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Documentation for Developing the Initial Source Category List

Final Report

NESHAP

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Documentation for Developing the Initial Source Category List

Emission Standards Division

Office of Air Quality Planning and Standards
United States Environmental Protection Agency
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1.0 OVERVIEW

Section 112 of Title III (Air Toxics) of the Clean Air Act (CAA) as amended in 1990 identifies a list of 189 hazardous air pollutants (HAP's) and requires the U.S. Environmental Protection Agency (EPA) to publish, within 1 year of enactment, an initial list of all categories and subcategories of major and area sources of HAP's. According to 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 HAP's. An "area source" is any stationary source of HAP's that is not a major source. Only major sources within a category shall be subject to emission standards under Section 112 unless a finding is made that indicates a threat of adverse effects to human health or the environment from area sources within a category. Area sources identified through such a finding will be subject to regulation under Section 112.

An initial list of categories of stationary sources that emit one or more of the 189 listed HAP's will be published by EPA in an upcoming Federal Register notice, and is presented in Sections 3.0 and 4.0 of this document. The purpose of this report is to (1) describe the methodology used to identify sources that emit HAP's, (2) document the technical references that support EPA's conclusion that one or more of the listed HAP's is emitted from a specified source category, (3) provide broad descriptions of the categories of major sources included on the initial list, and (4) present the responses to public comments received regarding a preliminary draft list of source

categories that was published in the Federal Register on June 21, 1991 (56 FR 28548).

The technical approach used to develop the list of source categories is discussed in Section 2.0. Categories of major sources and associated HAP's are cited in Section 3.0, and Section 4.0 discusses categories of area sources and associated HAP's. Categories of major sources are listed by industry groups, which consist of source categories that have similar industrial descriptions. Some industry groups (e.g., Pharmaceutical Production Processes) contain only a single, broad source category that includes a number of subcategories, by description, for the purposes of regulatory development. Sections 3.0 and 4.0 also include reference lists indicating the reference sources used for listing and describing each source category. The references cited are contained in Docket No. A-90-49 and are available for public review at EPA's Air Docket Section, Room M-1500, Waterside Mall, 401 M Street SW, Washington, DC 20460.

Descriptions of the source categories appearing in Table 3.1 are provided in Appendix A. These descriptions are meant to identify, in a very brief and concise manner, what may be included in each source category and do not represent a complete delineation of all possible emission sources within a source category. For purposes of applicability determinations, the final descriptions for each source category will be developed as part of the regulatory effort for each standard. Descriptions for the categories of area sources can be found in the upcoming Federal Register notice entitled "Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990."

A summary of public comments on the preliminary draft listing of source categories, and EPA's responses to those comments, is provided in Appendix B. The comment and response summaries are arranged by industry group and then by individual source categories.

2.0 TECHNICAL APPROACH

2.1 INTRODUCTION

The purpose of this section is to present the various technical approaches that were used by EPA to identify source categories and to describe how the initial list was developed. The first step in the approach for identifying source categories, described in Section 2.2, involved the compilation of a large quantity of emissions data from different references that related emissions to specific types of sources. A preliminary draft list of proposed source categories based on the collected data appeared in the Federal Register on June 21, 1991 in which comments were requested by EPA.[1] The development of the initial list, as described in Section 2.3, was based on an analysis of all source-related information that had been collected, including any new, substantiated information acquired through the review of public comments.

2.2 DATA COMPILATION

The identification of source categories was dependent on the availability of references that relate emissions information to specific types of sources. Source categories that emit any of the 189 listed HAP's were identified using a variety of emissions information. More than one reference may have identified a source category as emitting one or more of the 189 HAP's, but only one reference may be cited in Sections 3.0 and 4.0.

The following references were used to develop the initial list of source categories:

- Published production and consumption data for the chemical industry and emission factors developed by the EPA's Emission Standards Division (ESD);
- Pollutant speciation profiles for Source Classification Codes (SCC's) used in the National Emissions Data System (NEDS) and the National Acid Precipitation Assessment Program (NAPAP);
- EPA reports, studies, memoranda, and other emission data sources.

The references used to develop the initial source category list were evaluated in a prioritized manner, so as to use all available information to identify categories of major sources, but to place greater emphasis on the most reliable information sources. Also, categories of area sources were identified when information from the above references indicated that these area sources present a threat of adverse effects to human health or the environment. Information derived from the reference sources listed above is discussed in the following sections and is presented in the order in which the reference sources were evaluated. The specific references used for each source category are cited in Tables 3.1 and 4.1.

2.2.1 Emission Standards Division Approach

The ESD approach assessed emissions from industrial processes that produce or consume organic chemicals by using published chemical production and consumption data and emission factors developed by ESD from previous regulatory studies. Source categories were identified for the production and use of these organic chemicals where there were associated HAP emissions. Where applicable, source categories identified from previous regulatory assessments were maintained.

Chemical marketing publications were evaluated to identify emission sources that produce or use one or more of the listed

HAP's. For example, some chemical production data were verified by the Stanford Research Institute's Directory of Chemical Producers, while publications such as the Mannsville Chemical Synopsis and the Chemical Marketing Reporter were used to identify the consumption pattern for many of the chemicals.* In addition to these references, emission data developed through existing regulatory efforts covering the synthetic organic chemical manufacturing industry were also used to identify processes that emit HAP's.

An example of a source category identifed through the ESD approach is the "Styrene Butadiene Rubber and Latex Production" category which involves the end use of 1,3-butadiene and styrene, and is listed under the "Polymers and Resins Production" industry group. Similiarly, the commercial and industrial dry cleaning categories listed under the "Miscellaneous Processes" industry group were identified as end users of tetrachloroethylene. Many organic chemical production processes, such as the production of 1,3-butadiene, were identified through EPA's Hazardous Organics National Emission Standards for Hazardous Air Pollutants project, also referred to as HON. Information from this existing regulatory effort provided emission data for many of the organic chemical production processes included in the "Synthetic Organic Chemical Manufacturing" source category listed under the "Production of Organic Chemicals" industry group.

The ESD approach identified a large range of industrial processes associated with HAP emissions from which source categories were identified. Also, by recognizing emission sources already established through existing regulatory efforts, (e.g., the HON project), regulatory consistency could be better maintained in identifying source categories.

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*The specific references used for each category of major and area sources can be found in Sections 3.2 and 4.2, respectively, of this document.

2.2.2 National Emissions Data System

Many emission sources were characterized by SCC's contained within EPA's NEDS.[2] The NEDS data base contains emissions reported by individual states for sources emitting 100 tons or more per year of any criteria pollutant. An SCC is an eight-digit code divided into four levels of identifiers: (1) the category process (2) the major industry (3) the major product, and (4) different operations within the category process. A list of approximately 4,000 SCC's and descriptions may be found in Criteria Pollutant Emission Factors for the 1985 NAPAP Emissions Inventory.[3] Provided within NEDS are emission estimates for volatile organic compounds (VOC's) and particulate matter (PM), but not for individual HAP's.

Speciation profiles developed by EPA[4,5] were assigned to each SCC contained in NEDS. Speciation profiles distinguish the chemical constituents within the total VOC or PM emissions. By linking each speciation profile with an SCC, estimates of the HAP constituents emitted from a source category were determined.

Each speciation profile has an associated data quality rating ("A" through "E"). These ratings are based on the following criteria.

Data Quality A:	Data set is based on a composite of several tests using analytical techniques such as gas chromatography or mass spectrometry (GC/MS), and can be considered representative of the total population.
Data Quality B:	Data set is based on a composite of several tests using analytical techniques such as GC/MS, and can be considered representative of a large percentage of the total population.
Data Quality C:	Data set is based on a small number of tests using analytical techniques such as GC/MS, and can be considered reasonably representative of the total population.

Data Quality D: Data set is based on a single source using analytical techniques such as GC/MS, or data set is taken from a number of sources where data are based on engineering calculations.

Data Quality E: Data set is based on engineering judgment and/or has no documentation provided; may not be considered representative of the total population.

The uncertainty associated with the E-quality profiles is such that they are substantially less reliable than the other profiles and, therefore, were not used for determining HAP constituents.

The SCC identifiers from NEDS were used to describe source categories, identify appropriate industry groups, and, for some source categories, provided the actual name as it appears on the list. For many of the source categories that are listed in Table 3.1 and based on the NEDS approach, a range of SCC's are covered by the listed source category. For more information regarding the SCC ranges associated with each NEDS-identified source category, the reader is referred to the document entitled Documentation for Developing the Source Category List, Preliminary Draft, (Document No. II-C-1) located in the Air Docket identified in Section 1.0.

2.2.3 Other EPA Sources

Other EPA reports and documentation were used to identify source categories in addition to the previously described references. Many of these reports were prepared in support of the rulemaking procedures for national emission standards for hazardous air pollutants (NESHAP) and new source performance standards (NSPS). Such documentation includes preliminary source assessments and surveys for HAP's, background information for proposed regulations, reports on control technologies, and federal regulations and notices for proposed rulemakings.

The EPA's Toxic Release Inventory System (TRIS) data base was used to identify a small number of HAP production source categories not previously addressed by the ESD and NEDS

approaches and to confirm the existence of major sources within certain source categories. The TRIS data base contains emissions data reported by individual industrial facilities as required by the Superfund Amendments and Reauthorization Act (SARA), Section 313. The emissions data reported to the TRIS data base are maintained by EPA, and are available to the public through the EPA's Office of Toxic Substances, Public Data Branch.[6]

2.3 INFORMATION ANALYSIS

The data compilation effort described above produced a significant amount of information relating listed HAP's to emission sources. This information then had to be analyzed by EPA to identify distinct source categories for the initial list. This analysis consisted of both an internal review of the collected emission source data and the consideration of public comments on the preliminary draft list of source categories published in the Federal Register on June 21, 1991.[1] The following sections describe the data review process, the responses to comments, and how the initial list, which appears in this document, was developed.

2.3.1 Review and Documentation of Emission Source Data

The listing approaches described in Section 2.2 resulted in a large amount of emissions data from many different references. Because there was no single comprehensive and complete source of information regarding the emissions of HAP's from different source types in the United States, the results of each approach had to be carefully reviewed to identify distinct source categories for the list.

The focus of EPA's review was to identify all source categories, for which information had been collected and documented, that emitted one or more of the listed HAP's. Many source categories that had been identified through the various approaches, but for which data was incomplete or insufficient for listing purposes, were investigated further to locate additional

supporting data. To avoid duplication, the data were also reviewed to identify where different approaches might have identified emissions from the same source category.

Based on a review of the available emissions data, a preliminary draft list of proposed source categories was developed by EPA and published for public comment in the Federal Register on June 21, 1991.[1] The response to comments is discussed in the following section.

2.3.2 Response to Comments on the Preliminary Draft List of Source Categories

Along with the preliminary draft list of source categories, EPA requested comments on the proposed source categories, and on the procedures used to develop the list. Specific comments were requested on the division of categories and subcategories, approaches for listing area sources, the scope and completeness of the preliminary draft list, and the use of emission data bases, as described above, for identifying source categories. After evaluating and responding to comments, EPA made applicable revisions to the proposed source category list. The Federal Register notice included a request that all comments supporting the addition, deletion, or definition of source categories be accompanied by adequate supporting documentation. A summary of comments and responses appears in Appendix B of this document.

Many of the comments received requested clarification of the proposed source categories to better determine applicability. A large number of comments also requested the deletion of certain categories because they were suspected of comprising solely area sources. Other comments asked for the deletion or addition of certain pollutants within a source category. All comments were reviewed and evaluated by EPA as part of the process of developing the initial list of source categories that appears in this document.

While evaluating and responding to comments, EPA made applicable revisions to the preliminary draft list of source

categories where adequate supporting documentation was available. Many of the comments that requested specific actions (e.g., the deletion of a source category) lacked adequate supporting data to justify the suggested action. In conjunction with EPA's internal review of the proposed source categories, however, the comments did provide significant information for refining the preliminary draft list and for describing the source categories that appear on this initial listing.

2.3.3 Development of the Initial List of Source Categories

The initial list of source categories, as it appears in Tables 3.1 and 4.1 of this document, was developed according to Section 112(c) of the CAA, based on the results of EPA's emission data review and the consideration of comments that were received on the preliminary draft list of source categories, as described in the previous section. The list consists of categories of major sources, which are shown in Table 3.1, and categories of area sources, which are shown in Table 4.1.

As described in Section 1.0 (Overview), the categories of major sources are categories for which EPA has identified evidence of major sources. The term "major source" is defined in the CAA to mean "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any [HAP] or 25 tons per year or more of any combination of [HAP's]." A category of major sources is one that has at least one stationary source in the category that is a major source or where sources in the category are commonly located on the premises of major sources. "Area sources," as defined in the CAA, are any stationary sources that emit HAP's that are not major sources. The categories of area sources that appear in Table 4.1 represent those area sources that EPA has found, at this time, to present a threat of adverse effects to human health or the environment warranting regulation under Section 112 of the CAA.

The changes to the preliminary draft list, since publication in the Federal Register on June 21, 1991, reflect EPA's dispositions on source categories as a result of the review of emission data and the comment period that followed publication. Many source categories were maintained unchanged from the preliminary draft list. Some source category names were changed to provide a more accurate description of emission sources included in a particular category. Other source categories were aggregated to reflect similar and associated emission sources or disaggregated to better represent distinctly identified emission sources. Additions to the draft list occurred when new emissions data were available to adequately identify a source category. Also, source categories were deleted when there was no documented evidence of major sources within a category, when an area source finding had not been made, or when current data were determined to be inadequate for listing purposes.

The CAA provides specific listing requirements for certain emission sources, which are reflected in the initial list. For example, the CAA requires that boat manufacturing be listed as a separate source category. There are also special provisions for the listing of oil and gas wells, including pipeline facilities, which are reflected in the source category listing for "Oil and Natural Gas Production" in this document. For other specific requirements and provisions that pertain to the listing of source categories in this document, the reader is referred to the CAA Amendments of 1990[7] as revised therein, and to the upcoming Federal Register notice announcing the "Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990."

2.4 REFERENCES

1. U.S. Environmental Protection Agency. Preliminary Draft List of Categories and Subcategories Under Section 112 of the Clean Air Act. Federal Register, Vol. 56, No. 120, pp. 28548. Washington, D.C. Office of the Federal Register, June 21, 1991.

2. U.S. Environmental Protection Agency. National Emissions Data System (NEDS). Office of Air Quality Planning and Standards, National Air Data Branch. Research Triangle Park, NC. July 1988.

3. U.S. Environmental Protection Agency. Criteria Pollutant Emission Factors for the 1985 NAPAP Emissions Inventory. Office of Research and Development. Research Triangle Park, NC. Publication No. EPA-600/7-87-015. 1987.

4. U.S. Environmental Protection Agency. Volatile Organic Compound (VOC) Species Profiles. In: Air Emissions Species Manual, Volume 1. Office of Air Quality Planning and Standards, Research Triangle Park, NC. January 1990.

5. U.S. Environmental Protection Agency. Particulate Matter (PM) Species Profiles. In: Air Emissions Species Manual, Volume 2. Office of Air Quality Planning and Standards, Research Triangle Park, NC. January 1990.

6. U.S. Environmental Protection Agency. Toxic Chemical Release Inventory Reporting Package for 1989. Office of Toxic Substances, Washington, D.C. Publication No. EPA-560/4-90-001. January 1990.

7. United States Congress. Clean Air Act, as amended, November 15, 1990. 42 U.S.C. 1857 et seq. Washington, DC. U.S. Government Printing Office. November 1990. Sections 301 to 306. 123 pp.

3.0 LISTING OF CATEGORIES OF MAJOR SOURCES AND ASSOCIATED HAZARDOUS AIR POLLUTANTS BY INDUSTRY GROUP

3.1 INTRODUCTION

Categories of major sources are listed in Table 3.1 by industry group. For example, the source categories Industrial Boilers, Stationary Turbines, and Process Heaters are all listed under the industry group labeled "Fuel Combustion." Source categories that cannot be identified by a common industry type appear in the "Miscellaneous Processes" industry group.

Associated HAP's and references used for emissions data collection and description purposes are indicated for each source category in Table 3.1. The HAP's are located in the column labeled "Pollutant(s)." The pollutants listed are those for which documentation was readily available. Additional HAP's may also be emitted from a source category but are not listed in Table 3.1. This situation will be considered during the development of individual regulations, at which time additional HAP's may be identified for a source category.

