	N/A	0.01	0.05
gas - fired											
Vitreous plumbing	0.06	0.00	0.00	0.03	N/A	0.03	0.00	0.02	N/A	0.03	0.06
fixtures	0.01	0.00	0.00	0.00		0.04	0.00	0.00		0.04	0.04
Surface active agents	0.04	0.00	0.03	0.00	N/A	0.04	0.00	0.00	N/A	0.01	0.04
manufacturing		0.00	0.01	0.00		0.01	0.00	0.00		0.00	0.04
Synthetic rubber	0.01	0.00	0.01	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
manufacturing	0.01	0.00	0.00	0.00	N1/A	0.00	0.00	0.00	N1 / A	0.00	0.00
Primary batteries, dry	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
and wet,	0.04	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00
Pharmaceuticals	0.01	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Preparations and											
Manufacturing (SICs											
combined)	0.01	0.00	0.00	0.00	N1 / 2	0.01	0.00	0.00	B./ / O	0.00	0.01
Fabricated rubber	0.01	0.00	0.00	0.00	N/A	0.01	0.00	0.00	N/A	0.00	0.01
products											
Gaskets, packing and	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
sealing devices				1							
manufacturing				ļ							
Abrasive Grain (Media)	0.00	0.00	0.00	0.00	N/A	0.00	0.00	0.00	N/A	0.00	0.00
Manufacturing											

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

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

Pollutant: <u>7-PAH</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers:	572.00	28.60	0	395.88	N/A	395.88	0	83.40	N/A	83.40	479.28
Wood/Wood Residue											
Combustion											
Open Burning: Forest	537.80	26.89	0	33.34	N/A	33.34	0	78.47	N/A	78.47	111.81
and Wildfires											
Open Burning:	426.20	21.31	0	62.74	N/A	62.74	0	95.77	N/A	95.77	158.50
Prescribed Burnings											
Primary Aluminum	141.00	7.05	8.44	10.31	N/A	18.75	20.98	25.65	N/A	46.63	65.38
Production											
Coke Ovens: Charging,	71.80	3.59	64.38	0	N/A	64.38	4.95	0	N/A	4.95	69.33
Topside, & Door Leaks	71.00	0.07	01.00		14//	01.00	1.70	o o	14// (	1.70	07.00
Open Burning: Scrap	52.50	2.63	0	35.48	N/A	35.48	0	8.18	N/A	8.18	43.67
Tires											
Commercial/Institutiona	36.00	1.80	5.63	22.51	N/A	28.13	0.91	3.66	N/A	4.57	32.71
l Boilers: Bituminous and											
Lignite Coal											
Combustion											
Mobile Sources: On-	34.35	1.72	N/A	N/A	17.00	17.00	N/A	N/A	5.83	5.83	22.83
Road Vehicles											
Residential Boilers:	31.80	1.59	0	22.06	N/A	22.06	0	4.50	N/A	4.50	26.57
Bituminous and Lignite											
Coal Combustion											
Coke Ovens: Pushing,	30.10	1.51	26.99	0	N/A	26.99	2.08	0	N/A	2.08	29.06
Quenching, and Battery											
Stacks											
Mobile Sources: Non-	24.00	1.20	N/A	N/A	16.65	16.65	N/A	N/A	3.40	3.40	20.05
Road Vehicles and											
Equipment - Other	16.40	0.82	11.99	0	N/A	11.99	3.53	0	N/A	3.53	15.52
Petroleum Refining:	16.40	0.82	11.99	U	N/A	11.99	3.53	U	N/A	3.53	15.52
(ALL PROCESSES) Portland Cement	4.61	0.23	2.67	0	N/A	2.67	0.86	0	N/A	0.86	3.53
	4.01	0.23	2.07	U	IV/A	2.07	0.60	U	IN/A	0.60	3.33
Manufacture:											
Hazardous Waste-fired Pulp and Paper: Kraft	3.74	0.19	1.08	0	N/A	1.08	1.05	0	N/A	1.05	2.13
Recovery Furnaces	5.74	U. 17	1.00	U	IN/ A	1.00	1.03		IN/ A	1.03	2.10
Industrial Boilers: Coal,	3.09	0.15	1.45	0.62	N/A	2.07	0.32	0.14	N/A	0.46	2.53
All Types	3.07	0.15	1.45	0.02	14//-	2.07	0.52	0.14	14/74	0.40	2.55
Portland Cement	2.78	0.14	1.29	0.32	N/A	1.61	0.42	0.10	N/A	0.52	2.13
Manufacture: Non-	2.70	J		0.02			02			5.52	20
Hazardous Waste fired											

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

Source Category Industrial Boilers:				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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/Institutiona I 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	0.25	0.01	0.07	0	N/A	0.07	0.07	0	N/A	0.07	0.14
Kilns											
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/Institutiona I 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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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/Institutiona I 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

Pollutant: 16-PAH

		I		URBAN-1 E	MISSIONS		I	URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Source		Mobile Source	Total Urban-1	Major Source		Mobile Source	Total Urban-2	Combined Urban Emissions
	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	8855	45	0	6129	N/A	6129	0	1291	N/A	1291	7420
Combustion											
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	517	2.63	464	0	N/A	464	35.67	0	N/A	35.67	499
Stacks Blast furnaces and steel	499	2.53	181	221	N/A	402	38.06	46.52	N/A	84.58	487
mills Miscellaneous Organic Chemical Processes	440	2.23	327	0	N/A	327	54.64	0	N/A	54.64	382
(SICs combined) 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	227	1.15	157	0	N/A	157	29.26	0	N/A	29.26	187
manufacturing 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				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions		Area Source	Mobile Source		Major Source		Mobile Source	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutiona	139	0.71	21.73	86.90	N/A	109	3.53	14.12	N/A	17.65	126
l Boilers: Bituminous and											
Lignite Coal											
Combustion											
Fabricated metal	125	0.64	59.03	19.68	N/A	78.71	16.02	5.34	N/A	21.35	100
products											
manufacturing (SICs											
Plastics foam products	110	0.56	57.70	0.58	N/A	58.28	32.72	0.33	N/A	33.05	91.3
manufacturing											
Petroleum Refining:	104	0.53	58.98	0	N/A	58.98	20.19	0	N/A	20.19	79.2
Cyclic Crude and											
Intermediate											
Production											
Residential Boilers:	103	0.52	0	71.18	N/A	71.18	0	14.53	N/A	14.53	85.7
Bituminous and Lignite	100	0.02	· ·	71.10	1477	71.10	Ü	11.00	14//1	11.00	00.7
Coal Combustion											
Wood Treatment/Wood	90.4	0.46	0	34.79	N/A	34.79	0	18.76	N/A	18.76	53.6
Preserving	70.4	0.40	U	34.77	IN/A	34.77	U	10.70	IV/A	10.70	33.0
Coke Ovens: By-	77.2	0.39	69.18	0	N/A	69.18	5.32	0	N/A	5.32	74.5
product Recovery	11.2	0.37	07.10	U	11/7	07.10	3.32	U	14/7	3.32	74.5
Plants											
Mobile Sources: On-	75.9	0.39	N/A	N/A	37.58	37.58	N/A	N/A	12.88	12.88	50.5
	73.9	0.39	IV/A	IN/ A	37.30	37.30	IV/A	IN/A	12.00	12.00	50.5
Road Vehicles Secondary Lead	69.8	0.35	25.59	23.62	N/A	49.20	4.99	4.61	N/A	9.60	58.8
7	09.0	0.33	23.39	23.02	IN/A	49.20	4.99	4.01	IV/A	9.00	0.00
Smelting Paper coated and	55.4	0.20	37.62	3.72	N/A	41.34	10.04	1.00	N/A	13.58	54.9
	55.4	0.28	37.02	3.72	IN/A	41.34	12.36	1.22	N/A	13.38	54.9
laminated, packaging Portland Cement	51.0	0.26	23.64	5.91	N/A	29.55	7.63	1.91	N/A	9.53	39.1
	51.0	0.20	23.04	5.91	IN/A	29.55	7.03	1.91	N/A	9.53	39.1
Manufacture: Non-											
Hazardous Waste fired	47./	0.04	10.17	40.70	21/2	21.01	4.07	0.04	N1 / A	7.10	20.0
Stationary	47.6	0.24	19.17	12.78	N/A	31.94	4.26	2.84	N/A	7.10	39.0
Reciprocating IC											
Engines: Natural gas -											
fired											
Mobile Sources: Non-	47.0	0.24	N/A	N/A	32.61	32.61	N/A	N/A	6.66	6.66	39.3
Road Vehicles and											
Equipment - Other											
Industrial Boilers:	44.7	0.23	21.00	9.00	N/A	30.00	4.67	2.00	N/A	6.66	36.7
Residual Oil Combustion											
Asphalt paving mixtures	43.7	0.22	43.70	0	N/A	43.70	0	0	N/A	0	43.7
and blocks	40.7	0.00	40.00		N1 / A	40.00	0.44		N1 / A	0.44	40.7
Asphalt Production -	43.6	0.22	42.28	0	N/A	42.28	0.44	0	N/A	0.44	42.7
Other											
Other Miscellaneous	40.8	0.21	28.57	3.17	N/A	31.75	1.70	0.19	N/A	1.89	33.6
(SICs combined)											

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

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions		Area Source	Mobile Source		Major Source		Mobile Source	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Commercial/Institutiona	40.1	0.20	6.27	25.07	N/A	31.34	1.02	4.07	N/A	5.09	36.4
l Boilers: Residual Oil											
Combustion											
Transportation	37.2	0.19	18.44	6.15	N/A	24.59	4.92	1.64	N/A	6.56	31.1
Equipment											
Manufacture (SICs											
Commercial/Institutiona	35.8	0.18	5.48	21.92	N/A	27.40	0.98	3.90	N/A	4.88	32.3
l Boilers: Wood/Wood											
Residue Combustion											
Commercial/Institutiona	33.7	0.17	5.27	21.07	N/A	26.34	0.86	3.42	N/A	4.28	30.6
l Boilers: Anthracite											
Coal Combustion											
Paints and allied	30.7	0.16	26.09	0	N/A	26.09	2.08	0	N/A	2.08	28.2
products											
Iron and Steel	29.7	0.15	0	0	N/A	0	28.18	0	N/A	28.18	28.2
Foundries: All Processes	2,,,	0.10		Ŭ	,,		20.10	Ü		200	20.2
Touridies. 741110ccsscs											
Gray and ductile iron	29.4	0.15	5.63	6.88	N/A	12.51	2.51	3.07	N/A	5.58	18.1
foundries	27.4	0.13	3.03	0.00	IV/A	12.51	2.51	3.07	IV/A	5.50	10.1
Commercial printing,	28.9	0.15	25.18	2.49	N/A	27.67	1.10	0.11	N/A	1.21	28.9
	20.9	0.15	23.10	2.49	IN/A	27.07	1.10	0.11	IV/A	1.21	20.9
gravure Electronic and other	28.4	0.14	11.76	3.92	N/A	15.68	5.04	1.68	N/A	6.73	22.4
	20.4	0.14	11.70	3.72	IV/A	15.00	5.04	1.00	IV/A	0.73	22.4
electric equipment											
manufacturing (SICs											
combined) Portland Cement	28.0	0.14	16.22	0	N/A	16.22	5.23	0	N/A	5.23	21.5
	28.0	0.14	10.22	U	IN/A	10.22	5.23	U	N/A	5.23	21.5
Manufacture:											
Hazardous Waste-fired	27.1	0.14	18.98	8.14	N/A	27.12	0	0	N/A	0	27.1
Phthalic Anhydride	27.1	0.14	18.98	8.14	IN/A	27.12	U	U	IV/A	U	27.1
Production	27.0	0.14	7.73	9.45	NI/A	17.18	1.40	1.0/	NI / A	2.57	20.7
Primary metal products	27.0	0.14	7.73	9.45	N/A	17.18	1.60	1.96	N/A	3.56	20.7
manufacturing (SICs											
combined)	05.0	0.10	5.00	0.50	21/2	0.00	44.47	5.00		44.47	05.0
Chemical	25.0	0.13	5.83	2.50	N/A	8.33	11.67	5.00	N/A	16.67	25.0
Manufacturing:											
Naphthalene											
Abrasive Grain (Media)	24.8	0.13	0.86	16.40	N/A	17.27	0.08	1.57	N/A	1.66	18.9
Manufacturing		ļ				+				1	
Residential Boilers: Oil	21.0	0.11	0	14.57	N/A	14.57	0	2.97	N/A	2.97	17.5
Combustion, All Types											
Fabricated metal	17.4	0.09	10.96	3.65	N/A	14.61	1.05	0.35	N/A	1.40	16.0
products, nec											
Industrial inorganic	15.7	0.08	11.34	0	N/A	11.34	0.47	0	N/A	0.47	11.8
chemical											
Ship Building & Repair	14.4	0.07	8.77	2.92	N/A	11.69	0.29	0.10	N/A	0.38	12.1
(Surface Coating)											

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

				URBAN-1	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	Combined Urban Emissions
	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/Institutiona	13.2	0.07	2.06	8.25	N/A	10.32	0.34	1.34	N/A	1.68	12.0
l Boilers: Distillate Oil											
Combustion											
Public building and	11.6	0.06	1.87	0	N/A	1.87	0.39	0	N/A	0.39	2.26
related furniture											
Wood household	11.3	0.06	1.94	0	N/A	1.94	0.71	0	N/A	0.71	2.65
furniture manufacturing											
Commercial printing,	10.4	0.05	9.49	0.94	N/A	10.43	0	0	N/A	0	10.4
letterpress, and screen											
(disc											
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	9.43	0.05	8.28	0.44	N/A	8.72	0	0	N/A	0	8.72
manufacturing						1	-				
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	8.55	0.04	5.32	0	N/A	5.32	2.15	0	N/A	2.15	7.47
resins manufacturing											
Industrial Boilers: Waste	7.82	0.04	3.67	1.57	N/A	5.25	0.82	0.35	N/A	1.17	6.41
Oil Combustion											
Utility Boilers: Coal	7.55	0.04	2.91	0	N/A	2.91	1.89	0	N/A	1.89	4.80
Combustion, All Types											
Surface active agents	7.41	0.04	5.98	0.31	N/A	6.29	0.86	0.05	N/A	0.90	7.20
manufacturing											
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	6.79	0.03	4.98	0.26	N/A	5.25	0.15	0.01	N/A	0.16	5.40
(SICs combined)											
Miscellaneous	6.58	0.03	3.66	0.65	N/A	4.30	0.77	0.14	N/A	0.91	5.21
Manufacturing (SICs											
combined)											
Office furniture, except	6.45	0.03	2.34	0	N/A	2.34	4.04	0	N/A	4.04	6.38
wood manufacturing											
Chemical	6.24	0.03	1.75	0.75	N/A	2.50	0.87	0.37	N/A	1.25	3.74
Manufacturing:											
Napthalene Sulfonates	/ 47	0.00	0.07	^	N1/A	0.07	2.00	0	N1/A	2.00	F 4.4
Pulp and Paper: Sulfite	6.17	0.03	2.06	0	N/A	2.06	3.09	0	N/A	3.09	5.14
Recovery	/ 15	0.00	2.00	1.04	N1/A	4.10	0.74	0.00	NI/A	0.00	5.04
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