The specific references from the listing approach used to identify and describe each source category are coded by number in the last column of Table 3.1 to correspond to the list of references in Section 3.2. At the end of each reference citation in Section 3.2, the document number for that reference has been provided in parentheses. This number corresponds to docket index number for Docket No. A-90-49 as identified in Section 1.0 of this document, and thus facilitates locating references within the docket. Table 3.1 is arranged as follows:

Industry Group

Table 3.1 Categories of Major Sources and Associated Hazardous Air Pollutants Listed by Industry Group

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
----------*INDUSTRY GROUP = FUEL COMBUSTION*----------		
ENGINE TEST FACILITIES	1,3-BUTADIENE ACETALDEHYDE ACROLEIN BENZENE ETHYL BENZENE FORMALDEHYDE PHENOL PROPIONALDEHYDE STYRENE TOLUENE XYLENE (O-)	1, 18, 147
INDUSTRIAL BOILERS	ETHYL BENZENE XYLENE (O-) ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) BENZENE CADMIUM COMPOUNDS CHROMIUM COMPOUNDS HEXANE LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS TOLUENE FORMALDEHYDE BERYLLIUM COMPOUNDS PHOSPHORUS POLYCYCLIC ORGANIC MATTER	1, 18, 19, 64, 65 138, 139
INSTITUTIONAL/COMMERCIAL BOILERS	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS HEXANE FORMALDEHYDE BENZENE TOLUENE BERYLLIUM COMPOUNDS MERCURY COMPOUNDS PHOSPHORUS POLYCYCLIC ORGANIC MATTER	1, 18, 19, 64, 65 138, 141, 142
PROCESS HEATERS	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) BENZENE CADMIUM COMPOUNDS CHROMIUM COMPOUNDS FORMALDEHYDE HEXANE LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS TOLUENE	1, 18, 19, 140
STATIONARY INTERNAL COMBUSTION ENGINES	1,3-BUTADIENE BENZENE ACETALDEHYDE ETHYL BENZENE	1, 18, 144, 145, 146

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
STATIONARY INTERNAL COMBUSTION ENGINES (continued)	FORMALDEHYDE HEXANE TOLUENE XYLENE (M-) XYLENE (O-) XYLENES (MIXED) XYLENE (P-) ACROLEIN PROPIONALDEHYDE	1, 18, 144, 145, 146
STATIONARY TURBINES	1,3-BUTADIENE ACETALDEHYDE ACROLEIN BENZENE ETHYL BENZENE FORMALDEHYDE HEXANE PHENOL PROPIONALDEHYDE STYRENE TOLUENE XYLENE (M-) XYLENES (MIXED) XYLENE (O-)	1, 18, 143
----------INDUSTRY GROUP = NON-FERROUS METALS PROCESSING----------		
PRIMARY ALUMINUM PRODUCTION	2,2,4-TRIOMETHYLPENTANE BENZENE CHROMIUM COMPOUNDS ETHYL BENZENE HEXANE LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS PHENOL TOLUENE XYLENE (O-) XYLENE (P-) POLYCYCLIC ORGANIC MATTER	1, 18, 19, 148, 149
SECONDARY ALUMINUM PRODUCTION	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHLORINE CHROMIUM COMPOUNDS HYDROCHLORIC ACID LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS	1, 19, 82, 153
PRIMARY COPPER SMELTING	CADMIUM COMPOUNDS	81, 84, 155, 156
PRIMARY LEAD SMELTING	CADMIUM COMPOUNDS CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS	1, 19, 150
SECONDARY LEAD SMELTING	LEAD COMPOUNDS	85, 154

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
LEAD ACID BATTERY MANUFACTURING	LEAD COMPOUNDS	77, 83
PRIMARY MAGNESIUM REFINING	CHLORINE HYDROCHLORIC ACID	127, 151, 152
----------*INDUSTRY GROUP = FERROUS METALS PROCESSING*----------		
COKE BY-PRODUCT PLANTS	BENZENE POLYCYCLIC ORGANIC MATTER TOLUENE	68, 109, 167
COKE OVENS: CHARGING, TOP SIDE, AND DOOR LEAKS	COKE OVEN EMISSIONS	76
COKE OVENS: PUSHING, QUENCHING, AND BATTERY STACKS	COKE OVEN EMISSIONS	76
FERROALLOYS PRODUCTION	CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS	1, 19, 157, 158
INTEGRATED IRON & STEEL MANUFACTURING	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS SELENIUM COMPOUNDS ACROLEIN BENZENE FORMALDEHYDE HEXANE PHENOL TOLUENE XYLENE (M-) XYLENE (O-) POLYCYCLIC ORGANIC MATTER	1, 18, 19, 159
NON-STAINLESS STEEL MANUFACTURING - ELECTRIC ARC FURNACE (EAF) OPERATION	ANTIMONY COMPOUNDS ARSENIC COMPOUNDS CADMIUM COMPOUNDS CHROMIUM COMPOUNDS COBALT COMPOUNDS CYANIDES COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS	86, 160, 161
STAINLESS STEEL MANUFACTURING - ELECTRIC ARC FURNACE (EAF) OPERATION	CHLORINE CHROMIUM COMPOUNDS LEAD COMPOUNDS	87, 160, 161
IRON FOUNDRIES	ACROLEIN ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) BENZENE CHROMIUM COMPOUNDS COBALT COMPOUNDS FORMALDEHYDE LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS PHENOL SELENIUM COMPOUNDS TOLUENE XYLENE (M-) XYLENE (O-)	1, 18, 19, 162, 163, 164, 165

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
STEEL FOUNDRIES	ACROLEIN BENZENE CADMIUM COMPOUNDS CHROMIUM COMPOUNDS FORMALDEHYDE HEXANE LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS PHENOL SELENIUM COMPOUNDS TOLUENE XYLENE (M-) XYLENE (O-) POLYCYCLIC ORGANIC MATTER	1, 18, 19, 166
STEEL PICKLING - HCl PROCESS	HYDROCHLORIC ACID POLYCYCLIC ORGANIC MATTER	18, 39, 86, 168
----------*INDUSTRY GROUP = MINERAL PRODUCTS PROCESSING*----------		
ALUMINA PROCESSING	HEXANE FORMALDEHYDE	92, 176
ASPHALT/COAL TAR APPLICATION - METAL PIPES	BENZENE HEXANE TOLUENE	1, 18, 173
ASPHALT CONCRETE MANUFACTURING	BENZENE CHROMIUM COMPOUNDS HEXANE LEAD COMPOUNDS MANGANESE COMPOUNDS NICKEL COMPOUNDS	1, 18, 19, 169, 170
ASPHALT PROCESSING	POLYCYCLIC ORGANIC MATTER CHLORINE	16, 88, 171, 172
ASPHALT ROOFING MANUFACTURING	BENZENE CHLORINE CHROMIUM COMPOUNDS COBALT COMPOUNDS HEXANE MANGANESE COMPOUNDS SELENIUM COMPOUNDS TOLUENE	1, 18, 19, 88, 171, 172
CHROMIUM REFRACTORIES PRODUCTION	CHROMIUM COMPOUNDS	70, 137, 174
CLAY PRODUCTS MANUFACTURING	CHLORINE FORMALDEHYDE HEXANE	1, 18, 92, 175
LIME MANUFACTURING	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHLORINE CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS	89, 177, 178

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
MINERAL WOOL PRODUCTION	FORMALDEHYDE FINE MINERAL FIBERS PHENOL	27, 90, 181
PORTLAND CEMENT MANUFACTURING	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS PHOSPHORUS	1, 19, 65, 179, 180
TACONITE IRON ORE PROCESSING	BENZENE FORMALDEHYDE HEXANE TOLUENE	1, 18, 184
WOOL FIBERGLASS MANUFACTURING	FORMALDEHYDE PHENOL	78, 182, 183, 320
----------*INDUSTRY GROUP = PETROLEUM AND NATURAL GAS PRODUCTION & REFINING*----------		
OIL AND NATURAL GAS PRODUCTION	BENZENE CARBONYL SULFIDE ETHYL BENZENE XYLENES (MIXED) TOLUENE	93, 94
PETROLEUM REFINERIES - CATALYTIC CRACKING (FLUID AND OTHER) UNITS, CATALYTIC REFORMING UNITS, AND SULFUR PLANT UNITS	ACETALDEHYDE BENZENE CADMIUM COMPOUNDS FORMALDEHYDE HEXANE HYDROGEN FLUORIDE LEAD COMPOUNDS MERCURY COMPOUNDS METHANOL METHYL ETHYL KETONE NICKEL COMPOUNDS PROPYLENE OXIDE SELENIUM COMPOUNDS TOLUENE XYLENES (MIXED)	1, 18, 19, 40, 185, 186, 187, 188
PETROLEUM REFINERIES - OTHER SOURCES NOT DISTINCTLY LISTED	ACETALDEHYDE BENZENE CADMIUM COMPOUNDS FORMALDEHYDE HEXANE HYDROGEN FLUORIDE LEAD COMPOUNDS MERCURY COMPOUNDS METHANOL METHYL ETHYL KETONE NICKEL COMPOUNDS PROPYLENE OXIDE SELENIUM COMPOUNDS TOLUENE XYLENES (MIXED)	1, 18, 19, 40, 185, 186, 187, 188

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
----------INDUSTRY GROUP = LIQUIDS DISTRIBUTION----------		
GASOLINE DISTRIBUTION (STAGE 1)	BENZENE CUMENE ETHYL BENZENE HEXANE NAPHTHALENE TOLUENE 2,2,4-TRIMETHYLPENTANE XYLENES (MIXED)	115
ORGANIC LIQUIDS DISTRIBUTION (NON-GASOLINE)	BENZENE	1, 18, 95
----------INDUSTRY GROUP = SURFACE COATING PROCESSES----------		
AEROSPACE INDUSTRIES	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 217, 218
AUTO AND LIGHT DUTY TRUCK (SURFACE COATING)	BENZENE BIPHENYL DIBUTYLPHTHALATE ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE PHTHALIC ANHYDRIDE TOLUENE XYLENE (O-) XYLENES (MIXED) POLYCYCLIC ORGANIC MATTER	1, 18, 198, 199, 200
FLAT WOOD PANELING (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 211
LARGE APPLIANCE (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 196, 197
MAGNETIC TAPES (SURFACE COATING)	METHYL ETHYL KETONE	46, 96, 223, 224
MANUFACTURE OF PAINTS, COATINGS AND ADHESIVES	TETRACHLOROETHYLENE TRICHLOROETHYLENE	97, 229
METAL CAN (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 201, 202
METAL COIL (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 203, 204, 205, 206

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
METAL FURNITURE (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 210
MISCELLANEOUS METAL PARTS AND PRODUCTS (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 225, 226, 227, 228
PAPER AND OTHER WEBS (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 191, 192, 193, 194, 195
PLASTIC PARTS AND PRODUCTS (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 212, 213, 214, 215
PRINTING, COATING, AND DYEING OF FABRICS	BIPHENYL DIBUTYLPHTHALATE DIMETHYL PHTHALATE ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED) POLYCYCLIC ORGANIC MATTER	1, 18, 189, 190, 191
PRINTING/PUBLISHING (SURFACE COATING)	DIBUTYLPHTHALATE CYANIDE COMPOUNDS	1, 18, 219, 220, 221
SHIPBUILDING AND SHIP REPAIR (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 216
WOOD FURNITURE (SURFACE COATING)	ETHYL BENZENE METHYL ETHYL KETONE METHYL ISOBUTYL KETONE TOLUENE XYLENE (O-) XYLENES (MIXED)	1, 18, 207, 208, 209
----------*INDUSTRY GROUP = WASTE TREATMENT AND DISPOSAL*----------		
HAZARDOUS WASTE INCINERATION	ANTIMONY COMPOUNDS ARSENIC COMPOUNDS BENZENE BERRYLLIUM COMPOUNDS CADMIUM COMPOUNDS	79, 98, 233, 234

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
HAZARDOUS WASTE INCINERATION (continued)	CHROMIUM COMPOUNDS HYDROCHLORIC ACID LEAD COMPOUNDS MERCURY COMPOUNDS	79, 98, 233, 234
MUNICIPAL LANDFILLS	ACETALDEHYDE ACRYLONITRILE BENZENE ETHYL ACRYLATE ETHYL CHLORIDE ETHYLENE OXIDE FORMALDEHYDE METHANOL METHYL CHLORIDE PHENOL PROPYLENE OXIDE STYRENE TOLUENE VINYL CHLORIDE XYLENES (MIXED)	1, 18, 231
PUBLICLY OWNED TREATMENT WORKS (POTW) EMISSIONS	ACRYLAMIDE ACRYLONITRILE CARBON TETRACHLORIDE CHLORINE CHLOROFORM ETHYLENE DICHLORIDE METHYLENE CHLORIDE TETRACHLOROETHYLENE TRICHLOROETHYLENE	34, 354, 355
SEWAGE SLUDGE INCINERATION	BENZENE CADMIUM COMPOUNDS CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS SELENIUM COMPOUNDS	1, 18, 19, 128, 230
SITE REMEDIATION	BENZENE CHLOROFORM ETHYL BENZENE ETHYL CHLORIDE ETHYLENE DICHLORIDE ETHYLIDENE DICHLORIDE METHYL CHLORIDE METHYL CHLOROFORM METHYL ETHYL KETONE METHYLENE CHLORIDE METHYL ISOBUTYL KETONE 1,1,2,2-TETRACHLOROETHANE TETRACHLOROETHYLENE TOLUENE 1,1,2-TRICHLOROETHANE TRICHLOROETHYLENE VINYL CHLORIDE VINYLIDENE CHLORIDE XYLENES (MIXED)	113, 232
SOLID WASTE TREATMENT, STORAGE AND DISPOSAL FACILITIES (TSDF)	METHYLENE CHLORIDE TRICHLOROETHYLENE TETRACHLOROETHYLENE	99, 235

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
----------INDUSTRY GROUP = AGRICULTURAL CHEMICALS PRODUCTION----------		
2,4-D SALTS AND ESTERS PRODUCTION	2,4-D SALTS AND ESTERS CHLOROACETIC ACID	14, 61, 236, 237
4,6-DINITRO-O-CRESOL PRODUCTION	CRESOLS/CRESYLIC ACID (MIXTURE)	62, 238
4-CHLORO-2-METHYLPHENOXYACETIC ACID PRODUCTION	CRESOLS/CRESYLIC ACID (MIXTURE)	62, 239
CAPTAFOL PRODUCTION	1,3-BUTADIENE	7, 240
CAPTAN PRODUCTION	1,3-BUTADIENE	7, 17, 242
CHLORONEB PRODUCTION	HYDROQUINONE	41
CHLOROTHALONIL PRODUCTION	CARBON TETRACHLORIDE	4, 241
DACTHAL (TM) PRODUCTION	CARBON TETRACHLORIDE	4, 236, 241
SODIUM PENTACHLOROPHENATE PRODUCTION	PENTACHLOROPHENOL	49
TORDON (TM) ACID PRODUCTION	CARBON TETRACHLORIDE	4, 100
----------INDUSTRY GROUP = FIBERS PRODUCTION PROCESSES----------		
ACRYLIC FIBERS/MODACRYLIC FIBERS PRODUCTION	ACRYLONITRILE	8, 22, 125, 243, 244, 245
RAYON PRODUCTION	CARBON DISULFIDE	33, 247, 248
SPANDEX PRODUCTION	DIMETHYL FORMAMIDE	9, 130, 243, 246, 249
----------INDUSTRY GROUP = FOOD AND AGRICULTURE PROCESSES----------		
BAKER'S YEAST MANUFACTURING	ACETALDEHYDE	75, 118, 119, 250, 251
CELLULOSE FOOD CASING MANUFACTURING	CARBON DISULFIDE	102, 254
VEGETABLE OIL PRODUCTION	HEXANE	101, 252, 253
----------INDUSTRY GROUP = PHARMACEUTICAL PRODUCTION PROCESSES----------		
PHARMACEUTICALS PRODUCTION	BENZENE CARBON TETRACHLORIDE CHLOROBENZENE CHLOROFORM ETHYLENE DICHLORIDE METHANOL METHYLENE CHLORIDE TOLUENE	2, 3, 4, 10, 11, 255, 256, 257
----------INDUSTRY GROUP = POLYMERS AND RESINS PRODUCTION----------		
ACETAL RESINS PRODUCTION	FORMALDEHYDE	38, 258, 259, 260
ACRYLONITRILE-BUTADIENE-STYRENE PRODUCTION	1,3-BUTADIENE ACRYLONITRILE STYRENE	6, 7, 24, 29, 60, 261, 262
ALKYD RESINS PRODUCTION	PHTHALIC ANHYDRIDE	53, 264
AMINO RESINS PRODUCTION	FORMALDEHYDE	38, 103, 272, 273, 274
BOAT MANUFACTURING	STYRENE	97, 122, 335

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
BUTADIENE-FURFURAL COTRIMER (R-11) PRODUCTION	1,3-BUTADIENE	132
BUTYL RUBBER PRODUCTION	METHYL CHLORIDE	45, 265, 266
CARBOXYMETHYLCELLULOSE PRODUCTION	CHLOROACETIC ACID	61, 268, 269
CELLOPHANE PRODUCTION	CARBON DISULFIDE	34, 267
CELLULOSE ETHERS PRODUCTION	ETHYL CHLORIDE	5, 268
EPICHLOROHYDRIN ELASTOMERS PRODUCTION	EPICHLOROHYDRIN	36, 222, 319
EPOXY RESINS PRODUCTION	EPICHLOROHYDRIN	36, 270, 271
ETHYLENE-PROPYLENE ELASTOMERS PRODUCTION	1,3-BUTADIENE	7, 314
FLEXIBLE POLYURETHANE FOAM PRODUCTION	METHYLENE CHLORIDE	3, 104, 301, 302
HYPALON (TM) PRODUCTION	CARBON TETRACHLORIDE	4, 129, 317
MALEIC ANHYDRIDE COPOLYMERS PRODUCTION	MALEIC ANHYDRIDE	42, 275, 276
METHYL METHACRYLATE-ACRYLONITRILE-BUTADIENE-STYRENE PRODUCTION	1,3-BUTADIENE ACRYLONITRILE METHYL METHACRYLATE STYRENE	7, 131, 277
METHYL METHACRYLATE-BUTADIENE STYRENE TERPOLYMERS PRODUCTION	1,3-BUTADIENE METHYL METHACRYLATE STYRENE	7, 132, 277
METHYLCELLULOSE PRODUCTION	METHYL CHLORIDE	44, 278, 279, 280
NEOPRENE PRODUCTION	CHLOROPRENE	25, 26, 136, 281
NITRILE BUTADIENE RUBBER PRODUCTION	1,3-BUTADIENE ACRYLONITRILE	23, 24, 29, 60, 282, 283, 284
NON-NYLON POLYAMIDES PRODUCTION	EPICHLOROHYDRIN	116, 117, 315, 316
NYLON 6 PRODUCTION	CAPROLACTAM	32, 285, 286
PHENOLIC RESINS PRODUCTION	CRESOLS/CRESYLIC ACID (MIXTURE) PHENOL	43, 50, 287, 288
POLYBUTADIENE RUBBER PRODUCTION	1,3-BUTADIENE	23, 24, 60, 289, 290
POLYCARBONATES PRODUCTION	METHYLENE CHLORIDE PHOSGENE	3, 51, 53, 54, 291
POLYESTER RESINS PRODUCTION	MALEIC ANHYDRIDE PHTHALIC ANHYDRIDE STYRENE	299, 318
POLYETHYLENE TEREPHTHALATE PRODUCTION	ETHYLENE GLYCOL	37, 294, 295
POLYMERIZED VINYLIDENE CHLORIDE PRODUCTION	VINYLIDENE CHLORIDE	72, 296, 297
POLYMETHYL METHACRYLATE RESINS PRODUCTION	METHYL METHACRYLATE	47, 298
POLYSTYRENE PRODUCTION	STYRENE	54, 299, 300