				URBAN-1 E	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions		Area Source	Mobile Source	Total Urban-1	Major Source		Mobile Source	Total Urban-2	Combined Urban Emissions
	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	5.06	0.03	4.61	0.46	N/A	5.06	0	0	N/A	0	5.06
similar products											
Stationary	5.02	0.03	2.36	1.01	N/A	3.37	0.52	0.22	N/A	0.75	4.12
Reciprocating IC											
Engines: Diesel - fired											
Mobile Sources: Non-	4.79	0.02	N/A	N/A	4.12	4.12	N/A	N/A	0.53	0.53	4.65
Road Vehicles and											
Equipment - Aircraft											
Chemical	4.52	0.02	0.75	1.76	N/A	2.51	0.24	0.56	N/A	0.80	3.31
Manufacturing: Alkalies											
and chlorine											
Partitions and fixtures,	4.35	0.02	0.04	0	N/A	0.04	2.70	0	N/A	2.70	2.75
except wood											
Carbon Black	4.33	0.02	0.26	0.62	N/A	0.88	0.76	1.77	N/A	2.53	3.41
Manufacture											
Adhesives and Sealants	4.18	0.02	3.75	0.20	N/A	3.95	0.07	3.74E-03	N/A	0.07	4.03
(SICs combined)											
Carbamate Insecticides	4.08	0.02	1.22	2.86	N/A	4.08	0	0	N/A	0	4.08
Production							_	-			
Food Products (SICs	3.54	0.02	0.09	1.68	N/A	1.77	0.08	1.52	N/A	1.60	3.37
combined)	0.01	0.02	0.07	1.00	14//(	1.77	0.00	1.02	14//1	1.00	0.07
Cigarette Smoke	3.45	0.02	0	2.39	N/A	2.39	0	0.49	N/A	0.49	2.88
Industrial Machinery	2.77	0.01	1.11	0.37	N/A	1.48	0.51	0.17	N/A	0.68	2.16
and Electrical	2.77	0.01		0.07	14//(	1.10	0.01	0.17	14//1	0.00	2.10
Equipment (SICs											
Carbon and Graphite	2.08	0.01	0.48	0.16	N/A	0.64	0.35	0.12	N/A	0.46	1.11
Products	2.00	0.01	0.40	0.10	14/74	0.04	0.55	0.12	14/74	0.40	1.11
Porcelain electrical	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
supplies	2.00	0.01	J. 13L-04	0.01	IV/A	0.01	1.07L-03	2.00L-04	IV/A	0.00	0.0103
Sewage Sludge	1.64	0.01	0	1.26	N/A	1.26	0	0.14	N/A	0.14	1.41
Incineration	1.04	0.01	O	1.20	14/74	1.20	O	0.14	14/74	0.14	1.41
Cleaning Products (SICs	1.38	0.01	0.92	0.05	N/A	0.97	0.29	0.02	N/A	0.31	1.27
combined)	1.50	0.01	0.72	0.03	IV/A	0.77	0.29	0.02	IV/A	0.51	1.27
Naphthalene:	1.25	0.01	0.23	0.54	N/A	0.77	0.11	0.25	N/A	0.36	1.14
Miscellaneous Uses	1.25	0.01	0.23	0.54	IV/A	0.77	0.11	0.25	IV/A	0.30	1.14
Medical Waste	0.800	0.00	0.09	0.50	N/A	0.59	0.02	0.10	N/A	0.12	0.710
Incineration	0.000	0.00	0.07	0.50	IV/A	0.57	0.02	0.10	IV/ A	0.12	0.710
Pharmaceuticals	0.766	0.00	0.62	0.03	N/A	0.65	0.06	3.23E-03	N/A	0.06	0.714
	0.700	0.00	0.02	0.03	IN/A	0.00	0.00	J.ZJE-UJ	IV/A	0.00	0.714
Preparations and						1					
Manufacturing (SICs											
combined) Utility Boilers: Natural	0.690	0.00	0	0.39	N/A	0.39	0	0.19	N/A	0.19	0.576
	0.090	0.00	U	0.39	IV/A	0.39	U	0.19	IV/A	0.19	0.576
Gas Combustion	0.570	0.00	0.22	0.22	NI/A	0.47	0.04	0.04	NI/A	0.00	0.540
Utility Boilers: Oil	0.570	0.00	0.23	0.23	N/A	0.47	0.04	0.04	N/A	0.08	0.548
Combustion, All Types	0.540			0.00				0.00		0.00	0.010
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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Source	Area Source	Mobile Source	Total Urban-1	Major Source	Area Source	Mobile Source	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/vr	Tons/yr	Tons/vr	Tons/yr	Tons/yr	Tons/yr
Structural Clay	0.560	0.00	0	0	N/A	0	0	0	N/A	0	0
Products. Nec				_			_			_	
Gum and wood	0.500	0.00	1.79E-03	9.40E-05	N/A	0.00	0.47	0.02	N/A	0.49	0.495
chemical											
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	0.254	0.00	0.13	0.02	N/A	0.15	0.04	0.01	N/A	0.05	0.195
Manufacture: All Fuels											
Residential Boilers:	0.226	0.00	0	0.16	N/A	0.16	0	0.03	N/A	0.03	0.189
Anthracite Coal											
Combustion											
Hazardous Waste	0.175	0.00	0.12	0	N/A	0.12	0.03	0	N/A	0.03	0.143
Incineration:											
Dedicated HWIs											
Lubricating oils and	0.0600	0.00	0.06	0	N/A	0.06	3.36E-03	0	N/A	3.36E-03	0.0592
greases											
Municipal Waste	0.0525	0.00	0.04	2.03E-03	N/A	0.04	0.01	3.32E-04	N/A	0.01	0.0471
Combustion											
Commercial/Institutiona	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
l Boilers: Natural Gas											
Combustion											
Industrial Boilers:	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
Natural Gas											
Combustion	0.0150		0.01	0.005.00		0.04	4.575.00	. 745.04		0.045.00	0.0400
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	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
Incineration	2 505 02	0.00	F 70F 0/	0	NI/A	E 70E 0/	0	0	N1/A	0	F 70F 0/
Metal household	2.50E-03	0.00	5.70E-06	0	N/A	5.70E-06	0	0	N/A	0	5.70E-06
furniture Nonmetallic mineral	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
products	2.00L-03	0.00	2.32L-03	4.40L-04	IV/A	4.03L-04	1.001-03	3.10L-04	IV/A	3.33L-04	7.70L-04
Drum and Barrel	8.19E-05	0.00	0	8.19E-05	N/A	8.19E-05	0	0	N/A	0	8.19E-05
Reclamation	J. 17L-03	0.00	U	J. 17L-UJ	11/ 🔼	0.176-00	U		11/ 🔼	U	J. 17L-UJ
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
Ciematones	0.33L-00	0.00	U	J./0L-00	IN/ PA	J./OL-00	U	1.10L-00	IN/ PA	1.10L-00	0.70L-00

Pollutant: <u>EOM</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Residential Boilers:	235881.00	51.67	0	163253.24	N/A	163253.24	0	34391.45	N/A	34391.45	197644.69
Wood/Wood Residue											
Combustion											
Industrial Boilers:	97848.00	21.44	48102.08	12025.52	N/A	60127.60	12352.33	3088.08	N/A	15440.41	75568.01
Wood/Wood Residue											
Combustion											
Mobile Sources: On-	56157.00	12.30	N/A	N/A	27792.10	27792.10	N/A	N/A	9524.23	9524.23	37316.33
Road Vehicles											
Utility Boilers: Coal	38627.00	8.46	14898.43	0	N/A	14898.43	9656.75	0	N/A	9656.75	24555.18
Combustion, All Types											
Residential Boilers:	4142.00	0.91	0	2873.72	N/A	2873.72	0	586.51	N/A	586.51	3460.23
Natural Gas											
Combustion											
Primary Aluminum	3876.00	0.85	231.98	283.53	N/A	515.51	576.81	704.99	N/A	1281.79	1797.30
Production											
Commercial/Institution	2744.00	0.60	428.89	1715.55	N/A	2144.44	69.70	278.79	N/A	348.49	2492.92
al Boilers: Bituminous											
and Lignite Coal											
Combustion											
Industrial Boilers: Coal,	2412.00	0.53	1133.09	485.61	N/A	1618.69	251.74	107.89	N/A	359.63	1978.32
All Types											
Commercial/Institution	1946.00	0.43	297.89	1191.57	N/A	1489.47	53.05	212.19	N/A	265.24	1754.71
al Boilers: Wood/Wood											
Residue Combustion											
Stationary	1929.00	0.42	906.19	388.37	N/A	1294.55	201.33	86.28	N/A	287.61	1582.17
Reciprocating IC											
Engines: Diesel - fired	1001.00	0.40	222.25	1001.01		1501.07	10.70	105.17		0.40.07	4745.00
Commercial/Institution	1921.00	0.42	300.25	1201.01	N/A	1501.26	48.79	195.17	N/A	243.97	1745.23
al Boilers: Natural Gas											
Combustion	1731.00	0.20	010 17	240.50	N1 / A	1161.67	100 / /	77.40	NI/A	250.00	1419.77
Turbines - distillate oil		0.38	813.17	348.50	N/A		180.66	77.43	N/A	258.09	
Residential Boilers:	1465.00	0.32	0	1016.42	N/A	1016.42	0	207.44	N/A	207.44	1223.86
Distillate Oil											
Combustion	1004.00	0.22	0	E/2 EE	N/A	563.55	0	274.69	N/A	274.69	838.24
Utility Boilers: Natural	1004.00	0.22	U	563.55	IN/A	503.55	U	214.69	N/A	214.69	გეგ.24
Gas Combustion Commercial/Institution	965.00	0.21	150.83	603.32	N/A	754.15	24.51	98.04	N/A	122.56	876.70
al Boilers: Distillate Oil	900.00	U.Z I	100.03	003.32	IV/A	704.10	24.01	70.04	IN/ A	122.30	0/0./0
Combustion											
Industrial Boilers:	928.00	0.20	435.95	186.83	N/A	622.78	96.86	41.51	N/A	138.36	761.15
Natural Gas	920.00	0.20	430.70	100.03	IV/A	022.70	90.00	41.31	IN/ A	130.30	701.13
Combustion				1							l

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

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

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

Pollutant: Quinoline

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Source	Area Source	Mobile Source		Major 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.