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
POLYSULFIDE RUBBER PRODUCTION	1,3-BUTADIENE 2,4-TOLUENE DIISOCYANATE ACRYLIC ACID ETHYL ACRYLATE ETHYLENE DICHLORIDE ETHYLENE GLYCOL ETHYLENE OXIDE FORMALDEHYDE GLYCOL ETHERS HYDROCHLORIC ACID MANGANESE COMPOUNDS METHANOL METHYL CHLORIDE METHYL ETHYL KETONE METHYL METHACRYLATE METHYLENE CHLORIDE PHENOL STYRENE TOLUENE XYLENES (MIXED)	97, 299
POLYVINYL ACETATE EMULSIONS PRODUCTION	VINYL ACETATE	58, 303, 304
POLYVINYL ALCOHOL PRODUCTION	VINYL ACETATE	58, 305, 306, 307
POLYVINYL BUTYRAL PRODUCTION	VINYL ACETATE	58, 305
POLYVINYL CHLORIDE AND COPOLYMERS PRODUCTION	TRICHLOROETHYLENE VINYL ACETATE VINYL CHLORIDE	57, 58, 59, 308, 309
REINFORCED PLASTIC COMPOSITES PRODUCTION	STYRENE	6, 126, 310
STYRENE-ACRYLONITRILE PRODUCTION	1,3-BUTADIENE ACRYLONITRILE STYRENE	6, 7, 24, 29, 54, 60, 263
STYRENE-BUTADIENE RUBBER AND LATEX PRODUCTION	1,3-BUTADIENE STYRENE	23, 24, 54, 60, 311, 312, 313
----------*INDUSTRY GROUP = PRODUCTION OF INORGANIC CHEMICALS*----------		
AMMONIUM SULFATE PRODUCTION - CAPROLACTAM BY-PRODUCT PLANTS	CAPROLACTAM	80, 108, 325
ANTIMONY OXIDES MANUFACTURING	ANTIMONY COMPOUNDS	107, 326
CHLORINE PRODUCTION	CARBON TETRACHLORIDE CHLORINE ETHYLIDENE DICHLORIDE	4, 16, 34, 327, 328
CHROMIUM CHEMICALS MANUFACTURING	CHROMIUM COMPOUNDS	70, 91
CYANURIC CHLORIDE PRODUCTION	CYANIDE COMPOUNDS	35, 329
FUME SILICA PRODUCTION	CHLORINE	106, 330
HYDROCHLORIC ACID PRODUCTION	HYDROCHLORIC ACID	39
HYDROGEN CYANIDE PRODUCTION	CYANIDE COMPOUNDS	14
HYDROGEN FLUORIDE PRODUCTION	HYDROGEN FLUORIDE	14

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
PHOSPHATE FERTILIZERS PRODUCTION	HYDROGEN FLUORIDE	66, 105
PHOSPHORIC ACID MANUFACTURING	HYDROGEN FLUORIDE	52, 105
QUATERNARY AMMONIUM COMPOUNDS PRODUCTION	BENZYL CHLORIDE METHYL CHLORIDE	31, 45, 321
SODIUM CYANIDE PRODUCTION	CYANIDE COMPOUNDS	35, 322
URANIUM HEXAFLUORIDE PRODUCTION	HYDROGEN FLUORIDE	40, 323, 324
----------*INDUSTRY GROUP = PRODUCTION OF ORGANIC CHEMICALS*----------		
SYNTHETIC ORGANIC CHEMICAL MANUFACTURING	ACETALDEHYDE ACETAMIDE ACETONITRILE ACETOPHENONE ACROLEIN ACRYLAMIDE ACRYLIC ACID ACRYLONITRILE ALLYL CHLORIDE ANILINE O-ANISIDINE BENZENE BENZOTRICHLORIDE BENZYL CHLORIDE BIPHENYL BIS(CHLOROMETHYL)ETHER BROMOFORM 1,3-BUTADIENE CAPROLACTAM CARBON DISULFIDE CARBON TETRACHLORIDE CHLOROACETIC ACID CHLOROBENZENE CHLOROFORM CHLOROPRENE CRESOLS/CRESYLIC ACID (ISOMERS & MIXTURE) M-CRESOL O-CRESOL P-CRESOL CUMENE CYANIDE COMPOUNDS 1,4-DICHLOROBENZENE (P) DICHLOROETHYL ETHER (BIS(2-CHLOROETHYL)ETHER) 1,3-DICHLOROPROPENE DIETHANOLAMINE DIETHYL SULFATE N,N'-DIMETHYLANILINE 3,3'-DIMETHYL BENZIDINE DIMETHYL FORMAMIDE 1,1-DIMETHYL HYDRAZINE DIMETHYL PHTHALATE DIMETHYL SULFATE 2,4-DINITROPHENOL 2,4-DINITROTOLUENE 1,4-DIOXANE 1,2-DIPHENYLHYDRAZINE EPICHLOROHYDRIN ETHYL ACRYLATE ETHYL BENZENE ETHYL CHLORIDE ETHYLENE DIBROMIDE	12, 13, 20, 21, 28

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
SYNTHETIC ORGANIC CHEMICAL MANUFACTURING (continued)	ETHYLENE DICHLORIDE ETHYLENE GLYCOL ETHYLENE OXIDE ETHYLIDENE DICHLORIDE FORMALDEHYDE GLYCOL ETHERS HEXACHLOROBENZENE HEXACHLOROBUTADIENE HEXACHLOROETHANE HEXANE HYDROQUINONE ISOPHORONE MALEIC ANHYDRIDE METHANOL METHYL BROMIDE METHYL CHLORIDE METHYL CHLOROFORM METHYL ETHYL KETONE METHYL HYDRAZINE METHYL ISOBUTYL KETONE METHYL ISOCYANATE METHYL METHACRYLATE METHYL TERT BUTYL ETHER METHYLENE CHLORIDE METHYLENE DIPHENYL DIISOCYANATE (MDI) 4,4-METHYLENEDIANILINE NAPHTHALENE NITROBENZENE 4-NITROPHENOL 2-NITROPROPANE PHENOL P-PHENYLENEDIAMINE PHOSGENE PHTHALIC ANHYDRIDE B-PROPIOLACTONE PROPIONALDEHYDE PROPYLENE DICHLORIDE PROPYLENE OXIDE QUINONE STYRENE 1,1,2,2-TETRACHLOROETHANE TETRACHLOROETHYLENE TOLUENE 2,4-TOLUENE DIAMINE 2,4-TOLUENE DIISOCYANATE O-TOLUIDINE 1,2,4-TRICHLOROBENZENE 1,1,2-TRICHLOROETHANE TRICHLOROETHYLENE 2,4,5-TRICHLOROPHENOL TRIETHYLAMINE 2,2,4-TRIMETHYLPENTANE VINYL ACETATE VINYL CHLORIDE VINYLIDENE CHLORIDE XYLENES (ISOMERS AND MIXTURES) M-XYLENE O-XYLENE P-XYLENE	12, 13, 20, 21, 28

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
----------INDUSTRY GROUP = MISCELLANEOUS PROCESSES----------		
AEROSOL CAN-FILLING FACILITIES	METHYL CHLOROFORM METHYLENE CHLORIDE TETRACHLOROETHYLENE	45, 48, 55, 69, 111
BENZYLTRIMETHYLAMMONIUM CHLORIDE PRODUCTION	BENZYL CHLORIDE	31, 334
BUTADIENE DIMERS PRODUCTION	1,3-BUTADIENE	7, 314, 336
CARBONYL SULFIDE PRODUCTION	CARBONYL SULFIDE	17, 343
CHELATING AGENTS PRODUCTION	CYANIDE COMPOUNDS	35, 337
CHLORINATED PARAFFINS PRODUCTION	CARBON TETRACHLORIDE	133
CHROMIC ACID ANODIZING	CHROMIUM COMPOUNDS	70, 71, 356
COMMERCIAL DRY CLEANING (PERCHLOROETHYLENE) - TRANSFER MACHINES	TETRACHLOROETHYLENE	55, 114
COMMERCIAL STERILIZATION FACILITIES	ETHYLENE OXIDE	15, 110
DECORATIVE CHROMIUM ELECTROPLATING	CHROMIUM COMPOUNDS	70, 71, 356
DODECANEDIOIC ACID PRODUCTION	1,3-BUTADIENE	7, 67
DRY CLEANING (PETROLEUM SOLVENT)	CHLOROBENZENE CUMENE ETHYL BENZENE POLYCYCLIC ORGANIC MATTER TOLUENE XYLENE (O-)	1, 18, 344
ETHYLIDENE NORBORNENE PRODUCTION	1,3-BUTADIENE	7, 132
EXPLOSIVES PRODUCTION	PHOSPHORUS TOLUENE	56, 65, 97, 123, 349
HALOGENATED SOLVENT CLEANERS	METHYL CHLOROFORM METHYLENE CHLORIDE TETRACHLOROETHYLENE TRICHLOROETHYLENE	18, 352, 353
HARD CHROMIUM ELECTROPLATING	CHROMIUM COMPOUNDS	70, 71, 356
HYDRAZINE PRODUCTION	HYDRAZINE	14, 338
INDUSTRIAL DRY CLEANING (PERCHLOROETHYLENE) - DRY-TO-DRY MACHINES	TETRACHLOROETHYLENE	55, 114
INDUSTRIAL DRY CLEANING (PERCHLOROETHYLENE) - TRANSFER MACHINES	TETRACHLOROETHYLENE	55, 114
INDUSTRIAL PROCESS COOLING TOWERS	CHROMIUM COMPOUNDS NICKEL COMPOUNDS PHOSPHORUS	65, 70, 71, 73, 120, 121
OXYBISPHENOXARSINE/1,3-DIISOCYANATE PRODUCTION	CHLOROFORM	135
PAINT STRIPPER USERS	METHYLENE CHLORIDE	48, 124, 348
PHOTOGRAPHIC CHEMICALS PRODUCTION	BENZIDINE BETA-PROPIOLACTONE ETHYLIDENE DICHLORIDE HYDROQUINONE N-NITROSODIMETHYLAMINE	16, 41, 97, 339

Table 3.1 (continued)

SOURCE CATEGORY NAME	POLLUTANT(S)	REFERENCE
PHTHALATE PLASTICIZERS PRODUCTION	PHTHALIC ANHYDRIDE	53, 345, 346, 347
PLYWOOD/PARTICLE BOARD MANUFACTURING	MANGANESE COMPOUNDS POLYCYCLIC ORGANIC MATTER	1, 18, 19, 351
POLYETHER POLYOLS PRODUCTION	PROPYLENE OXIDE	63, 293
PULP & PAPER PRODUCTION	ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE) CADMIUM COMPOUNDS CHLORINE CHLOROFORM CHROMIUM COMPOUNDS LEAD COMPOUNDS MANGANESE COMPOUNDS MERCURY COMPOUNDS NICKEL COMPOUNDS SELENIUM COMPOUNDS	1, 2, 19, 34, 331
ROCKET ENGINE TEST FIRING	HYDROGEN CHLORIDE	112, 350
RUBBER CHEMICALS MANUFACTURING	ANILINE CARBON DISULFIDE HYDROQUINONE	30, 33, 41, 340
SEMICONDUCTOR MANUFACTURING	ETHYLIDENE DICHLORIDE	16, 97, 341, 342
SYMMETRICAL TETRACHLOROPYRIDINE PRODUCTION	CARBON TETRACHLORIDE	134
TIRE PRODUCTION	BENZENE HEXANE TOLUENE	1, 18, 332, 333
WOOD TREATMENT	PENTACHLOROPHENOL	49, 74, 97

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4.0 LISTING OF CATEGORIES OF AREA SOURCES AND ASSOCIATED HAZARDOUS AIR POLLUTANTS

4.1 INTRODUCTION

Categories of area sources are listed in Table 4.1 in alphabetical order. These source categories identify area sources that EPA has found to present a threat of adverse effects to human health or the environment warranting regulation under Section 112 of the CAA.

The associated HAP's and references used for emissions data collection and description purposes are indicated for each source category in Table 4.1. The HAP's are located in the column labeled "Pollutant Name." The pollutants listed are those for which documentation was readily available. Additional HAP's may also be emitted from a source category that are not listed in Table 4.1. This situation will be considered during the development of individual regulations, at which time additional HAP's may be identified for a source category. The specific references from the listing approach used to identify and describe each source category are coded by number in the last column of Table 4.1 to correspond to the list of references in Section 4.2.

For further information regarding the listing of categories of area sources that appear in Table 4.1, the reader is referred to the upcoming Federal Register notice entitled "Initital List of Categories of Sources under Section 112(c)(1) of the Clean Air Act Amendments of 1990," which will announce the listing of source categories that appear in this document.

Table 4.1 Categories of Area Sources and Associated Hazardous Air Pollutants

SOURCE CATEGORY NAME *	POLLUTANT(S)
ASBESTOS PROCESSING	ASBESTOS
CHROMIC ACID ANODIZING	CHROMIUM COMPOUNDS
COMMERCIAL DRYCLEANING (PERCHLOROETHYLENE) - TRANSFER MACHINES	TETRACHLOROETHYLENE (PERCHLOROETHYLENE)
COMMERCIAL DRYCLEANING (PERCHLOROETHYLENE) - DRY-TO-DRY MACHINES	TETRACHLOROETHYLENE (PERCHLOROETHYLENE)
COMMERCIAL STERILIZATION FACILITIES	ETHYLENE OXIDE
DECORATIVE CHROMIUM ELECTROPLATING	CHROMIUM COMPOUNDS
HARD CHROMIUM ELECTROPLATING	CHROMIUM COMPOUNDS
HALOGENATED SOLVENT CLEANERS	TRICHLOROETHYLENE TETRACHLOROETHYLENE (PERCHLOROETHYLENE) METHYLENE CHLORIDE METHYL CHLOROFORM

* THE READER IS REFERRED TO REFERENCE 1 IN SECTION 4.2 FOR FURTHER INFORMATION REGARDING THE BASIS FOR LISTING THE CATEGORIES OF AREA SOURCES APPEARING IN TABLE 4.1.

4.2 REFERENCES

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APPENDIX A

Descriptions of Categories of Major Sources

The following descriptions are intended to provide information on the types of operations, processes and equipment included within each category of major sources. Because of current data limitations, a comprehensive discussion of processes and/or equipment in HAP service is not possible. More detailed analyses may be conducted during regulatory development, and such information that becomes available in the future may serve to refine these descriptions.

The descriptions for categories of major sources frequently use terminology like "...including, but not limited to..." which is meant to encompass process steps such as recovering/purifying HAP's or HAP-containing materials such as unreacted raw materials, solvents, and other stream components that are not otherwise mentioned specifically within the descriptions. Descriptions for categories of area sources can be found in the preamble to the upcoming Federal Register notice announcing the initial list of categories of sources under Section 112(c)(1) of the Clean Air Act as amended in 1990.

The descriptions in Appendix A are presented for each category of major sources and are arranged by industry group similar to Table 3.1, in Section 3.0. Where applicable for each category described in this appendix, the following five types of emission points will be considered upon development of regulations: equipment leaks, process vents, transfer operations, storage tanks (raw material, intermediate, and final product), and wastewater collection and treatment systems associated with the source category.

INDUSTRY GROUP - FUEL COMBUSTION

Source Category: Engine Test Facilities

The Engine Test Facilities source category includes any facility engaged in the testing of stationary and mobile engines, including turbines and reciprocating engines. Testing purposes include determining conformity with applicable standards and/or new product testing.

Source Category: Industrial Boilers

The Industrial Boilers source category includes boilers used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity. The category includes, but is not limited to, boilers fired by wood, coal, oil, natural gas, waste-type fuel, and mixed or other fuel. Boiler types include watertube and firetube. Firing methods include pulverized dry bottom, pulverized wet bottom, underfeed stoker, spreader stoker, and hand stoker.

Source Category: Institutional/Commercial Boilers

The Institutional/Commercial Boilers source category includes, but is not limited to, boilers used in commercial establishments, medical centers, research centers, institutions of higher education, hotels, and laundries to provide electricity, steam, and/or hot water. The category includes, but is not limited to, boilers fired by wood, coal, oil, natural gas, waste-type fuel, and mixed or other fuel. Firing methods include pulverized dry bottom, pulverized wet bottom, underfeed stoker, spreader stoker, and hand stoker. Boiler types include watertube and firetube.

INDUSTRY GROUP - FUEL COMBUSTION (CONTINUED)

Source Category: Process Heaters

The Process Heaters source category includes, but is not limited to, secondary metals process heaters, petroleum and chemical industry process heaters, and other process heaters. A process heater is defined as a piece of equipment (usually a furnace-type device) used to heat chemical process stream materials (liquids, gases, or solids) in plant or on-site operations. Heater types include, but are not limited to, direct-fired, indirect-fired, and pebble heaters. The category includes process heaters fired by natural gas, oil, coal, wood, waste, mixed, and other types of fuel.