Pollutant: <u>Styrene</u>

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

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

				URBAN-1	EMISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Total Urban-2 Tons/yr 36.319  8.769 55.775  140.771 38.588  20.700  75.902 67.101  29.355  10.227 15.641  53.902 17.995  7.306 24.398  13.186 13.976	Tons/yr
Miscellaneous	262.802	0.617	146.114	25.785	N/A	171.898	30.871	5.448	N/A		208.218
Manufacturing (SICs	202.002	0.017		20.700		171.070	00.07.	01110		00.017	2001210
combined)											
Chemical	237.000	0.556	170.782	0.000	N/A	170.782	8.769	0.000	N/A	8.769	179.551
Manufacturing: Styrene		2.222									
Electronic and other	235.837	0.554	97.530	32.510	N/A	130.041	41.832	13.944	N/A	55.775	185.816
electric equipment											
manufacturing (SICs											
combined)											
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:	198.599	0.466	112.725	0.000	N/A	112.725	38.588	0.000	N/A		151.313
Cyclic Crude and											
Intermediate											
Production											
Mobile Sources: Non-	194.000	0.455	N/A	N/A	167.480	167.480	N/A	N/A	20.700	20.700	188.180
Road Vehicles and											
Equipment - Aircraft											
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	159.803	0.375	1.435	27.266	N/A	28.701	3.355	63.746	N/A	67.101	95.802
glass and glassware											
manufacturing											
Unsupported plastics	156.225	0.367	86.286	0.872	N/A	87.158	29.061	0.294	N/A	29.355	116.512
film and sheet											
manufacturing											
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	121.151	0.284	84.054	0.000	N/A	84.054	15.641	0.000	N/A	15 641	99.695
chemicals	.2	0.201	0 1100 1	0.000		01.001		0.000		10.011	,,,,,,,
manufacturing											
Vitreous plumbing	120.939	0.284	3.349	63.638	N/A	66.988	2.695	51.207	N/A	53.902	120.890
fixtures											
Pulp and Paper:	117.000	0.275	8.997	0.000	N/A	8.997	17.995	0.000	N/A	17.995	26.992
Semichemical Recovery					·						
Paints and allied	108.104	0.254	91.780	0.000	N/A	91.780	7.306	0.000	N/A	7.306	99.086
products		0.20 .	,	3.555		,, 55	,.555	0.000		7.000	,,,,,,,,
Industrial Machinery	99.097	0.233	39.688	13.229	N/A	52.918	18.298	6.099	N/A	24.398	77.315
and Electrical	,,,,,,,	0.200	07.000	10.227		02.7.0	. 3.273	0.077		2	,,,,,,,,
Equipment (SICs											
Secondary Lead	95.900	0.225	35.152	32.448	N/A	67.600	6.857	6.329	N/A	13.186	80.786
Smelting	,0.,00	0.220	551.52	323	.,,,,	57.000	3.557	0.027			33.733
Fabricated metal	81.970	0.192	38.632	12.877	N/A	51.510	10.482	3,494	N/A	13.976	65.486
products	=	2.172	22.002	1		2			, ,	12.770	
manufacturing (SICs											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	71.851	0.169	11.970	27.929	N/A	39.899	3.824	8.922	N/A	12.746	52.645
Manufacturing: Alkalies											
and chlorine											
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	46.247	0.109	28.175	9.392	N/A	37.566	0.922	0.307	N/A	1.229	38.795
(Surface Coating)	10.217	0.107	20.170	7.072	14//1	07.000	0.722	0.507	14//(	1.227	00.770
Wood household	37.049	0.087	6.372	0.000	N/A	6.372	2.337	0.000	N/A	2.337	8.709
furniture manufacturing	37.049	0.007	0.372	0.000	IN/ A	0.372	2.337	0.000	IV/A	2.557	0.707
Cut stone and stone	34.623	0.081	1.323	25.139	N/A	26.462	0.358	6.802	N/A	7.160	33.622
products	34.023	0.061	1.323	25.139	IN/ A	20.402	0.556	0.002	IV/A	7.100	33.022
Nonmetallic mineral	30.948	0.073	0.287	5.445	N/A	5.731	0.206	3.910	N/A	4.116	9.847
	30.948	0.073	0.287	5.445	N/A	5.731	0.206	3.910	N/A	4.116	9.847
products	20.222	0.069	1 424	27.240	N/A	20.774	0.017	0.301	N/A	0.217	20.000
Concrete products	29.223		1.434	27.240		28.674	0.016			0.316	28.990
Surface active agents	28.528	0.067	23.014	1.211	N/A	24.226	3.309	0.174	N/A	3.483	27.709
manufacturing											
Fabricated metal	27.021	0.063	17.013	5.671	N/A	22.684	1.626	0.542	N/A	2.168	24.851
products, nec											
Utility Boilers: Coal	27.000	0.063	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Combustion, All Types											
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	23.755	0.056	6.813	8.326	N/A	15.139	1.412	1.726	N/A	3.138	18.277
manufacturing (SICs											
combined)											
Petroleum Refining:	21.719	0.051	15.872	0.000	N/A	15.872	4.678	0.000	N/A	4.678	20.550
(ALL PROCESSES)											
Mineral Wool	21.637	0.051	0.585	11.106	N/A	11.690	0.405	7.702	N/A	8.107	19.798
Manufacturing											
Blast furnaces and steel	19.221	0.045	6.980	8.531	N/A	15.511	1.467	1.793	N/A	3.260	18.771
mills											
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	17.186	0.040	3.290	4.021	N/A	7.311	1.466	1.792	N/A	3.258	10.569
foundries											
Plastics foam products	14.643	0.034	7.683	0.078	N/A	7.761	4.358	0.044	N/A	4.402	12.162
manufacturing											
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	11.113	0.026	8.033	0.000	N/A	8.033	0.330	0.000	N/A	0.330	8.363
chemical		2.320	2.300	2.000		2.000	2.000	2.300	, , ,	2.000	2.300
Paper coating and	9.500	0.022	6.233	0.616	N/A	6.850	2.412	0.239	N/A	2.651	9.500
glazing manufacturing	7.500	0.022	0.200	5.010	14/73	5.550	2.712	5.257	14/73	2.001	7.500
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	8.132	0.019	7.308	0.385	N/A	7.693	0.000	0.007	N/A	0.000	7.838
(SICs combined)	0.132	0.017	7.300	0.303	IN/ A	7.073	0.130	0.007	IV/A	0.140	7.030
Furniture and fixtures	6.885	0.016	6.885	0.000	N/A	6.885	0.000	0.000	N/A	0.000	6.885
	0.000	0.010	0.000	0.000	IN/ A	0.000	0.000	0.000	IV/A	0.000	0.000
manufacturing				1							

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Fabricated rubber	6.686	0.016	6.619	0.067	N/A	6.686	0.000	0.000	N/A	0.000	6.686
products											
Chemical Preparations	5.093	0.012	3.741	0.197	N/A	3.937	0.111	0.006	N/A	0.117	4.054
(SICs combined)		****									
Miscellaneous Plastics	5.050	0.012	5.000	0.051	N/A	5.050	0.000	0.000	N/A	0.000	5.050
Products, NEC (1987)	0.000	0.012	0.000	0.001		0.000	0.000	0.000		0.000	0.000
Unsupported plastics	4.189	0.010	3.903	0.039	N/A	3.942	0.011	0.000	N/A	0.011	3.953
profile shapes (1987)		0.010	0.700	0.007		01712	0.0	0.000		0.011	0.700
Paper coated and	4.081	0.010	2.772	0.274	N/A	3.046	0.911	0.090	N/A	1.001	4.047
laminated, packaging	4.001	0.010	2.112	0.274	14/74	3.040	0.711	0.070	14/74	1.001	4.047
Coke Ovens: By-	3.100	0.007	2.779	0.000	N/A	2.779	0.214	0.000	N/A	0.214	2.993
product Recovery	3.100	0.007	2.117	0.000	IV/A	2.117	0.214	0.000	11/7	0.214	2.773
Plants Instruments and Related	2.150	0.005	0.000	1.867	N/A	1.867	0.000	0.116	N/A	0.116	1.983
	2.130	0.003	0.000	1.007	IN/A	1.007	0.000	0.116	IV/A	0.110	1.903
Products (SICs											
combined)	1.877	0.004	0.011	0.000	N/A	0.011	0.072	0.000	NI/A	0.070	1 / 0 /
Wood partitions and	1.877	0.004	0.811	0.000	N/A	0.811	0.873	0.000	N/A	0.873	1.684
fixtures	1 / 50	0.004	0.000	4.45	N1/A	4.445	0.000	0.004	N1 / A	0.004	4.070
Commercial/Institutiona	1.650	0.004	0.000	1.145	N/A	1.145	0.000	0.234	N/A	0.234	1.378
l Boilers: POTW Digester											
Gas Combustion											
	4 475	0.000	0.005	0.050		4.007	0.044	0.047		0.007	10/1
Cleaning Products (SICs	1.475	0.003	0.985	0.052	N/A	1.037	0.311	0.016	N/A	0.327	1.364
combined)											
Products of purchased	1.447	0.003	0.013	0.252	N/A	0.265	0.027	0.520	N/A	0.547	0.812
glass											
Industrial Boilers:	1.435	0.003	0.674	0.289	N/A	0.963	0.150	0.064	N/A	0.214	1.177
Bituminous and Lignite											
Coal Combustion											
Gum and wood	0.984	0.002	0.004	0.000	N/A	0.004	0.921	0.048	N/A	0.970	0.974
chemical											
Portland Cement	0.568	0.001	0.280	0.049	N/A	0.329	0.090	0.016	N/A	0.106	0.435
Manufacture: All Fuels											
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	0.375	0.001	0.016	0.047	N/A	0.062	0.052	0.157	N/A	0.210	0.272
Smelting											
Particleboard (disc.	0.374	0.001	0.000	0.000	N/A	0.000	0.196	0.000	N/A	0.196	0.196
1987, 2493)											
Construction (SICs	0.274	0.001	0.088	0.000	N/A	0.088	0.000	0.000	N/A	0.000	0.088
combined)				<u>                                      </u>							
Food Products (SICs	0.253	0.001	0.006	0.120	N/A	0.126	0.006	0.109	N/A	0.114	0.241
combined)				1							
Inorganic Pigments	0.250	0.001	0.213	0.000	N/A	0.213	0.037	0.000	N/A	0.037	0.250
Manufacturing									•		
Minerals, ground or	0.126	0.000	0.001	0.012	N/A	0.013	0.001	0.023	N/A	0.024	0.037
treated production											
ireated production		I .									