Source Category: Stationary Internal Combustion Engines

The Stationary Internal Combustion Engines source category includes utility, industrial, and commercial reciprocating internal combustion engines used for compressor and pump drives, electricity generation, and other industrial processes. The category includes, but is not limited to, internal combustion engines that are fueled by gasoline, diesel fuel, natural gas, sewage gas, and any other types of fuel.

INDUSTRY GROUP - FUEL COMBUSTION (CONTINUED)

Source Category: Stationary Turbines

The Stationary Turbines source category includes combustion turbines used by electric and gas utilities, industrial establishments, and commercial/institutional operations to provide electricity, gas compression, or other functions. Included in the category are turbines fired by fuel oil, natural gas, and mixed or other fuel. The Stationary Turbine source category includes simple cycle and regenerative cycle turbines, and the turbine portion of a combined cycle steam/electric generating system.

INDUSTRY GROUP - NON-FERROUS METALS PROCESSING

Source Category: Primary Aluminum Production

The Primary Aluminum Production source category includes any facility engaged in producing primary aluminum by electrolytically reducing alumina. The category includes, but is not limited to, the following process units: carbon mix plants, reduction plants, anode bake plants, holding furnaces in the casting area, casting processes, and refining processes. The reduction plant consists of electrically linked cells which can be one of the following types: prebake, horizontal stud Soderberg, and vertical stud Soderberg. Reduction plants using prebake cells require a separate anode bake plant facility, which utilizes either a ring furnace or tunnel kiln in anode production.

INDUSTRY GROUP - NON-FERROUS METALS PROCESSING (CONTINUED)

Source Category: Secondary Aluminum Production

The Secondary Aluminum Production source category includes any facility engaged in the cleaning, melting, refining, alloying, and pouring of aluminum recovered from scrap, foundry returns, and dross, to form aluminum products such as alloy ingots, billets, notched bars, shot, hot metals, and hardeners. The category includes, but is not limited to, the following process steps: inspection, sorting, pretreatment, smelting/refining, and coating. The pretreatment of the aluminum scrap, foundry returns, and dross can include the following treatments: crushing/screening, bailing, shredding, burning, drying, hot dross processing, dry milling, leaching, roasting, and sweating. The smelting/refining of the treated aluminum scrap includes, but is not limited to, the following steps: charging, melting, fluxing, alloying, mixing, demagging, degassing, skimming, and pouring. Smelting/refining incorporates the following processes: reverberating (chlorine) smelting/refining, reverberating (fluorine) smelting/refining, crucible smelting/refining, and induction smelting/refining.

INDUSTRY GROUP - NON-FERROUS METALS PROCESSING (CONTINUED)

Source Category: Primary Copper Smelting

The Primary Copper Smelting source category includes any facility engaged in the pyrometallurgical process used for the extraction of copper from sulfur oxides, native ore concentrates, or other copper bearing minerals. The category includes, but is not limited to, the following smelting process units: roaster, smelting furnace, and converter. The roaster smelting process unit can utilize a multiple-hearth roaster or a fluid-bed roaster. The smelting furnace process unit can utilize a fossil-fuel-fired reverberatory furnace, electric furnace, Outo-kumpu flash furnace, Noranda continuous smelter, Inco flash smelting furnace, or other furnace type. The converter process unit can consist of a Smith, "siphon," or other type converter.

Source Category: Primary Lead Smelting

The Primary Lead Smelting source category includes any facility engaged in producing lead metal from ore concentrates. The category includes, but is not limited to, the following smelting processes: sintering, reduction, preliminary treatment, and refining operations. The sintering process includes an updraft or downdraft sintering machine. The reduction process includes the blast furnace, electric smelting furnace with a converter or reverberatory furnace, and slag fuming furnace process units. The preliminary treatment process includes the drossing kettles and dross reverberatory furnace process units. The refining process includes the refinery process unit.

INDUSTRY GROUP - NON-FERROUS METALS PROCESSING (CONTINUED)

Source Category: Secondary Lead Smelting

The Secondary Lead Smelting source category includes any facility engaged in the production of purified lead from lead scrap by melting and separating lead from metal and nonmetallic contaminants and by reducing lead compounds to elemental lead. The category includes processes associated with secondary lead smelting such as battery breaking, smelting in reverberatory, blast, rotary and electric furnaces, refining, alloying and casting.

Source Category: Lead Acid Battery Manufacturing

The Lead Acid Battery Manufacturing source category includes any facility engaged in producing lead-acid or lead-acid storage batteries, including, but not limited to, starting-lighting-ignition (SLI) batteries and industrial storage batteries. The category includes, but is not limited to, the following lead-acid battery manufacturing steps: lead oxide production, grid casting, paste mixing, and three-process operation (plate stacking, burning, and assembly).

Source Category: Primary Magnesium Refining

The Primary Magnesium Refining source category includes any facility engaged in producing metallic magnesium. The source category includes, but is not limited to, metallic magnesium produced using the Dow sea-water process or the Pidgeon process. The Dow sea-water process involves the electrolysis of molten magnesium chloride. The Pidgeon process involves the thermal reduction of magnesium oxide with ferrosilicon.

INDUSTRY GROUP - FERROUS METALS PROCESSING

Source Category: Coke By-Product Plants

The Coke By-Product Plant source category includes the by-product recovery plant component of a by-product recovery coke oven battery. A by-product coke oven battery manufactures metallurgical coke by destructive distillation of coal in ovens. Volatile compounds are driven from the coal, collected from each oven, and processed in an adjacent plant (by-product plant) for recovery of combustible gases and other coal by-products. The coke by-product recovery plant includes, but is not limited to, the following process units: flushing liquor decanter, dehydrator primary cooler decanter, primary cooler, final tar extractor, electrostatic precipitator, weak ammonia liquor settling tank, phenol extractor, ammonia still, exhauster, precipitator reheater, ammonia absorber, final cooler, light oil scrubber, hydrogen sulfide scrubber, gas holder, and booster station.

INDUSTRY GROUP - FERROUS METALS PROCESSING (CONTINUED)

Source Category: Coke Ovens: Charging, Top Side, and Door Leaks

The Coke Ovens: Charging, Top Side, and Door Leaks source category includes emissions occurring during the charging process, from topside ports and offtake systems, and from oven doors of a coke oven battery. A coke oven battery is defined as a facility engaged in the manufacturing of metallurgical coke by the destructive distillation of coal. The charging process includes the following steps: transfer of coal from bunker into larry car; positioning of larry car on wide-gauge railroad tracks over an empty, hot oven; opening of the lids on the charging ports; discharge of coal from the hoppers of the larry car through the charging pots into the coke oven; and the closing of the charging port lids. The top side leaks include emissions from closed charge ports, ascension pipes, and the collector main, which are located on the top of the coke oven. The door leaks include emissions from the coke oven doors when they are closed and the oven is in operation.

Source Category: Coke Ovens: Pushing, Quenching, and Battery Stacks

The Coke Ovens: Pushing, Quenching, and Battery Stacks source category includes emissions from pushing and quenching operations, and battery stacks at a coke oven battery. A coke oven battery is defined as a facility engaged in the manufacturing of metallurgical coke by the destructive distillation of coal. The pushing process includes the following steps: opening of the doors at both ends of the coke oven; positioning of the pusher machine by the open oven; removal of the incandescent coke from the coke side of the oven by a ram which is extended from the pusher machine; and the receiving of incandescent coke by the rail quench car. The quenching process, which follows the pushing process, includes the quench tower, where several thousand gallons of water are sprayed onto the coke mass to cool it. The battery stack component of the coke oven includes, the underfire or combustion stack, which receives hot gases from the oven flues.

INDUSTRY GROUP - FERROUS METALS PROCESSING (CONTINUED)

Source Category: Ferroalloys Production

The Ferroalloys Production source category includes any facility engaged in producing ferroalloys such as ferrosilicon, ferromanganese, and ferrochrome. A ferroalloy is an alloy of iron and one or more other elements, such as silicon, manganese, or chromium. Ferroalloys are used as additives to impart unique properties to steel and cast iron. Ferroalloys production includes, but is not limited to, the following processes: unloading, storage, sintering, crushing, weigh-feeding, smelting, tapping, casting, and screening. The smelting process can be performed in a variety of furnace types including, but not limited to: submerged electric arc furnaces, induction furnaces, vacuum furnaces, exothermic reaction furnaces, and electrolytic cells.

Source Category: Integrated Iron and Steel Manufacturing

The Integrated Iron and Steel Manufacturing source category includes any integrated iron and steel facility engaged in producing steel. Integrated Iron and Steel Manufacturing includes the following processes: sinter production, iron production, iron preparation (hot metal desulfurization), steel production, semifinished product preparation, finished product preparation, and handling and treatment of raw, intermediate, and waste materials.

The iron production process includes the production of iron in blast furnaces by the reduction of iron-bearing materials with a hot gas. The steel production process includes basic oxygen furnaces and open hearth furnaces.

INDUSTRY GROUP - FERROUS METALS PROCESSING (CONTINUED)

Source Category: Non-Stainless Steel Manufacturing - Electric Arc Furnace (EAF) Operation

The Non-Stainless Steel Manufacturing - Electric-Arc Furnace (EAF) Operation source category includes any facility that uses electric arc furnaces to melt steel scrap and cast semifinished non-stainless steel shapes that must be mechanically worked to form final products. The steel may contain small amounts of alloying elements such as vanadium, molybdenum, manganese, silicon, and copper. The plant includes the following process units: electric arc furnace, forming facilities, and rolling facilities.

In steel production, the electric-arc furnace is used as a metal melter and a refining vessel. In the production process, additives are added either directly to the furnace or added to the ladle during a tap. The electric arc furnace process steps include charging, meltdown, refining, and tapping.

INDUSTRY GROUP - FERROUS METALS PROCESSING (CONTINUED)

Source Category: Stainless Steel Manufacturing - Electric Arc Furnace (EAF) Operation

The Stainless Steel Manufacturing - Electric Arc Furnace (EAF) Operation source category includes any facility that uses electric arc furnaces to melt steel scrap and cast semifinished stainless steel shapes that must be mechanically worked to form final products. Stainless steel, by definition, contains four percent or more chromium. Additional elements such as silicon and manganese can be added to give the steel certain properties, such as greater strength.

A stainless steel plant includes the following process units: EAF, argon-oxygen decarburization (AOD) vessel, and forming and rolling facilities. The EAF functions primarily as a metal melter and the AOD vessel is used to refine the molten metal. Electric arc furnace stainless steel production processes include consumable-electrode melting and electroslag remelting. The production process steps include charging to the EAF, meltdown, tapping from the AOD vessel, and refining in the AOD vessel.

Raw materials used to produce stainless steels include No. 1 grade scrap; stainless scrap; and alloys such as ferromanganese, ferrochrome, high carbon chrome, nickel, molybdenum oxide, aluminum, manganese, silicon, and others.

Source Category: Iron Foundries

The Iron Foundries source category includes any facility engaged in producing final shape castings from grades of iron that include, but are not limited to, gray iron (also known as pig iron), malleable iron (also known as white cast iron), and ductile iron (also known as nodular cast iron). Gray iron is a high-carbon iron that serves as the basic raw material for steel and cast iron. Malleable iron contains about three percent carbon, in the form of cementite and fine pearlite, and contains little or no graphite. Ductile iron is gray iron which has been treated with magnesium (0.01 - 1.0 percent).

The Iron Foundries category includes the following four major production steps: raw materials handling and preparation, metal melting, mold and core production, and casting and finishing.

Raw materials handling and preparation includes the following processes: receiving, unloading, storing, and conveying of all raw materials for both furnace charging and mold and core preparation.

Metal melting includes, but is not limited to, the following processes: furnace charging, melting, backcharging, refining and treatment, slag removing, and tapping. Casting and finishing includes the following steps: tapping of molten metal into ladle, ductile iron inoculation, molten metal treatment with magnesium, ladling into molds, transport to cooling area, removal of unwanted appendages, and abrasive blast cleaning and/or tumbling.

INDUSTRY GROUP - FERROUS METALS PROCESSING (CONTINUED)

Source Category: Steel Foundries

The Steel Foundries source category includes any facility engaged in producing final shape steel castings by the melting, alloying, and molding of pig iron and steel scrap. The category includes, but is not limited to, the following steel foundry process operations: raw materials handling, metal melting, mold and core production, and casting and finishing.

Source Category: Steel Pickling - HCl Process

The Steel Pickling - HCl Process source category includes any facility engaged in the pickling of steel using hydrochloric acid (HCl) as the pickling acid. Pickling is defined as a process which chemically removes oxides and scale from the surface of steel by the action of aqueous solutions of inorganic acids. Not included in this category are facilities which pickle steel using other acids.

The category includes both batch and continuous pickling operations. In the batch pickling process, the steel is immersed in an acid solution until the scale or oxide film is removed, lifted from the bath, allowed to drain, and then rinsed by sequential immersion in rinse tanks. In the continuous pickling process, pickling lines pass the steel through the pickler in a countercurrent direction to the flow of the acid solution; next, the steel is lifted from the acid, allowed to drain, and then rinsed in a series of rinse tanks.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING

Source Category: Alumina Processing

The Alumina Processing source category includes any facility engaged in processing of ores to produce alumina. The base ore for alumina is bauxite. After the ores are purified to alumina, the alumina is reduced to elemental aluminum. This source category does not include the production of aluminum from alumina.

This category includes, but is not limited to, facilities which produce alumina by the Bayer process. In the Bayer process, the ore is dried, ground in ball mills, and mixed with a leaching solution of sodium hydroxide to produce a sodium aluminate solution. The solution is separated from the bauxite impurities and then cooled. As the solution cools, hydrated aluminum oxide precipitates. After separation and washing to remove impurities, the aluminum oxide is dried and is calcined to produce a crystalline form of alumina.

Source Category: Asphalt/Coal Tar Application - Metal Pipes

The Asphalt/Coal Tar Application - Metal Pipes source category includes any facility engaged in coating the surfaces of metal pipes with asphalt or coal tar. The category includes all process units associated with the coating of metal pipes.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING (CONTINUED)

Source Category: Asphalt Concrete Manufacturing

The Asphalt Concrete Manufacturing source category includes any facility engaged in the manufacture of asphaltic concrete. Asphaltic concrete is a mixture of well graded, high quality aggregate and liquid asphaltic cement which is heated and mixed in measured quantities to produce bituminous pavement material. Manufacturing processes for asphaltic concrete include batch mix, continuous mix, and drum mix operations. The category includes, but is not limited to, the following process units: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing and recycling hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

Source Category: Asphalt Processing

The Asphalt Processing source category includes any facility engaged in the preparation of asphalt at asphalt processing plants, petroleum refineries, and asphalt roofing plants. Asphalt preparation, called "blowing," involves the oxidation of asphalt flux by bubbling air through the liquid asphalt flux at 260°C for 1 to 4.5 hours, depending upon the desired characteristics of the asphalt. The category includes, but is not limited to, the following processes: asphalt heating, blowing still, and asphalt storage tanks.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING (CONTINUED)

Source Category: Asphalt Roofing Manufacturing

The Asphalt Roofing Manufacturing source category includes any facility engaged in the manufacturing of asphalt roofing products such as asphalt saturated felt rolls, roll roofing with mineral granules on the surface, and smooth roll roofing. The category includes, but is not limited to, the following processes: asphalt storage, felt saturation, coating, and mineral surfacing. The asphalt preparation process (blowing) is not included in this category.

Source Category: Chromium Refractories Production

The Chromium Refractories source category includes any facility engaged in producing chromium-containing refractories. Refractories are heat-resistant materials which are used to build or line high-temperature industrial furnaces. Chromium-containing refractories are produced from chrome ore or chromic oxide along with other raw materials such as alumina, zirconia, silica, and magnesia. This category includes, but is not limited to, facilities which manufacture magnesia-chrome, chrome-magnesite, chrome-alumina, and chromic oxide refractories. Also included are facilities which manufacture either formed (bricks) or unformed (mortar, castables) chromium-containing refractories.

The production of chromium refractory materials can contain from one to four general operations, depending on the type being produced. These operations include raw materials processing, forming, firing, and final product preparation. Production processes for producing chromium-containing refractories include the fusion-casting, casting, and pressing processes. The processes differ most prominently in the forming and firing operations. In the fusion-casting process, the processed raw materials are fusion-melted together in an electric arc furnace and cast into molds. In the casting and pressing processes, the raw materials are mixed, cast into molds or pressed into bricks, and then fired in a kiln.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING (CONTINUED)

Source Category: Clay Products Manufacturing

The Clay Products manufacturing source category includes any facility engaged in manufacturing of clay products such as brick, vitrified clay pipe, structural clay tile, and clay refractories. The category includes, but is not limited to, the following processes: grinding; screening and blending of the raw materials; cutting or forming; and drying, curing, and firing.

Source Category: Lime Manufacturing

The Lime Manufacturing source category includes any facility engaged in producing high calcium lime, dolomitic lime, and dead burned dolomitie. Lime is the high temperature product of the calcination of limestone. The basic processes in the production of lime are: quarrying raw limestone, preparing limestone for the kilns by crushing and sizing, calcining limestone, processing the lime further by hydrating, and miscellaneous transfer, storage, and handling operations. This category includes, but is not limited to, the following process units: crushing and sizing units, rotary kilns, vertical/shaft kilns, rotary hearth kilns, fluidized bed kilns, and hydrators. Also included in the lime kiln category are a facility's associated lime storage and handling.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING (CONTINUED)

Source Category: Mineral Wool Production

The Mineral Wool Production source category includes any facility engaged in producing mineral wool fiber from slag or rock. Mineral wool is a material used mainly for thermal and acoustical insulation. This category includes, but is not limited to, the following process units: a cupola furnace for melting the mineral charge; a blow chamber in which air and, in some cases, a binder is drawn over the fibers forming them to a screen, a curing oven to bond the fibers, and a cooling compartment.

Source Category: Portland Cement Manufacturing

The Portland Cement Manufacturing source category includes any facility engaged in manufacturing portland cement by either the wet or dry process. The category includes, but is not limited to, the following process units: kiln, clinker cooker, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging, and bulk loading and unloading systems.

INDUSTRY GROUP - MINERAL PRODUCTS PROCESSING (CONTINUED)

Source Category: Taconite Iron Ore Processing

The Taconite Iron Ore Processing source category includes any facility engaged in separating and concentrating iron ore from taconite, a low grade iron ore. The category includes, but is not limited to, the following processes: liberation of the iron ore by wet or dry crushing and grinding in gyratory crushers, cone crushers, rod mills, and ball mills; concentration of the iron ore by magnetic separation or flotation; pelletization by wet tumbling with a balling drum or balling disc, and induration using a vertical shaft furnace, straight grate, circular grate, or grate/kiln.

Source Category: Wool Fiberglass Manufacturing

The Wool Fiberglass Manufacturing source category includes any facility engaged in producing wool fiberglass from sand, feldspar, sodium sulfate, anhydrous borax, boric acid, or any other materials. In the wool fiberglass manufacturing process, molten glass is formed into fibers that are bonded with an organic resin to create a wool-like material that is used as thermal or acoustical insulation. The category includes, but is not limited to the following processes: glass melting furnace, marble forming, refining unit, forming the fibers into a mat, adding the binder, oven curing, and cooling.

INDUSTRY GROUP - PETROLEUM AND NATURAL GAS PRODUCTION AND REFINING

Source Category: Oil and Natural Gas Production

The Oil and Natural Gas Production source category includes the processing and upgrading of crude oil prior to entering the petroleum refining process and natural gas prior to entering the transmission line. This source category excludes the aggregation of oil or gas exploration or production wells (and equipment associated with individual wells) and emissions from any pipeline compressor or pump stations.

The production and processing phases for crude oil include, but are not limited to, the following: removal of water, salts, and solids, and removal of entrained gases. The production and processing phases for natural gas include, but are not limited to, the following: removal of water, removal of natural gas liquids, and removal of sulphur and other contaminants.

The emissions sources associated with these phases include, but are not limited to, equipment leaks, storage tanks, power generating equipment, wastewater treatment, and process vents. Processes that may have vents include, but are not limited to, dehydration, sour gas processing (sweetening), and dewatering.

Source Category: Petroleum Refineries - Catalytic Cracking (Fluid and Other) Units, Catalytic Reforming Units, and Sulfur Plant Units

The Petroleum Refineries - Catalytic Cracking (Fluid and Other) Units, Catalytic Reforming Units, and Sulfur Plant Units source category includes any facility engaged in producing gasoline, naphthas, kerosene, jet fuels, distillate fuel oils, residual fuel oils, lubricants, or other products from crude oil or unfinished petroleum derivatives. This category includes the following refinery process units: catalytic cracking (fluid and other) units, catalytic reforming units, and sulfur plant units.

Source Category: Petroleum Refineries - Other Sources Not Distinctly Listed

The Petroleum Refineries - Other Sources Not Distinctly Listed source category includes any facility engaged in producing gasoline, naphthas, kerosene, jet fuels, distillate fuel oils, residual fuel oils, lubricants, or other products from crude oil or unfinished petroleum derivatives. The category includes refinery process units not listed in the Petroleum Refineries - Catalytic Cracking (Fluid and Other) Units, Catalytic Reforming Units, and Sulfur Plant Units Source Category. The refinery process units in this source category include, but are not limited to, thermal cracking, vacuum distillation, crude distillation, hydroheating/hydrorefining, isomerization, polymerization, lube oil processing, and hydrogen production.

INDUSTRY GROUP - LIQUIDS DISTRIBUTION

Source Category: Gasoline Distribution (Stage 1)

The Gasoline Distribution (Stage 1) source category includes the storage and transfer facilities associated with the movement of gasoline. This category includes, but is not limited to, the gasoline vapor emissions associated with the loading of transport trucks or rail cars, storage tank emissions, and equipment leaks from leaking pumps, valves, and connections at bulk terminals, bulk plants, and pipeline facilities. Also included in this category are the storage tank filling operations that occur at public and private gasoline dispensing facilities (e.g., service stations, convenience stores, etc.).

Source Category: Organic Liquids Distribution (Non-Gasoline)

The Organic Liquids Distribution (Non-Gasoline) source category includes, but is not limited to, those activities associated with the storage and distribution of organic liquids other than gasoline, at sites which serve as distribution points from which organic liquids may be obtained for further use and processing.

INDUSTRY GROUP - SURFACE COATING PROCESSES

Source Category: Aerospace Industries

The Aerospace Industries source category includes any facility engaged in the surface coating of aerospace vehicles and plastic, metal, and other composites used as components of aerospace aircraft and parts. This category includes, but is not limited to, the following: any machine (military or commercial) designed to travel through the air, whether heavier or lighter than air, including airplanes, balloons, dirigibles, helicopters, and missiles.

Source Category: Auto and Light Duty Truck (Surface Coating)

The Auto and Light Duty Truck source category includes any facility engaged in the surface coating of automobile and light duty truck bodies or body parts for inclusion in new vehicles. Automobile means a motor vehicle capable of carrying no more than 12 passengers. Light-duty truck means any motor vehicle rated at 3,850 kilograms gross vehicle weight or less, designed mainly to transport property. Excluded from this source category are auto customizers, body shops, and refinishers.

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Flat Wood Paneling (Surface Coating)

The Flat Wood Paneling source category includes facilities that coat flat wood construction products made from wood materials such as plywood, particleboard, hardboard, and waferboard. Coating types may include fillers, sealers, groove coats, stains, inks, primers, basecoats, and topcoats. Typical coating processes may include roll coating and curtain coaters. This source category does not include facilities that apply preservatives to wood products or facilities that coat assembled wood furniture.

Source Category: Large Appliance (Surface Coating)

The Large Appliance source category includes any facility engaged in the surface coating of any large appliance part or product. The category includes, but is not limited to, coating of the following large, metal appliance parts or products: ranges, conventional ovens, microwave ovens, refrigerators, freezers, washers, dryers, dishwashers, water heaters or trash compactors manufactured for household, commercial, or recreational use.

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Magnetic Tapes (Surface Coating)

The Magnetic Tapes source category includes any facility engaged in the surface coating of magnetic tapes. The category includes, but is not limited to, the following magnetic tape products: audio and video recording tape, computer tape, the magnetic stripes on media involved in credit cards and toll tickets, bank transfer ribbons, instrumentation tape, and dictation tape.

Source Category: Manufacture of Paints, Coatings, and Adhesives

The Manufacture of Paints, Coatings, and Adhesives source category includes any facility engaged in their manufacture without regard to the particular end-uses or consumers of such products. The manufacturing of these products may occur in any combination at any facility.

Source Category: Metal Can (Surface Coating)

The Metal Can source category includes any facility engaged in the surface coating of two-piece or three-piece metal cans or can parts. A two-piece can consists of a body manufactured and formed from a single piece of metal and a separate top end. A three-piece can consists of a cylindrical body formed from a sheet of metal and separate top and bottom ends.

Source Category: Metal Coil (Surface Coating)

The Metal Coil source category includes any facility engaged in the surface coating of metal coil. Metal coil is defined as any continuous metal strip (with a thickness of 0.15 mm or more) that is packaged in a roll or coil.

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Metal Furniture (Surface Coating)

The Metal Furniture source category includes any facility engaged in the surface coating and manufacture of metal furniture parts or products. Such products may include chairs, tables, cabinets and bookcases.

Source Category: Miscellaneous Metal Parts and Products (Surface Coating)

The Miscellaneous Metal Parts and Products source category includes any facility engaged in the surface coating of miscellaneous metal parts and products such as: magnet wire; medium/heavy duty trucks; large farm machinery (tractors, harvesting, fertilizing, and planting machines, combines, etc.); small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.); small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.); commercial machinery (computer and auxiliary equipment, typewriters, calculators, vending machines, etc.); industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.); railroad transportation; and fabricated metal products (metal covered doors, frames, etc.). The source category does not include the surface coating of metal parts covered under other distinct source categories.

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Paper and Other Webs (Surface Coating)

The Paper and Other Webs source category includes any facility engaged in the coating of paper, plastic film, metallic foil, and other web surfaces. The category may include, but is not limited to, decorative coatings on gift wraps or packaging. This category does not include paper or other web printing operations covered under the source category of Printing/Publishing.

Source Category: Plastic Parts and Products (Surface Coating)

The Plastic Parts and Products source category includes any facility engaged in the surface coating of plastic parts and products, including panels, housings, bases, covers, and other components formed of synthetic polymers. The category includes, but is not limited to, the surface coating of the following plastic parts and products: business machines (typewriters, computers, calculators, telephones, telegraph equipment, photocopy machines, etc.); entertainment equipment (radios, recorders, televisions, etc.); automotive, truck and other transportation parts (fascia, bumpers, dashboards, doors, etc.); and miscellaneous plastic parts (gas pumps, toys, doors, window frames, signs, etc.).

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Printing, Coating, and Dyeing of Fabrics

The Printing, Coating, and Dyeing of Fabrics includes any facility engaged in those operations. In fabric printing, a decorative pattern or design is applied to fabric by methods such as roller, flat screen, or rotary screen. Fabric coating is an operation that imparts to a textile substrate additional properties such as strength, stability, water or acid repellency, or other specific characteristics of appearance. Fabric dyeing is the process in which color is added to a substrate. This category includes, but is not limited to, coating of industrial and electrical tapes, tire cord, utility meter seals, imitation leathers, tarpaulins, shoe material, and upholstery fabrics.

Source Category: Printing/Publishing (Surface Coating)

The Printing/Publishing source category includes the application of inks utilizing a graphics arts operation to any substrate including, but not limited to, paper, plastic, metal foil, wood, vinyl, metal, and glass. This category does not include the printing of fabric. The source category includes facilities which use lithography, rotogravure, and other methods to print products such as magazines, newspaper supplements, packaging, and wallpaper.

INDUSTRY GROUP - SURFACE COATING PROCESSES (CONTINUED)

Source Category: Shipbuilding and Ship Repair (Surface Coating)

The Shipbuilding and Ship Repair source category is the surface coating of ships and ship assemblies in public and private shipyards.

Source Category: Wood Furniture (Surface Coating)

The Wood Furniture source category includes any facility engaged in the surface coating and manufacture of objects made of solid wood, wood composition, or objects made of simulated wood material used in combination with solid wood or wood composites. This category includes, but is not limited to, facilities that glue and coat the following types of objects: kitchen and bath cabinets; household furniture; upholstered, household furniture; cabinets or cases (televisions, radios, phonographs, and sewing machines); other household furniture; office furniture; public building and related furniture; office and store fixtures; partitions; shelving; and lockers.

INDUSTRY GROUP - WASTE TREATMENT AND DISPOSAL

Source Category: Hazardous Waste Incineration

The Hazardous Waste Incineration source category includes the incineration of hazardous waste which is described as, but is not limited to, a solid waste, or combination of solid wastes which, because of its quantity, concentration, or physical, chemical or infectious characteristics may (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. An incinerator is any furnace, or other device, used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter.

INDUSTRY GROUP - WASTE TREATMENT AND DISPOSAL (CONTINUED)

Source Category: Municipal Landfills

The Municipal Landfills source category is described as an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. A municipal landfill may also receive commercial waste, sludges, and industrial waste. Household waste means any solid waste (including, but not limited to, garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). Commercial waste includes, but is not limited to, solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes. Sludge includes, but is not limited to, any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant. Industrial solid waste means solid waste generated by manufacturing or industrial processes, that is not a hazardous waste regulated under subtitle C of the Resource Conservation and Recovery Act. Such waste may include, but is not limited to, waste from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and

Source Category: Municipal Landfills (Continued)

water treatment. This term does not include mining waste or oil and gas waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned.

Source Category: Publicly Owned Treatment Works (POTW) Emissions

This source category includes emissions from wastewaters which are treated at a POTW. These wastewaters are produced by industrial, commercial, and domestic sources. Emissions from these wastewaters can occur within the collection system (sewers) as well as during treatment at the POTW. Control options include, but are not limited to, reduction of HAP's at the source before they enter the collection system, add-on emission controls on the collection system and at the POTW, and/or treatment process modifications/substitutions.

INDUSTRY GROUP - WASTE TREATMENT AND DISPOSAL (CONTINUED)

Source Category: Sewage Sludge Incineration

The Sewage Sludge Incineration source category includes, but is not limited to, facilities that combust wastes containing more than 10 percent sewage sludge on a dry basis. An incinerator is described as any furnace or other device used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter. Types of sewage sludge incinerators include, but are not limited to, multiple hearth, fluidized bed, and electric sludge incinerators.

Source Category: Site Remediation

The Site Remediation source category includes the cleanup of sites that possess contaminated media. Sites undergoing remediation of contaminated media include, but are not limited to, National Priorities List Sites, Corrective Action Sites, and underground storage tank sites. Units requiring cleanup can include hazardous waste dumps, industrial surface impoundments, leaking tanks, and municipal, industrial, and combined landfills. Site remediation includes, but is not limited to, the following activities: contaminated soils cleaning; soil vapor extraction (SVE); groundwater cleanup; oil recovery from below ground; surface flow control; waste material removal from the site; treatment of waste material after removal; and cleansing of water mains, sewers, wetlands, and water bodies that have been contaminated by wastes. Site remediation does not include the installation of controls to municipal solid waste landfills to comply with the New Source Performance Standards (NSPS) or Clean Air Act (CAA), Section III(d) emission guidelines.

INDUSTRY GROUP - WASTE TREATMENT AND DISPOSAL (CONTINUED)

Source Category: Solid Waste Treatment, Storage, and Disposal Facilities (TSDF)

The Solid Waste Treatment, Storage, and Disposal Facilities (TSDF) source category includes commercial facilities that treat, store, or dispose of any solid waste received from off-site, as well as commercial facilities that recycle, recover, and re-refine wastes received from off-site. Treatment is described as any method, technique, or process designed to change the physical, chemical, or biological character of the waste. Storage means the holding of waste for a temporary period, at the end of which the waste is treated, disposed of, or stored elsewhere. Disposal is defined as the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that such solid waste, or constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including ground waters. Recovery is defined as the removal or recapture of a useable product or products from waste. Recycling or re-refining is defined as the processing of a waste either to regenerate or to recover a useable product.

INDUSTRY GROUP - AGRICULTURAL CHEMICALS PRODUCTION

Source Category: 2,4-D Salts and Esters Production

The 2,4-D Salts and Esters Production source category includes any facility engaged in producing the phenoxy herbicide 2,4-D (2,4-dichlorophenoxyacetic acid) in both salt and ester forms. Production includes any reaction processes of 2,4-dichlorophenol and chloroacetic acid in aqueous sodium hydroxide. Representative chemicals in this category are the sodium salt (60 - 85 percent acid), amine salt (10 - 60 percent acid), and ester (10 - 45 percent acid) forms of 2,4-D. The category also includes, but is not limited to, chlorination and esterification processes.

Source Category: 4-Chloro-2-Methylphenoxyacetic Acid Production

The 4-Chloro-2-Methylphenoxyacetic Acid Production source category includes any facility engaged in producing the herbicide 4-chloro-2-methylphenoxyacetic acid. The category includes, but is not limited to, vapor phase methylation processes and production process units.

Source Category: 4,6-Dinitro-o-cresol Production

The 4,6-Dinitro-o-cresol Production source category includes any facility engaged in producing the pesticide 4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol). The category includes, but is not limited to, vapor phase methylation processes and associated production process units.

INDUSTRY GROUP - AGRICULTURAL CHEMICALS PRODUCTION (CONTINUED)

Source Category: Captafol Production

The Captafol Production source category includes any facility engaged in producing the fungicide Captafol [cis-N(1,1,2,2-tetrachloroethyl)-thio]-4-cyclohexene-1,2-dicarboximide). The category includes any production process units that store, react, or otherwise process 1,3-butadiene or other HAP in the production of captafol.

Source Category: Captan Production

The Captan production source category includes any facility engaged in the production of the fungicide, Captan. The production process typically includes, but is not limited to, the reaction of tetrahydrophthalimide and perchloromethyl mercaptan with caustic.

Source Category: Chloroneb Production

The Chloroneb production source category includes any facility engaged in producing the systemic fungicide Chloroneb (1,4-dichloro-2,5-dimethoxybenzene). The category includes, but is not limited to, the processes of hydroperoxidation, akylation, oxidation, reduction, and hydrogenation as well as associated equipment.

Source Category: Chlorothalonil Production

The Chlorothalonil Production source category includes any facility engaged in producing the agricultural fungicide, bactericide and nematocide Chlorothalonil (Daconil). The category includes any process units utilized to dissolve tetrachlorophthalic acid chloride in an organic solvent, typically carbon tetrachloride, with the subsequent addition of ammonia.

Source Category: Dacthal™ Production

The Dacthal™ Production source category includes any facility engaged in producing the pre-emergent herbicide Dacthal™, also known as DCPA, DAC, and dimethyl ester 2,3,5,6-tetrachloroterephthalic acid. The category includes, but is not limited to, chlorination processes and the following production process units: photochlorination reactors, thermal chlorination reactors and condensers.