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

				URBAN-1 E	EMISSIONS			URBAN-2 E	EMISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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/Institutiona I 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

Pollutant: <u>Tetrachloroethylene</u>

	Total % Contribution of Emissions Total Emissions		URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		Combined	
Source Category			Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Total Urban-Tons/yr 52.538 16.840 25.218 31.867 28.114 13.638 22.732 0.681 8.391 15.126 56.592 37.503 0.000 4.171 0.000 5.748 0.000 7.526 19.093 1.911	Tons/yr
Paper coated and	214.268	0.168	145.555	14.396	N/A	159.951	47.810	4.728	N/A	52.538	212.489
laminated, packaging											
Fabricated metal	209.929	0.165	132.176	44.059	N/A	176.235	12.630	4.210	N/A	16.840	193.075
products, nec											
Industrial organic	195.339	0.153	135.526	0.000	N/A	135.526	25.218	0.000	N/A	25.218	160.744
chemicals											
manufacturing											
Chemical	179.634	0.141	29.925	69.826	N/A	99.751	9.560	22.307	N/A	31.867	131.618
Manufacturing:											
Alkalies and chlorine											
Blast furnaces and steel	165.767	0.130	60.198	73.575	N/A	133.774	12.651	15.463	N/A	28.114	161.888
mills				<del>                                     </del>							
Miscellaneous	98.684	0.077	54.867	9.682	N/A	64.549	11.592	2.046	N/A	13.638	78.187
Manufacturing (SICs											
combined)											
Primary nonferrous	91.697	0.072	19.101	23.345	N/A	42.446	10.229	12.502	N/A	22.732	65.178
metals production	00.770	0.074	(7.405	00.405	N1 / A	00.000	0.544	0.470	N1/A	0.404	00 / / 1
Semiconductors and	90.660	0.071	67.485	22.495	N/A	89.980	0.511	0.170	N/A	0.681	90.661
related devices	/7.507	0.052	E0 070	0.000	N/A	FO 272	0.201	0.000	NI/A	0.201	F0 //2
Miscellaneous Organic	67.507	0.053	50.272	0.000	N/A	50.272	8.391	0.000	N/A	8.391	58.663
Chemical Processes											
(SICs combined) Plastics products	67.347	0.053	37.910	0.383	N/A	38.293	14.975	0.151	N/A	15 104	53.419
manufacturing	07.347	0.033	37.910	0.363	IV/A	30.293	14.975	0.131	IV/A	13.120	33.419
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		61.083
Mechanical rubber	51.335	0.040	35.946	0.363	N/A	36.309	0.000	0.000	N/A		36.309
goods manufacturing	01.000	0.010	00.710	0.000	14// (	00.007	0.000	0.000	14//(	0.000	30.507
Pharmaceuticals	49.424	0.039	39.816	2.096	N/A	41.911	3.963	0.209	N/A	4 171	46.082
Preparations and								0.20			
Manufacturing (SICs											
combined)											
Rubber and plastic	47.418	0.037	46.944	0.474	N/A	47.418	0.000	0.000	N/A	0.000	47.418
hose and belting (disc.											
Commercial printing,	39.914	0.031	31.084	3.074	N/A	34.158	5.230	0.517	N/A	5.748	39.906
nec (1987)											
Commercial printing,	36.877	0.029	33.558	3.319	N/A	36.877	0.000	0.000	N/A	0.000	36.877
letterpress, and screen											
(disc											
Cleaning Products (SICs	33.918	0.027	22.661	1.193	N/A	23.854	7.150	0.376	N/A	7.526	31.380
combined)				1							
Office furniture, except	30.500	0.024	11.084	0.000	N/A	11.084	19.093	0.000	N/A	19.093	30.177
wood manufacturing				<b> </b>							
Abrasive Grain (Media)	28.603	0.022	0.996	18.915	N/A	19.911	0.096	1.816	N/A	1.911	21.822
Manufacturing											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
i	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	28.255	0.022	22.765	1.198	N/A	23.963	3.234	0.170	N/A	3.405	27.368
products	20.200	0.022	22.700	11170		20.700	0.201	0.170	,,	0.100	27.000
Porcelain electrical	27.222	0.021	0.007	0.128	N/A	0.135	0.000	0.003	N/A	0.003	0.138
supplies											
Utility Boilers: Coal	27.000	0.021	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Combustion, All Types											
Plastics foam products	24.125	0.019	12.658	0.128	N/A	12.786	7.179	0.073	N/A	7.252	20.038
manufacturing											
Coke Ovens: By-	24.000	0.019	21.518	0.000	N/A	21.518	1.656	0.000	N/A	1.656	23.174
product Recovery											
Plants											
Miscellaneous Plastics	23.924	0.019	9.512	0.096	N/A	9.608	9.315	0.094	N/A	9.409	19.017
Products											
Chemical Preparations	21.666	0.017	15.912	0.837	N/A	16.750	0.473	0.025	N/A	0.497	17.247
(SICs combined)											
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	20.000	0.016	6.666	0.000	N/A	6.666	10.000	0.000	N/A	10.000	16.666
Recovery											
Platemaking services	19.077	0.015	17.245	1.706	N/A	18.951	0.114	0.011	N/A	0.125	19.076
(1987)											
Paper & Printed	18.844	0.015	17.148	1.696	N/A	18.844	0.000	0.000	N/A	0.000	18.844
Products											
Commercial printing,	18.625	0.015	14.164	1.401	N/A	15.564	2.785	0.275	N/A	3.060	18.625
lithographic											
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	15.772	0.012	9.819	0.000	N/A	9.819	3.971	0.000	N/A	3.971	13.791
resins manufacturing											
Petroleum Refining:	15.697	0.012	8.909	0.000	N/A	8.909	3.050	0.000	N/A	3.050	11.959
Cyclic Crude and											
Intermediate											
Production											
Adhesives and Sealants	14.318	0.011	12.867	0.677	N/A	13.544	0.243	0.013	N/A	0.256	13.801
(SICs combined)											
Leather tanning and	14.230	0.011	8.097	2.699	N/A	10.796	0.001	0.000	N/A	0.002	10.798
finishing											
Iron and Steel	13.848	0.011	5.887	7.195	N/A	13.082	0.111	0.136	N/A	0.246	13.329
Foundries: Steel											
Investment Foundries											
Bags: Plastics,	11.634	0.009	10.587	1.047	N/A	11.634	0.000	0.000	N/A	0.000	11.634
Laminated, & Coated											
Rubber and plastic	10.453	0.008	0.804	0.008	N/A	0.812	7.726	0.078	N/A	7.804	8.616
hose and belting											
manufacturing											
Products of purchased	10.125	0.008	0.093	1.762	N/A	1.855	0.191	3.637	N/A	3.828	5.683
glass											