Source Category: Sodium Pentachlorophenate Production

The Sodium Pentachlorophenate Production source category includes any facility engaged in producing the fungicide, herbicide, and slimicide sodium pentachlorophenate. The category includes, but is not limited to, chlorination and hydrolization processes.

Source Category: Tordon™ Acid Production

The Tordon™ Acid Production source category includes any facility engaged in producing the synthetic herbicide Tordon™ acid (4-amino-3,5,6-trichloropicolinic acid, picloram). The category includes, but is not limited to, chlorination processes utilized in Tordon™ acid production.

INDUSTRY GROUP - FIBERS PRODUCTION PROCESSES

Source Category: Acrylic Fibers/Modacrylic Fibers Production

The Acrylic Fibers/Modacrylic Fibers Production source category includes any facility engaged in manufacturing fibers in which the fiber-forming substance is any long-chain, synthetic polymer composed of at least 85 percent, by weight, of acrylonitrile units. The category includes polymerization reactions, wet solvent spinning, dry solvent spinning, solvent recovery, washing, filtration, stretching, cutting (into staple), crimping, twisting, baling, drying, and packaging processes.

Source Category: Rayon Production

The Rayon Production source category includes any facility engaged in manufacturing fibers composed of regenerated cellulose as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15 percent of the hydrogens of the hydroxyl groups. The source category includes production of regular (conventional) rayon, modified high tenacity rayon, high-wet-modulus rayon, and polymosic rayon. The category also includes polymerization reactions, washing, stretching, cutting (into staple), crimping, twisting, drying and packaging processes. The category includes, but is not limited to the following production process units: mixers, filters, reactors, finishing baths, polymer dryers, pelletizers, stretching, cutting, crimping and twisting units, packaging and transport systems.

INDUSTRY GROUP - FIBERS PRODUCTION PROCESSES (CONTINUED)

Source Category: Spandex Production

The Spandex Production source category includes any facility engaged in manufacturing fiber in which the fiber forming substance is a long-chain, synthetic polymer comprised of at least 85 percent of a segmented polyurethane. The category includes polymerization reactions, dry solvent spinning, solvent recovery washing, stretching, cutting (into staple), crimping, twisting, drying and packaging processes. The category includes, but is not limited to, the following production process units: mixers, filter, reactors, dry spinning cabinets, solvent recovery systems, finishing baths, polymer dryers, pelletizers, stretching, cutting, crimping, twisting, and baling units, packaging and transport systems.

INDUSTRY GROUP - FOOD AND AGRICULTURE PROCESSES

Source Category: Baker's Yeast Manufacturing

The Baker's Yeast Manufacturing source category includes any facility engaged in manufacturing baker's yeast by fermentation (both active dry yeast and compressed yeast). The category includes, but is not limited to, the following manufacturing process units: fermentation vessel, and drying and packaging system.

Source Category: Cellulose Food Casing Manufacturing

The Cellulose Food Casing Manufacturing source category includes any facility engaged in manufacturing cellulose food casing. The category includes any cellulose tubular production used in stuffing and packaging of hotdogs, sausages, poultry, and other meat products. The category includes, but is not limited to viscose, polymerization, filtration, aeration, drying, shredding, shirring and packaging processes. The category also includes the following production process units: viscose spin tank, viscose blender, vissolver, shredders, filters, deareators, slurry units, dryers, and packaging systems.

INDUSTRY GROUP - FOOD AND AGRICULTURE PROCESSES (CONTINUED)

Source Category: Vegetable Oil Production

The Vegetable Oil Production source category includes any facility engaged in producing vegetable oils, which include, but are not limited to soybean, corn, cottonseed, safflower, and peanut oil. The category includes seed preparation, oil extraction, oil refining, solvent extraction, bleaching, hydrogeneration, and deodorization processes. Emissions of HAP's have been associated with the solvent extraction processes that often use hexane as the solvent. Residual HAP emissions can also occur in the areas of the dryer, cooler, conveyor, etc. The category includes, but is not limited to, the following production process units: extractor, desolventizer-toaster, dryer, solvent-water separator, cooler, pneumatic conveyor and condensers.

INDUSTRY GROUP - PHARMACEUTICAL PRODUCTION PROCESSES

Source Category: Pharmaceuticals Production

The Pharmaceutical Production source category includes any facility engaged in manufacturing, fabricating or processing pharmaceuticals for either human or veterinary uses. The category includes both bulk pharmaceuticals (active ingredients) and final pharmaceutical products. The main processes and operations used in pharmaceutical manufacture are chemical synthesis, fermentation, biological extraction, fractionation, botanical extraction, product coating, formulation, and packaging. Processes using HAP reactants, producing HAP's (if any) or using process aids that are HAP's are those that will be subject to MACT standards. Example production activities are:

- Production of blood and blood derivatives, vaccines, antitoxins, diagnostics, and other biological for human or veterinary use.

- Production of synthetic organic and inorganic medicinal chemicals, as well as botanicals produced and shipped in bulk.

- Production of pharmaceutical preparations such as ampuls, tablets, capsules, vials, ointments, medicinal powders, solutions, and suspensions for human or veterinary use.

- Production of cosmetic preparations which function primarily as skin treatments.

- Production of products with multiple end uses, where at least one use is as a component of a pharmaceutical preparation (i.e., fillers, binders and capsules).

Source Category: Pharmaceuticals Production (Continued)

- Pharmaceutical research which includes biological, microbiological, and chemical research, product development, clinical and pilot plant activities.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION

Source Category: Acetal Resins Production

The Acetal Resin Production source category includes any facility which manufactures homopolymers and/or copolymers of alternating oxymethylene units. Acetal resins are also known as polyoxymethylenes, polyacetals, and aldehyde resins. They are generally produced by polymerizing formaldehyde and the CH_2 functional group and are characterized by repeating CH_2O (oxymethylene) units in the polymer backbone.

Source Category: Acrylonitrile-Butadiene-Styrene Production

The Acrylonitrile-Butadiene-Styrene (ABS) Production source category includes any facility which manufactures styrenic terpolymers consisting primarily of acrylonitrile, 1,3-butadiene, and styrene monomer units. Acrylonitrile-butadiene-styrene is usually composed of a styrene-acrylonitrile copolymer continuous phase with dispersed butadiene derived rubber and can be manufactured by emulsion, continuous mass (bulk), or suspension processes or a combination of more than one process.

Source Category: Alkyd Resins Production

The Alkyd Resins Production source category includes any facility which polymerizes a dihydric or polyhydric alcohol and a polybasic acid. Alkyd resins are conventionally produced by condensation polymerization, although other reaction processes may be used.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Amino Resins Production

The Amino Resins Production source category includes any facility engaged in the manufacturing of the amino resin, urea-formaldehyde; the amino resin, melamine-formaldehyde; or any other resin in which formaldehyde is a portion. The category includes, but is not limited to, formaldehyde resins produced for building and construction material, bonding adhesives, decorative laminates, electrical moldings, flexible foams, coatings, textile treatments, paper processing, and plastics. The category also includes, but is not limited to, the following production process units: reactors, distillation units, and condensation units. The production process includes operation such as dehydrogenation, oxidation, condensation, and polymerization processes.

Source Category: Boat Manufacturing

The Boat Manufacturing source category includes any facility which manufactures aquatic vessels using synthetic materials as the primary component although other materials (i.e., wood, metals, glass) may be used to provide structural reinforcement. The typical synthetic material used to fabricate the body of components of the vessel is styrene. This category includes, but is not limited to, the following production areas: molding material application, and mold preparation.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Butadiene-Furfural Cotrimer (R-11) Production

The Butadiene-Furfural Cotrimer (R-11) Production source category includes any facility engaged in the production of R-11. R-11 is usually used as an insect repellant and as a delousing agent for cows in the dairy industry. This source category includes, but is not limited to, the production processes in which butadiene reacts with an excess furfural in a liquid phase reactor.

Source Category: Butyl Rubber Production

The Butyl Rubber Production source category includes any facility which manufactures copolymers of isobutylene and isoprene. A typical composition of butyl rubber is approximately 97 percent isobutylene and three percent isoprene. Modified, derivative, and halogenated copolymers and lattices are also included in this source category. Butyl rubber is typically made by a precipitation (slurry) polymerization process in which isobutylene and a minor amount of isoprene are copolymerized in methyl chloride diluent. Halogenated butyl rubbers are produced commercially by dissolving butyl rubber in hydrocarbon solvent and contacting the solution with gaseous or liquid elemental halogens such as chlorine or bromine.

Source Category: Carboxymethylcellulose Production

The Carboxymethylcellulose (CMC) Production source category includes any facility which manufactures a type of cellulose ether polymer in which CH_2OOH (carboxymethyl) groups are substituted on the glucose units of the cellulose chain through an ether linkage. CMC is commonly produced by reacting monochloroacetic acid, ether acid of sodium salt, and alkali cellulose although other methods may be used.

Source Category: Cellophane Production

The Cellophane Production source category includes, but is not limited to, any facility which manufactures such film produced from wood pulp by the viscose process. This process includes the purifying of cotton and wood cellulose with carbon disulfide, though other methods may be used. Production of coated and noncoated films are included in this category.

Source Category: Cellulose Ethers Production

The Cellulose Ethers Production source category includes any facility which manufactures polymers, based on cellulose, which are comprised of linear chains of (beta)-anhydroglucose rings. The manufacture of cellulose ethers typically involves the treatment of alkalai cellulose with ethyl chloride and ethylene oxide.

Source Category: Epichlorohydrin Elastomers Production

The Epichlorohydrin Elastomers Production source category includes any facility which polymerizes or copolymerizes epichlorohydrin (ECH) to form elastomers. The main products of this source category are polyepichlorohydrin, epi-ethylene oxide (EO) copolymer, epi-allyl glycidyl ether (AGE) copolymer, and epi-EO-AGE terpolymer.

Source Category: Epoxy Resins Production

The Epoxy Resins Production source category includes any facility which manufactures basic liquid epoxy resins or advanced epoxy resins. An epoxy resin contains an epoxide functional group.

Source Category: Ethylene-Propylene Elastomers Production

The Ethylene-Propylene Elastomers Production source category includes any facility engaged in the production of ethylene-propylene copolymers or ethylene-propylene terpolymers. Ethylene-propylene copolymers (EPM) result from the polymerization of ethylene and propylene and contain a saturated chain of the polymethylene type. Ethylene-propylene terpolymers (EPDM) are produced in a similar manner as EPM except that a moderate amount of the third monomer is added to the reaction sequence. The third monomer can be either ethylidene norbornene, 1,4-hexadiene, or dicyclopentadience, the most commonly used being ethylidene norbornene. Uses for these elastomers include, but are not limited to, the following sectors: automotive (radiator and heater hoses, weather stripping, door and window seals, gaskets, and various body and chassis parts); industrial (single-ply roofing membranes); construction plastics blending; wire and cable (insulating and jacketing); additives; or other miscellaneous uses. The production process includes, but is not limited to, polymerization, recycle, recovery, and packaging operations. The polymerization reaction occurs under solution or slurry conditions.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Flexible Polyurethane Foam Production

The Flexible Polyurethane Foam Production source category includes any facility which manufactures foam made from a polymer containing a plurality of carbamate linkages in the chain backbone (polyurethane). Polyurethane is commonly made by reacting a polyisocyanate with an organic polyhydroxyl material in the presence of water. Application of blowing agents, catalysts, surfactants, and fillers transform the polyurethane into a foam with specialized properties.

Source Category: Hypalon™ Production

The Hypalon™ Production source category includes any facility engaged in the production of Hypalon™. Hypalon™ is produced by reacting polyethylene with chloric and sulfur dioxide, transforming the thermoplastic polyethylene into a vulcanizable elastomer. The reaction is conducted in a solvent (carbon tetrachloride) reaction medium. Hypalon™ (chlorosulfonated polyethylene) is a synthetic rubber produced for uses such as wire and cable insulation, shoe soles and heels, automotive components, and building products.

Source Category: Maleic Anhydride Copolymers Production

The Maleic Anhydride Copolymers Production source category includes any facility engaged in the manufacturing of maleic anhydride copolymers. The category includes, but is not limited to the copolymerization of maleic anhydride with one or more of the following monomers: ethylene, styrene, methyl vinyl ether and vinyl chloride (i.e., ethylene-maleic anhydride, and styrene-maleic anhydride). Some of the uses of maleic anhydride copolymers are for oil-well drilling muds, stabilizers and thickeners. The production processes include operations such as step-growth and chain-growth polymerization.

Source Category: Methylcellulose Production

The Methylcellulose Production source category includes any facility engaged in the production of methylcellulose, a water-soluble resin. The category includes, but is not limited to, any facility that converts cellulose to alkali cellulose which is then reacted with methyl chloride, dimethyl sulfate, or methanol and dehydrating agents. Methylcellulose may be used as a protective colloid; as a gum and thickener in pharmaceuticals, cosmetics, adhesives, paint, concrete, and gypsum; for film and sheeting; for leather tanning, as a dispersing and sizing agent; as a food additive; and as a binder in ceramic glazes. The Methylcellulose Production processes include operations such as polymerization and etherification.

Source Category: Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene Production

The Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene (MABS) Production source category includes any facility which manufactures styrenic polymers containing methyl methacrylate, acrylonitrile, 1,3-butadiene, and styrene. The MABS copolymers are prepared by dissolving or dispersing polybutadiene rubber in a mixture of methyl methacrylate-acrylonitrile-styrene and butadiene monomer. The graft polymerization is carried out by a bulk or a suspension process.

Source Category: Methyl Methacrylate-Butadiene-Styrene Terpolymers Production

The Methyl Methacrylate-Butadiene-Styrene Terpolymers Production source category includes any facility which manufactures styrenic polymers containing methyl methacrylate, 1,3-butadiene, and styrene. Production of MBS terpolymers is achieved using an emulsion process in which methyl methacrylate and styrene are grafted on to a styrene-butadiene rubber.

Source Category: Neoprene Production

The Neoprene Production source category includes any facility which polymerizes chloroprene (2-chloro-1,3-butadiene). The free radical emulsion process is generally used to produce neoprene, although other methods may be used.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Nitrile Butadiene Rubber Production

The Nitrile Butadiene Rubber Production source category includes any facility which manufactures copolymers of unsaturated nitriles and dienes, usually acrylonitrile and 1,3-butadiene. The emulsion, bulk, or solvent processes are generally used to produce nitrile rubber, although other methods may be used.

Source Category: Non-Nylon Polyamides Production

The Non-Nylon Polyamides Production source category includes any facility engaged in manufacturing non-nylon polyamide polymers. At least 85 percent of the recurring amide linkages in non-nylon polyamides are aromatic in structure (aromatic polyamides). The category includes, but is not limited to, non-nylon polyamide polymers produced for use in flame resistant clothing, dust-filter bags, tire cord, bullet-resistant structures, electrical insulation, filtration, conveyor belts, ironing board covers, carpets, upholstery, drapes, boat covers, tents and parachutes. Non-Nylon Polyamide Production includes operations such as direct amidation, polymerization, and condensation.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Nylon 6 Production

The Nylon 6 Production category includes any facility which manufactures polyamides formed by the reaction of diamine and a dibasic acid in which less than 85 percent by weight of the repeating units are aliphatic, alicyclic or a mixture of aromatic moieties. Nylon is a generic term for any long-chain synthetic, polymeric amide in which recurring amide groups are integral to the main polymer chain. Nylon 6 products may be in the forms of fibers, plastics, or other forms. The hazardous air pollutant emitted is caprolactam.

Source Category: Phenolic Resins Production

The Phenolic Resins Production source category includes any facility which manufactures synthetic resin obtained by the condensation polymerization of phenol and/or substituted phenols with aldehydes such as formaldehyde, acetaldehyde, and furfural. This source category includes, but is not limited to, phenol-formaldehyde, phenol-furfural, and resorcinol-formaldehyde.

Source Category: Polybutadiene Rubber Production

The Polybutadiene Rubber Production source category includes any facility which polymerizes 1,3-butadiene. Polybutadiene may be produced by the solution or emulsion polymerization processes, although other methods may be used.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Polycarbonates Production

The Polycarbonates Production source category includes any facility which manufactures a special class of polyester formed from any dihydroxy compound and any carbonate diester or by ester interchange. Polycarbonates may be produced by solution or emulsion polymerization, although other methods may be used. A typical method for the manufacture of polycarbonates includes the reaction of bisphenol-A with phosgene in the presence of pyridine to form a polycarbonate. Methylene chloride is used as a solvent in this polymerization reaction.

Source Category: Polyester Resins Production

The Polyester Resins Production source category includes any facility which manufactures homopolymers or copolymers formed when a difunctional alcohol is reacted with a dibasic acid or anhydride. Polyester resin is usually produced by condensation polymerization, although other methods may be used. However, only those processes emitting HAP's will be considered for the application of standards.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Polyethylene Terephthalate Production

The Polyethylene Terephthalate (PET) Production source category includes any facility which manufactures a polyester formed from ethylene glycol. Polyethylene terephthalate is usually produced by the dimethyl terephthalate (DMT) process or the terephthalic acid (TPA) process, although other methods may be used.

Source Category: Polymerized Vinylidene Chloride Production

The Polymerized Vinylidene Chloride Production source category includes any facility which manufactures a homopolymer or copolymer using vinylidene chloride as the principle monomer unit. Polyvinylidene chloride may be produced by using the solution, slurry, suspension, or emulsion polymerization process, although other methods may be used.

Source Category: Polymethyl Methacrylate Resins Production

The Polymethyl Methacrylate Resins Production source category includes any facility which manufactures homopolymers or copolymers consisting of methyl methacrylate monomer units. Other additions such as ultralight light absorbers, dyes, pigments, etc., may also be included. Methods for polymerization of methyl methacrylate include, but are not limited to, bulk, solution, emulsion, and suspension processes.

Source Category: Polystyrene Production

The Polystyrene Production source category includes any facility which manufactures homopolymers or copolymers consisting of styrene units. Styrene may be copolymerized with elastomers to form impact polystyrene or rubber-modified polystyrenes. The styrene content of impact polystyrene (IPS) is approximately 88 to 97 percent, by weight. Polystyrene can be produced by bulk (mass), solution, suspension, or emulsion polymerization.

Source Category: Polysulfide Rubber Production

The Polysulfide Rubber Production source category includes any facility engaged in the production of polysulfide rubber, a synthetic rubber. This rubber is resilient and has low temperature flexibility. The polysulfide elastomers Thiokol FA™ and Thiokol ST™ are compounded in standard rubber processing equipment (i.e., rubber mills or sigmoid-bladed mixers). The process steps involved in polysulfide rubber production include the following: preparation of sodium sulfide from aqueous caustic and aqueous sodium hydroxide sulfide in a polar solvent, removal of water from this feedstock by disillation, production of polymer from the sodium sulfide stream and p-dichlorobenzene at elevated temperature in the polar solvent, polymer recovery, washing to remove the sodium chloride produced as a by-product, drying and packaging.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Polyvinyl Acetate Emulsions Production

The Polyvinyl Acetate Emulsions Production source category includes any facility which manufactures polymers of vinyl acetate units dispersed in water. Polyvinyl acetate can be made by bulk, solution, suspension, and emulsion polymerization techniques.

Source Category: Polyvinyl Alcohol Production

The Polyvinyl Alcohol Production source category includes any facility which manufactures polymers produced by replacing the ester groups of polyvinyl acetate or other polyvinyl ester with hydroxyl groups although other methods may be used. Polyvinyl alcohol production usually involves alcoholysis in methanol or ethanol using an acid catalyst.

Source Category: Polyvinyl Butyral Production

The Polyvinyl Butyral Production source category includes, but is not limited to, any facility which manufactures polymers produced by reacting polyvinyl alcohol with a butyraldehyde. Polyvinyl butyral may be produced by condensation polymerization, although other methods may be used.

Source Category: Polyvinyl Chloride and Copolymers Production

The Polyvinyl Chloride (PVC) and Copolymers Production source category includes any facility which manufactures polymerized vinyl chloride. Polyvinyl Chloride may be produced by the suspension, mass emulsion/dispersion, and solution processes, although other methods may be used.

INDUSTRY GROUP - POLYMERS AND RESINS PRODUCTION (CONTINUED)

Source Category: Reinforced Plastic Composites Production

The Reinforced Plastic Composites Production source category includes any facility engaged in the manufacturing of homopolymers and/or copolymers which contain materials designed to enhance the chemical, physical, and/or thermal properties of the polymer. This category includes, but is not limited to, processing techniques such as hard layup and spray layup of gel coats that incorporate styrene.

Source Category: Styrene-Acrylonitrile Production

The Styrene-Acrylonitrile (SAN) Production source category includes any facility which manufactures copolymers consisting primarily of styrene and acrylonitrile monomer units. Styrene-Acrylonitrile typically consists of approximately 70 percent styrene and 30 percent acrylonitrile and can be made by emulsion, solution, and continuous mass polymerization processes, although other methods may be used.

Source Category: Styrene-Butadiene Rubber and Latex Production

The Styrene-Butadiene Rubber (SBR) and Latex Production source category includes any facility which manufactures copolymers consisting of styrene and butadiene monomer units. Styrene-Butadiene Rubber and Latex may be produced by emulsion and solution polymerization, although other methods may be used.

INDUSTRY GROUP - PRODUCTION OF INORGANIC CHEMICALS

Source Category: Ammonium Sulfate Production - Caprolactam By-Product Plants

The Ammonium Sulfate Production - Caprolactam By-Product Plants source category includes the production of ammonium sulfate as a by-product in the production of caprolactam, which is used as an intermediate for Nylon 6. The category includes, but is not limited to, ammonium sulfate produced when sulfuric acid is used to rearrange cyclohexanone oxime to caprolactam sulfate, which is then reacted with ammonia to yield ammonium sulfate and caprolactam.

Source Category: Antimony Oxides Manufacturing

The Antimony Oxides Manufacturing source category includes any facility engaged in the production of antimony oxides, typically white, odorless, crystalline powders, mainly used as a synergistic flame retardant in plastics and textiles. The category includes antimony oxides produced from sulfide ores containing antimony or as a by-product of the treatment of sulfide ores of base metals and silver. The production of antimony oxides from sulfide ores containing antimony includes operations such as roasting, smelting in a blast furnace, and melting in a crucible or reverberatory furnace with a reducing atmosphere.

INDUSTRY GROUP - PRODUCTION OF INORGANIC CHEMICALS (CONTINUED)

Source Category: Chlorine Production

The Chlorine Production source category includes any facility engaged in the production of chlorine. The category includes, but is not limited to facilities producing chlorine by the following production methods: diaphragm cell, mercury cell, membrane cell, hybrid fuel cell, Downs cell, potash manufacture, hydrochloric acid decomposition, nitrosyl chloride process, nitric acid/salt process, Kel-Chlor process, and sodium chloride/sulfuric acid process.

Source Category: Chromium Chemicals Manufacturing

The Chromium Chemicals Manufacturing source category includes any facility engaged in the production of chromium-based chemicals. The category includes, but is not limited to, production of: sodium chromate, produced by roasting chromate ore with soda ash or with soda ash and lime in a kiln; sodium dichromate, produced by converting sodium chromate by treatment with sulfuric acid; and secondary chromium chemicals derived from sodium dichromate, such as potassium chromate and dichromate, ammonium dichromate, chromic acid, basic chromic sulfate, chromic oxide, and chrome pigments.

Source Category: Cyanuric Chloride Production

The Cyanuric Chloride Production source category includes any facility engaged in the production of cyanuric chloride, a crystalline compound used in chemical synthesis, dyestuffs, herbicides, and optical brighteners. The category includes, but is not limited to, production of cyanuric chloride by the reaction of sodium cyanide with chlorine to produce cyanogen chloride, which then trimerizes to yield cyanuric chloride.

Source Category: Fume Silica Production

The Fume Silica Production source category includes any facility engaged in the production of fume silica. Fume silica is a fine white powder used as a thickener, thixotropic, or reinforcing agent in inks, resins, rubber, paints, and cosmetics. The category includes the production of fume silica by the combustion of silicon tetrachloride in hydrogen-oxygen furnaces.

Source Category: Hydrochloric Acid Production

The Hydrochloric Acid Production source category includes any facility engaged in the production of hydrochloric acid. The category includes, but is not limited to, production of hydrochloric acid via any of the following methods: (1) production of hydrochloric acid as a by-product in the manufacture of organic chemicals; (2) direct reaction of salts and sulfuric acid (Mannheim process); (3) reaction of a salt, sulfur dioxide, oxygen, and water (Hargreaves process); or (4) burning chlorine in the presence of hydrogen gas.

Source Category: Hydrogen Cyanide Production

The Hydrogen Cyanide Production source category includes any facility engaged in the production of hydrogen cyanide. The category includes, but is not limited to, production of hydrogen cyanide using any of the following methods: reaction of methane and ammonia over a platinum catalyst; reaction of methane and ammonia over a platinum-rhodium catalyst; co-production with acrylonitrile (via Sohio process); and pyrolysis of formamide.

Source Category: Hydrogen Fluoride Production

The Hydrogen Fluoride Production source category includes any facility engaged in the production of hydrogen fluoride. The category includes, but is not limited to, production of hydrogen fluoride by reacting calcium fluoride with sulfuric acid.

Source Category: Phosphate Fertilizers Production

The Phosphate Fertilizers Production source category includes any facility engaged in the production of phosphate-based fertilizers including, but not limited to, plants with bulk-blend processes, fluid-mix processes, or ammonia granulation processes. Examples of phosphate fertilizers are: ammonium phosphates, triple superphosphates, and diammonium phosphates.

Source Category: Phosphoric Acid Manufacturing

The Phosphoric Acid Manufacturing source category includes any facility engaged in the production of phosphoric acid. The category includes, but is not limited to, production of wet-process phosphoric acid and superphosphoric acid.

Source Category: Quaternary Ammonium Compounds Production

The Quaternary Ammonium Compounds Production source category includes any facility engaged in the production of quaternary ammonium compounds, which are usually tetra-substituted ammonium salts. Quaternary ammonium compounds are produced by the reaction of a tertiary amine with an alkylating agent, usually an alkyl ester; other methods can be used depending on the desired product.

INDUSTRY GROUP - PRODUCTION OF INORGANIC CHEMICALS (CONTINUED)

Source Category: Sodium Cyanide Production

The Sodium Cyanide Production source category includes any facility engaged in the production of sodium cyanide, a white crystalline solid commonly called white cyanide. The category includes, but is not limited to, production of sodium cyanide via the neutralization process, or so-called wet process, in which hydrogen cyanide reacts with sodium hydroxide solution usually in a unit system that embodies evaporation of water and crystallization of the product.

Source Category: Uranium Hexafluoride Production

The Uranium Hexafluoride Production source category includes any facility engaged in the production of uranium hexafluoride, a colorless, volatile crystal, usually used in the gaseous diffusion process for separating isotopes of uranium. The category includes, but is not limited to, the following production methods: (1) the direct fluorination of uranium tetrafluoride; and (2) the conversion of triuranium octoxide directly to uranium hexafluoride with hydrogen fluoride and fluorine.

INDUSTRY GROUP - PRODUCTION OF ORGANIC CHEMICALS

Source Category: Synthetic Organic Chemical Manufacturing

The Synthetic Organic Chemical Manufacturing source category includes, but is not limited to, manufacturing processes that produce one or more of the chemicals listed below and that either (1) use an organic HAP as a reactant or (2) produce an organic HAP as a product, co-product, by-product, or isolated intermediate. A list of organic HAP's for this source category is located in Table 3.1 of Section 3.0 of this document. The five types of emission points to be considered in the development of regulations are: equipment leaks, process vents, transfer operations, storage tanks (raw material, intermediate, and final product), and wastewater collection and treatment systems associated with this source category.

Acenaphthene
Acetal
Acetaldehyde
Acetaldol
Acetamide
Acetanilide
Acetic acid
Acetic anhydride
Acetoacetanilide
Acetone
Acetone cyanohydrin
Acetonitrile
Acetophenone
Acrolein
Acrylamide
Acrylic acid
Acrylonitrile
Adiponitrile
Alizarin
Alkyl anthraquinones
Allyl alcohol
Allyl chloride
Allyl cyanide
Aminophenol sulfonic acid
Aminophenol (p-)
Aniline

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Aniline hydrochloride
Anisidine (o-)
Anthracene
Anthraquinone
Azobenzene
Benzaldehyde
Benzene
Benzenedisulfonic acid
Benzenesulfonic acid
Benzil
Benzilic acid
Benzoic acid
Benzoin
Benzonitrile
Benzophenone
Benzotrichloride
Benzoyl chloride
Benzyl acetate
Benzyl alcohol
Benzyl benzoate
Benzyl chloride
Benzyl dichloride
Biphenyl
Bisphenol A
Bis(Chloromethyl)Ether
Bromobenzene
Bromoform
Bromonaphthalene
Butadiene (1,3-)
Butanediol (1,4-)
Butyl acrylate (n-)
Butylbenzyl phthalate
Butylene glycol (1,3-)
Butyrolacetone
Caprolactam
Carbaryl
Carbazole
Carbon disulfide
Carbon tetrabromide
Carbon tetrachloride
Carbon tetrafluoride
Chloral
Chloroacetic acid
Chloroacetophenone (2-)
Chloroaniline (p-)
Chlorobenzene
Chlorodifluoroethane
Chlorodifluoromethane

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Chloroform
Chloronaphthalene
Chloronitrobenzene (m-)
Chloronitrobenzene (o-)
Chloronitrobenzene (p-)
Chlorophenol (m-)
Chlorophenol (o-)
Chlorophenol (p-)
Chloroprene
Chlorotoluene (m-)
Chlorotoluene (o-)
Chlorotoluene (p-)
Chlorotrifluoromethane
Chrysene
Cresol (m-)
Cresol (o-)
Cresol (p-)
Cresol/cresylic acid (mixed)
Crotonaldehyde
Cumene
Cumene hydroperoxide
Cyanoacetic acid
Cyanoformamide
Cyclohexane
Cyclohexanol
Cyclohexanone
Cyclohexylamine
Cyclooctadiene (mixture)
Cyclooctadiene (1,5-)
Decahydronaphthalene
Diacetoxy-2-Butene (1,4-)
Diallyl phthalate
Diaminophenol hydrochloride
Dibromomethane
Dibutoxyethyl phthalate
Dichloroaniline (all isomers)
Dichlorobenzene (m-)
Dichlorobenzene (o-)
Dichlorobenzene (p-)
Dichlorobenzidine (3,3'-)
Dichlorodifluoromethane
Dichloroethane (1,2-)
Dichloroethyl ether
Dichloroethylene (1,2-)
Dichlorophenol (2,4-)
Dichloropropene (1,3-)
Dichlorotetrafluoroethane
Dichloro-1-butene (3,4-)

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Dichloro-2-butene (1,4-)
Diethanolamine
Diethyl phthalate
Diethyl sulfate
Diethylamine
Diethylaniline (2,6-)
Diethylene glycol
Diethylene glycol dibutyl ether
Diethylene glycol diethyl ether
Diethylene glycol dimethyl ether
Diethylene glycol monobutyl ether acetate
Diethylene glycol monobutyl ether
Diethylene glycol monoethyl ether acetate
Diethylene glycol monoethyl ether
Diethylene glycol monohexyl ether
Diethylene glycol monomethyl ether acetate
Diethylene glycol monomethyl ether
Diisodecyl phthalate
Diisooctyl phthalate
Dimethylbenzidine (3,3'-)
Dimethyl ether
Dimethyl formamide (N,N-)
Dimethylhydrazine (1,1-)
Dimethyl phthalate
Dimethyl sulfate
Dimethyl terephthalate
Dimethylamine
Dimethylaminoethanol (2-)
Dimethylaniline (N,N-)
Dinitrobenzenes
Dinitrophenol (2,4-)
Dinitrotoluene (2,4-)
Dioxane
Dioxolane
Diphenyl methane
Diphenyl oxide
Diphenyl thiourea
Diphenylamine
Dipropylene glycol
Di(2-methoxyethyl) phthalate
Di-o-tolyguanidine
Dodecylbenzene (all branched isomers)
Dodecylbenzene (n-)
Dodecylphenol (all branched isomers)
Dodecylaniline
Dodecylphenol
Epichlorohydrin
Ethane

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Ethanolamines (all isomers)
Ethyl acrylate
Ethylbenzene
Ethyl chloride
Ethyl chloroacetate
Ethylamine
Ethylaniline (N-)
Ethylaniline (o-)
Ethylcellulose
Ethylcyanoacetate
Ethylene carbonate
Ethylene dibromide
Ethylene glycol
Ethylene glycol diacetate
Ethylene glycol dibutyl ether
Ethylene glycol diethyl ether
Ethylene glycol dimethyl ether
Ethylene glycol monoacetate
Ethylene glycol monobutyl ether acetate
Ethylene glycol monobutyl ether
Ethylene glycol monoethyl ether acetate
Ethylene glycol monoethyl ether
Ethylene glycol monohexyl ether
Ethylene glycol monomethyl ether acetate
Ethylene glycol monomethyl ether
Ethylene glycol monooctyl ether
Ethylene glycol monophenyl ether
Ethylene glycol monopropyl ether
Ethylene oxide
Ethylenediamine
Ethylenediamine tetracetic acid
Ethylhexyl acrylate (2-)
Fluoranthene
Formaldehyde
Formamide
Formic acid
Fumaric acid
Glutaraldehyde
Glyceraldehyde
Glycerol
Glycerol dichlorohydrin
Glycine
Glycol ethers
Glyoxal
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Hexadiene (1,4-)

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Hexamethylene 1,6-diisocyanate
Hexamethylenetetramine
Hexane
Hexanetriol (1,2,6-)
Hydroquinone
Hydroxyadipaldehyde
Iminodiethanol (2,2-)
Isobutyl acrylate
Isobutylene
Isophorone
Isophorone nitrile
Isophthalic acid
Isopropylphenol
Lead phthalate
Linear alkylbenzene
Maleic anhydride
Maleic hydrazide
Malic acid
Metanilic acid
Methacrylic acid
Methanol
Methionine
Methyl acetate
Methyl acrylate
Methyl bromide
Methyl chloride
Methyl ethyl ketone
Methyl formate
Methyl hydrazine
Methyl isobutyl carbinol
Methyl isobutyl ketone
Methyl isocyanate
Methyl mercaptan
Methyl methacrylate
Methyl phenyl carbinol
Methyl tert-butyl ether
Methylamine
Methylaniline (N-)
Methylcyclohexane
Methylcyclohexanol
Methylcyclohexanone
Methylene chloride
Methylene dianiline (4,4-)
Methylene diphenyl diisocyanate
Methylionones (α-)
Methylpentynol
Methylstyrene (α-)
Naphthalene