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

Source Category				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	9.400	0.007	4.547	1.516	N/A	6.063	0.699	0.233	N/A	0.932	6.995
and wet,											
Carbon and Graphite	7.742	0.006	1.797	0.599	N/A	2.396	1.294	0.431	N/A	1.726	4.122
Products											
Other Secondary	7.500	0.006	3.036	3.710	N/A	6.746	0.128	0.156	N/A	0.284	7.030
Nonferrous Metals											
Recovery											
Paper Coated &	5.903	0.005	2.824	0.279	N/A	3.103	2.548	0.252	N/A	2.800	5.903
Laminated, Packaging											
Furniture and fixtures	5.700	0.004	5.700	0.000	N/A	5.700	0.000	0.000	N/A	0.000	5.700
manufacturing											
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	3.735	0.003	0.034	0.637	N/A	0.671	0.078	1.490	N/A	1.568	2.239
glass and glassware											
manufacturing											
Converted Paper	2.734	0.002	2.488	0.246	N/A	2.734	0.000	0.000	N/A	0.000	2.734
Products											
Commercial printing,	2.672	0.002	2.329	0.230	N/A	2.560	0.102	0.010	N/A	0.112	2.672
gravure											
Minerals, ground or	2.598	0.002	0.013	0.254	N/A	0.267	0.025	0.470	N/A	0.495	0.762
treated production											
Industrial Boilers:	2.469	0.002	1.160	0.497	N/A	1.657	0.258	0.110	N/A	0.368	2.025
Bituminous and Lignite											
Coal Combustion											
Folding paperboard	2.253	0.002	1.020	0.101	N/A	1.120	0.762	0.075	N/A	0.838	1.958
boxes (1987)											
Organic fibers, non-	2.200	0.002	1.285	0.068	N/A	1.353	0.092	0.005	N/A	0.097	1.450
cellulosic											
manufacturing	1.007	0.004	1.550	0.000		1.550	0.404	0.000		0.101	1 (00
Paints and allied	1.836	0.001	1.559	0.000	N/A	1.559	0.124	0.000	N/A	0.124	1.683
products	4.450	0.004	4.047	0.104	N1 / A	4.450	0.000	0.000	N1 / A	0.000	4.450
Converted paper and	1.150	0.001	1.047	0.104	N/A	1.150	0.000	0.000	N/A	0.000	1.150
paperboard products,											
nec (disc)	0.000	0.004	0.744	0.000	N1 / A	0.744	0.000	0.000	N1 / A	0.000	0.740
Industrial inorganic	0.983	0.001	0.711	0.000	N/A	0.711	0.029	0.000	N/A	0.029	0.740
chemical	0.969	0.001	0.782	0.041	NI/A	0.823	0.112	0.007	NI/A	0.118	0.941
Surface active agents	0.969	0.001	0.782	0.041	N/A	0.823	0.112	0.006	N/A	0.118	0.941
manufacturing	0.900	0.001	0.819	0.081	N/A	0.900	0.000	0.000	N/A	0.000	0.900
Sanitary Food	0.900	0.001	0.819	υ.υδ1	IV/A	0.900	0.000	0.000	IV/A	0.000	0.900
Containers (1987)	0.750	0.001	0.492	0.049	N/A	0.541	0.190	0.019	N/A	0.209	0.750
Paper coating and	0.750	0.001	0.492	0.049	IV/A	0.541	0.190	0.019	IN/A	0.209	0.750
glazing manufacturing Portland Cement	0.398	0.000	0.196	0.035	N/A	0.230	0.063	0.011	N/A	0.074	0.305
	0.370	0.000	0.190	0.033	IV/A	0.230	0.003	0.011	IV/A	0.074	0.303
Manufacture: All Fuels											

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

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

Pollutant: <u>Trichloroethylene</u>

				URBAN-1 E	MISSIONS			URBAN-2 E	URBAN-2 EMISSIONS				
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions		
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr		
Halogenated Solvent	40707.940	60.679	30754.849	0.000	N/A	30754.849	5381.590	0.000	N/A	5381.590	36136.438		
Cleaners (Degreasing)													
Publicly owned	5335.130	7.952	0.000	3701.513	N/A	3701.513	0.000	755.454	N/A	755.454	4456.968		
treatment works													
(POTWs)													
Transportation	3747.360	5.586	1858.878	619.626	N/A	2478.504	496.057	165.352	N/A	661.409	3139.913		
Equipment													
Manufacture (SICs													
Fabricated metal	3531.270	5.264	1664.288	554.763	N/A	2219.050	451.561	150.520	N/A	602.082	2821.132		
products													
manufacturing (SICs													
Industrial Machinery	2363.687	3.523	946.656	315.552	N/A	1262.209	436.455	145.485	N/A	581.940	1844.148		
and Electrical													
Equipment (SICs													
Electronic and other	1622.531	2.419	670.997	223.666	N/A	894.663	287.796	95.932	N/A	383.728	1278.392		
electric equipment													
manufacturing (SICs													
combined)													
Primary metal products	1262.230	1.881	361.989	442.431	N/A	804.419	75.033	91.707	N/A	166.741	971.160		
manufacturing (SICs													
combined)													
Chromium Plating:	1158.886	1.727	49.519	940.864	N/A	990.384	3.216	61.102	N/A	64.318	1054.702		
Chromic Anodizing													
Pulp and Paper: Non-	815.000	1.215	235.209	0.000	N/A	235.209	229.341	0.000	N/A	229.341	464.550		
Combustion Sources													
Instruments and	686.220	1.023	0.000	595.845	N/A	595.845	0.000	36.925	N/A	36.925	632.770		
Related Products (SICs													
combined)													
Fabricated metal	648.057	0.966	408.033	136.011	N/A	544.044	38.990	12.997	N/A	51.987	596.031		
products, nec													
Miscellaneous	646.232	0.963	359.295	63.405	N/A	422.700	75.913	13.396	N/A	89.309	512.010		
Manufacturing (SICs													
combined)													
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	489.290	0.729	177.686	217.171	N/A	394.857	37.343	45.641	N/A	82.984	477.841		
mills					•								
Concrete block and	464.833	0.693	23.235	441.459	N/A	464.694	0.006	0.117	N/A	0.123	464.817		
brick		=:370	_=:200		, .		2.500						
Plastics products	434.353	0.647	244.503	2.470	N/A	246.973	96.580	0.976	N/A	97.556	344.528		
manufacturing													

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

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

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	34.550	0.051	21.511	0.000	N/A	21.511	8.700	0.000	N/A	8.700	30.211
resins manufacturing											
Chemicals and allied	31.600	0.047	25.460	1.340	N/A	26.800	3.617	0.190	N/A	3.808	30.608
products											
Blankbooks and	28.400	0.042	25.844	2.556	N/A	28.400	0.000	0.000	N/A	0.000	28.400
looseleaf binders											
Commercial printing,	27.262	0.041	20.732	2.050	N/A	22.782	4.076	0.403	N/A	4.479	27.262
lithographic											
Coke Ovens: By-	27.210	0.041	24.396	0.000	N/A	24.396	1.877	0.000	N/A	1.877	26.274
product Recovery											
Plants											
Utility Boilers: Coal	27.000	0.040	10.414	0.000	N/A	10.414	6.750	0.000	N/A	6.750	17.164
Combustion, All Types											
Vitreous plumbing	26.260	0.039	0.727	13.818	N/A	14.545	0.585	11.119	N/A	11.704	26.249
fixtures											
Chemical	25.100	0.037	8.193	0.000	N/A	8.193	16.907	0.000	N/A	16.907	25.100
Manufacturing:											
Trichloroethylene											
Products of purchased	24.700	0.037	0.226	4.299	N/A	4.525	0.467	8.872	N/A	9.339	13.864
glass											
Construction (SICs	16.825	0.025	5.436	0.000	N/A	5.436	0.000	0.000	N/A	0.000	5.436
combined)											
Ship Building & Repair	15.982	0.024	9.737	3.246	N/A	12.982	0.318	0.106	N/A	0.425	13.407
(Surface Coating)											
Miscellaneous Plastics	15.760	0.023	6.266	0.063	N/A	6.329	6.136	0.062	N/A	6.198	12.528
Products											
Porcelain electrical	13.986	0.021	0.003	0.066	N/A	0.069	0.000	0.001	N/A	0.001	0.071
supplies											
Storage batteries	13.000	0.019	0.397	7.538	N/A	7.935	0.200	3.801	N/A	4.001	11.937
manufacturing	10.005	0.010	10.001	1.000	D1 / A	40.004	0.000	0.000	N1/A	0.000	10.001
Fiber cans, drums, and	12.005	0.018	10.921	1.080	N/A	12.001	0.000	0.000	N/A	0.000	12.001
similar products	10.000	0.017	4.700	0.000	N1/A	4.700	F 070	0.000	NI/A	F 070	0.707
Wood partitions and	10.923	0.016	4.720	0.000	N/A	4.720	5.078	0.000	N/A	5.078	9.797
fixtures	10.000	0.015	0.7/0	0.000	NI/A	0.777	7 201	0.075	NI/A	7.4//	0.242
Rubber and plastic	10.000	0.015	0.769	0.008	N/A	0.777	7.391	0.075	N/A	7.466	8.243
hose and belting											
manufacturing Carbon and Graphite	9,919	0.015	2.302	0.767	N/A	3.070	1.658	0.553	N/A	2.211	5.281
Products	7.717	0.015	2.302	0.767	IN/A	3.070	1.008	0.553	IV/A	2.211	3.281
Folding paperboard	6.400	0.010	2.896	0.286	N/A	3.183	2.165	0.214	N/A	2.380	5.562
boxes (1987)	0.400	0.010	2.090	0.200	IN/A	ა. 10ა	۷.105	0.214	IV/A	2.300	5.502
Partitions and fixtures,	6.375	0.010	0.064	0.000	N/A	0.064	3.962	0.000	N/A	3.962	4.026
except wood	0.373	0.010	0.004	0.000	IN/A	0.004	3.702	0.000	IV/A	3.70∠	4.020
Furniture and fixtures	5.826	0.009	5.826	0.000	N/A	5.826	0.000	0.000	N/A	0.000	5.826
manufacturing	3.020	0.007	5.020	0.000	IN/ A	5.020	0.000	0.000	IV/ A	0.000	3.020
manulaciumy											

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

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Paper Coated &	5.664	0.008	2.709	0.268	N/A	2.977	2.444	0.242	N/A	2.686	5.664
Laminated, Packaging											
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	0.631	0.001	0.231	0.214	N/A	0.445	0.045	0.042	N/A	0.087	0.532
Smelting 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

Pollutant: Vinyl Chloride

				URBAN-1 E	MISSIONS			URBAN-2 E	MISSIONS		
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	Tons/yr	% of Total	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr	Tons/yr
Chemical	24177.580	93.716	10425.372	0.000	N/A	10425.372	5502.817	0.000	N/A	5502.817	15928.190
Manufacturing: Vinyl											
Chloride											
Landfills: Chemical	586.920	2.275	0.000	407.205	N/A	407.205	0.000	83.108	N/A	83.108	490.313
Waste Emissions											
Plastics materials and	507.150	1.966	315.751	0.000	N/A	315.751	127.700	0.000	N/A	127.700	443.452
resins manufacturing											
Miscellaneous Organic	351.658	1.363	261.879	0.000	N/A	261.879	43.711	0.000	N/A	43.711	305.590
Chemical Processes											
(SICs combined)											
Chemical	66.997	0.260	11.590	0.000	N/A	11.590	52.586	0.000	N/A	52.586	64.176
Manufacturing:											
Tetrachloroethylene											
Industrial organic	37.702	0.146	26.157	0.000	N/A	26.157	4.867	0.000	N/A	4.867	31.025
chemicals											
manufacturing											
Industrial gases	26.713	0.104	23.482	1.236	N/A	24.718	0.000	0.000	N/A	0.000	24.718
manufacturing											
Chemical	16.660	0.065	2.775	6.476	N/A	9.251	0.887	2.069	N/A	2.955	12.206
Manufacturing:											
Alkalies and chlorine											
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	7.200	0.028	3.977	0.040	N/A	4.017	1.339	0.014	N/A	1.353	5.370
film and sheet											
manufacturing	4.450	0.040	0.400	0.000		0.400	0.000	0.000		0.000	0.540
Petroleum Refining:	4.650	0.018	2.639	0.000	N/A	2.639	0.903	0.000	N/A	0.903	3.543
Cyclic Crude and											
Intermediate											
Production	2.970	0.010	0.000	2.200	N/A	2.288	0.000	0.270	N/A	0.270	2.548
Sewage Sludge	2.970	0.012	0.000	2.288	N/A	2.288	0.000	0.260	N/A	0.260	2.548
Incineration Chemical	2.150	0.008	1.422	0.000	N/A	1.422	0.728	0.000	N/A	0.728	2.150
	2.150	0.008	1.422	0.000	IV/A	1.422	0.728	0.000	N/A	0.728	2.150
Manufacturing: Methyl											
Chloroform 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	0.426	0.003	0.253	0.000	N/A	0.282	0.403	0.000	N/A N/A	0.403	0.050
Equipment	0.420	0.002	U.Z11	0.070	IV/A	0.202	0.036	0.019	IN/ A	0.075	0.337
Manufacture (SICs											
Chemicals and allied	0.205	0.001	0.165	0.009	N/A	0.174	0.023	0.001	N/A	0.025	0.199
products	0.200	0.001	0.100	0.007	IV/ A	0.174	0.023	0.001	IN/ A	0.025	0.177
products											

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

			URBAN-1 EMISSIONS								
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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	0.002	0.000	0.001	0.000	N/A	0.001	0.000	0.000	N/A	0.000	0.002
Incineration:											
Dedicated HWIs											

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

Pollutant: Vinylidene Chloride

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

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

				URBAN-1 E	EMISSIONS						
Source Category	Total Emissions	% Contribution of Total Emissions	Major Sources	Area Sources	Mobile Sources	Total Urban-1	Major Sources	Area Sources	Mobile Sources	Total Urban-2	Combined Urban Emissions
	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

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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 <sup>a</sup>
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 <sup>a</sup>
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.)

<sup>&</sup>lt;sup>a</sup> 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 <sup>b</sup>	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

**Allocation Schemes Used (Continued)** 

Table C-2.

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

<sup>&</sup>lt;sup>a</sup> The spatial allocation scheme codes are described in Table C-1.

<sup>&</sup>lt;sup>b</sup> Nec = Not elsewhere classified.