Naphthalene sulfonic acid (α-)
Naphthalene sulfonic acid (β-)
Naphthol (α-)
Naphthol (β-)
Naphtholsulfonic acid (1-)
Naphthylamine sulfonic acid (1,4-)
Naphthylamine sulfonic acid (2,1-)
Naphthylamine (1-)
Naphthylamine (2-)
Nitroaniline (m-)
Nitroaniline (o-)
Nitroanisole (o-)
Nitroanisole (p-)
Nitrobenzene
Nitronaphthalene (1-)
Nitrophenol (p-)
Nitrophenol (o-)
Nitropropane (2-)
Nitrotoluene
Nitrotoluene (o-)
Nitrotoluene (m-)
Nitrotoluene (p-)
Nitroxylene
Nonylbenzene (all branched isomers)
Nonylphenol
Octene-1
Octylphenol
Paraformaldehyde
Paraldehyde
Pentachlorophenol
Pentaerythritol
Peracetic acid
Perchloroethylene
Perchloromethyl mercaptan
Phenanthrene
Phenetidine (p-)
Phenol
Phenolphthalein
Phenolsulfonic acids (all isomers)
Phenylenediamine (p-)
Phloroglucinol
Phosgene
Phthalic acid
Phthalic anhydride
Phthalimide
Phthalonitrile
Picoline (β-)
Piperazine

Polyethylene glycol
Polypropylene glycol
Propiolactone (β-)
Propionaldehyde
Propionic acid
Propylene carbonate
Propylene dichloride
Propylene glycol
Propylene glycol monomethyl ether
Propylene oxide
Pyrene
Pyridine
p-tert-Butyl toluene
Quinone
Resorcinol
Salicylic acid
Sodium chloroacetate
Sodium Methoxide
Sodium phenate
Stilbene
Styrene
Succinic acid
Succinonitrile
Sulfanilic acid
Sulfolane
Tartaric Acid
Terephthalic acid
Tetrabromophthalic anhydride
Tetrachlorobenzene (1,2,4,5-)
Tetrachloroethane (1,1,2,2-)
Tetrachlorophthalic anhydride
Tetraethyl lead
Tetraethylene glycol
Tetraethylenepentamine
Tetrahydronapthalene
Tetrahydrophthalic anhydride
Tetramethylenediamine
Tetramethylethylenediamine
Tetramethyllead
Thiocarbanilide
Toluene
Toluene 2,4-diamine
Toluene 2,4-diisocyanate
Toluene diisocyanates (mixture)
Toluene sulfonic acids
Toluenesulfonyl chloride
Toluidine (o-)
Trichloroaniline (2,4,6-)

Source Category: Synthetic Organic Chemical Manufacturing (Continued)

Trichlorobenzene (1,2,3-)
Trichlorobenzene (1,2,4-)
Trichloroethane (1,1,1-)
Trichloroethane (1,1,2-)
Trichloroethylene
Trichlorofluoromethane
Trichlorophenol (2,4,5-)
Trichlorotrifluoroethane [(1,2,2-) (1,1,2-)]
Triethanolamine
Triethylamine
Triethylene glycol
Triethylene glycol dimethyl ether
Triethylene glycol monoethyl ether
Triethylene glycol monomethyl ether
Trimethylamine
Trimethylcyclohexanol
Trimethylcyclohexanone
Trimethylcyclohexylamine
Trimethylolpropane
Trimethylpentane (2,2,4-)
Tripropylene glycol
Vinyl acetate
Vinyl chloride
Vinyl toluene
Vinylcyclohexene (4-)
Vinylidene chloride
Vinyl(N)-pyrrolidone(2-)
Xanthates
Xylene Sulfonic Acid
Xylene (m-)
Xylene (mixtures)
Xylene (o-)
Xylene (p-)
Xylenol

INDUSTRY GROUP - MISCELLANEOUS PROCESSES

Source Category: Aerosol Can-Filling Facilities

The Aerosol Can-Filling facilities source category includes any facility engaged in the filling of aerosol cans. The aerosol can-filling process includes mixing of the product ingredients, dispensing of the product into aerosol cans, insertion of the valve stem and valve, propellant charging, and sealing the product in the can. The category includes facilities which add hazardous air pollutants (HAP's), primarily chlorinated solvents (e.g., methylene chloride), to the product in the mixing tank and facilities which add the HAP's directly to the aerosol can. Types of aerosol products include, but are not limited to, spray paints, insecticides, lubricants, cleaners, adhesives, and paint strippers.

Source Category: Benzyltrimethylammonium Chloride Production

The Benzyltrimethylammonium Chloride production category is defined to include any facility which manufactures this quaternary ammonium salt. Benzyltrimethylammonium chloride can be produced from benzyl chloride and trimethylamine, although other methods may be used.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Butadiene Dimers Production

The Butadiene Dimers Production source category includes any facility engaged in the production of butadiene dimers. Butadiene dimers include, but are not limited to, tetrahydrobenzaldehyde (THBA), a liquid used to improve the water resistance of textiles. Tetrahydrobenzaldehyde is produced by the reaction of acrolein and cyclohexane either at high temperature, or in the presence of an aluminum-titanium catalyst, although other methods can be used. The category includes the following production units: feed pots, reactors, and recovery stills.

Source Category: Carbonyl Sulfide Production

The Carbonyl Sulfide Production source category includes any facility engaged in the production of carbonyl sulfide, a colorless, odorless gas, used in the production of certain thiocarbamate herbicides. This category includes, but is not limited to, carbonyl sulfide formed by high temperature reactions with chemical donors of oxygen and sulfur or carbonyl sulfide resulting as a by-product in the production of carbon disulfide.

Source Category: Chelating Agents Production

The Chelating Agents Production source category includes any facility engaged in the production of chelating agents, which are compounds usually used in cleansing operations. The category includes, but is not limited to, the following chelating agents: phosphoric acids, polyphosphates, aminocarboxylic acids, 1,3-diketones, hydrocarboxylic acids, polyamines, and amino acids.

Source Category: Chlorinated Paraffins Production

The Chlorinated Paraffins Production source category includes any facility engaged in the production of dry chlorinated paraffins, which are mainly straight-chain, saturated hydrocarbons. The category includes, but is not limited to, production of chlorinated paraffins by passing gaseous chlorine into a paraffin hydrocarbon or by chlorination by using solvents, such as carbon tetrachloride, under reflux.

Source Category: Chromic Acid Anodizing

The Chromic Acid Anodizing source category includes any facility which uses chromic acid to form an oxide layer on aluminum to provide corrosion resistance. Chromic acid anodizing is used primarily on aircraft parts and architectural structures that are subject to high stress and corrosive conditions, although other parts or structures may be so treated. Although other types of operations performed at metal finishing plants involve chromium in some form, this source category includes only those chromic acid anodizing processes that use chromic acid in an electrolytic cell to deposit chromium metal or to form an oxide film on a product.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Commercial Dry Cleaning (Perchloroethylene)-Transfer Machines

The Commercial Dry Cleaning (Perchloroethylene) - Transfer Machines source category includes facilities engaged in cleaning soiled apparel, leather and other fine goods, which are usually small independently operated neighborhood shops, franchise shops and small specialty shops. This category includes facilities that use perchloroethylene (PCE) as a cleaning agent. Facilities that use petroleum solvents or 1,1,1-trichloroethane as cleaning agents are not included in this source category. The category includes transfer cleaning operations, a washing unit and a drying unit, which are separate machines.

Source Category: Commercial Sterilization Facilities

The Commercial Sterilization Facilities source category includes facilities which use ethylene oxide in any equipment which destroys bacteria, viruses, fungi, insects, or other unwanted microorganisms or materials when such facilities are engaged in the growth, manufacture, construction, transportation, retail or wholesale trade, or storage of commercial products, or when such facilities are engaged in the operation of museums, art galleries, arboreta, or botanical or zoological gardens or exhibits. Not included in this category are hospitals, doctor offices, veterinary offices, clinics and other facilities where medical services are rendered.

Source Category: Decorative Chromium Electroplating

The Decorative Chromium Electroplating source category includes any facility which plates a base material (e.g., aluminum, brass, plastic or steel), generally with a layer of nickel, followed by a relatively thin layer of chromium to provide a bright surface with wear and tarnish resistance. Decorative plating is used for items such as automotive trim, metal furniture, bicycles, hand tools, and plumbing fixtures, although other items may be plated. Although other types of operations performed at metal finishing plants involve chromium in some form, this source category includes only those decorative chromium electroplating processes that use chromic acid in an electrolytic cell to deposit chromium metal or to form an oxide film on a product.

Source Category: Dodecanedioic Acid Production

The Dodecanedioic Acid production source category includes any facility engaged in producing dodecanedioic acid by using butadiene which can be converted into several different cyclic or open chain dimers and trimers depending upon the reaction conditions and catalysts. Dodecanedioic acid is an intermediate in the production of 1,5,9-cyclodecatriene, although it can be produced by another method.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Dry Cleaning (Petroleum Solvent)

The Dry Cleaning (Petroleum Solvent) source category includes any facility engaged in the cleaning of apparel using petroleum solvents, and includes both commercial (i.e. suits, coats, dresses) and industrial (i.e. uniforms, shop towels, rugs) dry cleaners. The category includes, but is not limited to, petroleum solvents with the following structures: aliphatic, alicyclic, and aromatic. The category also includes, but is not limited, to the following process units: washers, centrifugal extractors, and dryers. Emission sources in the Dry Cleaning (Petroleum Solvent) category include, but are not limited to, dryers, and solvent filtration and distillation systems.

Source Category: Ethylidene Norbornene Production

The Ethylidene Norbornene Production (ENB) source category includes any facility engaged in the production of the diene, ethylidene norbornene, which is typically used as a monomer in the production of ethylene-propylene rubber products. The associated HAP emissions from the production processes include 1,3-butadiene.

Source Category: Explosives Production

The Explosives Production source category includes any facility engaged in the production of explosives. Explosives are chemical compounds or their mixtures that rapidly produce large volumes of hot gases when properly initiated. The category includes, but is not limited to, facilities that produce primary explosives, such as lead azide, and secondary explosives, such as trinitrotoluene (TNT).

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Halogenated Solvent Cleaners

The Halogenated Solvent Cleaners source category includes any facility engaged in any type of solvent cleaning activity occurring within a solvent cleaning unit; it does not include wipe cleaning or other cleaning occurring outside the confines of a cleaning unit. This source category includes, but is not limited to, the following solvents or solvent blends: 1,1,1-trichloroethane (TCA), trichloroethylene (TCE), perchloroethylene (PCE) and methylene chloride (MC). These activities include, but are not limited to, open top vapor cleaning, cold batch cleaning, and conveyorized (cold and vapor) cleaning. The sizes of the units range from bench-top units to large, industrial units. The emission points to be considered for regulation in this source category include process emissions.

Source Category: Hard Chromium Electroplating

The Hard Chromium Electroplating source category includes any facility which deposits a relatively thick layer of chromium directly onto a base metal (usually steel) to provide a surface with wear resistance, a low coefficient of friction, hardness, and corrosion resistance. Hard plating is used for items such as hydraulic cylinders and rods, industrial rolls, zinc die castings, plastic molds, engine components, and marine hardware, or other items or devices. Although other types of operations performed at metal finishing plants involve chromium in some form, this source category includes only those hard chromium electroplating processes that use chromic acid in a electrolytic cell to deposit chromium metal or to form an oxide file on a product.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Hydrazine Production

The Hydrazine Production source category includes any facility engaged in the production of hydrazine, a colorless, fuming, hygroscopic liquid used in rocket engine fuel, agricultural chemicals, and pharmaceuticals. The category includes, but is not limited to, hydrazine produced by the Rasching process or the ketazine process.

Source Category: Industrial Dry Cleaning (Perchloroethylene) - Dry-to-Dry Machines

The Industrial Dry Cleaning (Perchloroethylene) - Dry-to-Dry Machines source category includes facilities engaged in cleaning rental uniforms, and other items (such as cleaning rags) used by business, industrial, and institutional customers. The category includes facilities that use perchloroethylene (PCE) as a cleaning agent. Not included in this source category are facilities that use petroleum solvents or 1,1,1-trichloroethane (TCA) as cleaning agents. This category includes dry-to-dry cleaning operations (one single unit) only.

Source Category: Industrial Dry Cleaning (Perchloroethylene) - Transfer Machines

The Industrial Dry Cleaning (Perchloroethylene) - Transfer Machines source category includes facilities engaged in cleaning rental uniforms, and other items (such as cleaning rags) used by business, industrial, and institutional customers. The category includes facilities that use perchloroethylene (PCE) as a cleaning agent. Not included in this source category are facilities that use petroleum solvents or 1,1,1-trichloroethane (TCA) as cleaning agents. This category includes transfer cleaning operations and separate washing and drying units which are separate machines.

Source Category: Industrial Process Cooling Towers

The Industrial Process Cooling Towers source category includes cooling towers located at any industrial site. In addition to industrial cooling towers which are major source emitters of HAP's, this category includes industrial cooling towers co-located at the individual facilities covered under other categories of major sources.

Source Category: Oxybisphenoxarsine (OBPA)/1,3-Diisocyanate Production

The OBPA/1,3-Diisocyanate Production source category includes any facility engaged in the production of oxybisphenoxarsine (OBPA) or 1,3-Diisocyanate. Oxybisphenoxarsine is a fungicide combined with rubber to prevent mold growth on gaskets and seals, and 1,3-diisocyanate is an intermediate in the production of polyurethane resins. Both production processes use chloroform as a solvent.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Paint Stripper Users

The Paint Strippers Users source category includes any facility engaged in commercial or industrial paint stripping. The paint stripping process involves four basic steps. First, paint stripper is applied to the surface to be stripped. Second, the stripper is allowed to penetrate or dissolve the coating. Third, the paint and residual stripper are removed from the treated surface. Finally, the stripped paint is cleaned up and disposed. The category includes, but is not limited to, original equipment manufacturing and maintenance facilities engaged in the paint stripping of paint spray booths, paint stripping in large open areas, and paint stripping in dip tanks, and other high volume/high usage activities that use methylene chloride, or other HAP's in the removal of paints or other coatings.

Source Category: Photographic Chemicals Production

The Photographic Chemicals Production source category includes any facility engaged in the production of photographic chemicals, including, but not limited to, chemicals for black and white photo processing, color photo processing, and film, plate and paper manufacturing. The category includes the process units involved in the manufacture of the following chemicals: developing agents, activators, preservatives, restrainers, calcium precipitants, wetting agents, neutralizers, fixatives, hardeners, intensifiers, and reducers.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Phthalate Plasticizers Production

The Phthalate Plasticizers Production source category includes any facility engaged in the manufacture of phthalate plasticizers using phthalic anhydride as a reactant. Plasticizers are additives that soften and increase flexibility of inherently rigid, and even brittle, polymers such as polyvinyl chloride (PVC). Phthalate plasticizers are a family of monomeric plasticizers.

Source Category: Plywood/Particle Board Manufacturing

The Plywood/Particle Board Manufacturing source category includes any facility engaged in the manufacturing of plywood and/or particle boards. This category includes, but is not limited to, manufacturing of chip waferboard, strandboard, waferboard, hardboard/cellulosic fiber board, oriented strandboard (OSB), hardwood plywood, medium density fiberboard, particle board, softwood plywood, or other process using wood and binder systems. Emissions of HAP's have been associated with, but are not limited to, the drying of binders.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Polyether Polyols Production

The Polyether Polyols Production source category includes any facility which manufactures these polymers by starting with cyclic ethers (e.g., oxides, epoxides, etc.) and initiating polymerization by adding ethylene oxide, butylene oxide, propylene oxide or other chemicals which would result in the potential emission of HAP's. The reaction is base-catalyzed, with potassium hydroxide being the most commonly used catalyst. The physical properties of the polyols are influenced primarily by the functionality of the initiator molecules and by the type and quantity of alkylene oxide and hydroxyl groups present in the polyol.

Source Category: Pulp and Paper Production

The Pulp and Paper Production source category includes any facility engaged in the production of pulp and/or paper. This category includes, but is not limited to, integrated mills (where pulp alone or pulp and paper or paperboard are manufactured on-site), non-integrated mills (where paper or paperboard are manufactured, but no pulp is manufactured on-site), and secondary fiber mills (where waste paper is used as the primary raw material). Examples of pulping methods include Kraft, soda, sulfite, semi-chemical, and mechanical. The pulp and paper production process units include operations such as pulping, bleaching, and chemical recovery.

Source Category: Rocket Engine Test Firing

The Rocket Engine Test Firing source category includes any facility engaged in the test firing of rocket engines. The category includes facilities which test fire rocket engines to determine performance specifications or compliance with other functional standards. The category includes, but is not limited to, test firing of solid and liquid fuel rocket engines.

Source Category: Rubber Chemicals Manufacturing

The Rubber Chemicals Manufacturing source category includes any facility engaged in the manufacturing of rubber-processing chemicals. Rubber-processing chemicals are synthetic organic compounds that are added to natural or synthetic rubber to produce or enhance specific properties in the final product. The category includes, but is not limited to, the manufacturing of rubber-processing chemicals such as vulcanizing agents, accelerators, antioxidants, antiozonants, peptizing agents, tackifying agents, vulcanizing retarders, bonding agents, and lubricants.

Source Category: Semiconductor Manufacturing

The Semiconductor Manufacturing source category includes any facility engaged in the manufacturing of p-type and n-type semiconductors. Semiconductors may be crystalline (e.g., GaAs, GaP, GaSb), amorphous, or organic. The source category encompasses the manufacture of any class of materials that exhibit electrical conductivities between those of conductors (metals) and non-conductors (insulation). The category includes production processes such as crystal growth, synthesis, doping, chemical modification, diffusion, metathesis and electrolysis processes.

Source Category: Symmetrical Tetrachloropyridine Production

The Symmetrical Tetrachloropyridine Production source category includes any facility engaged in the production of symmetrical tetrachloropyridine, by using carbon tetrachloride or other HAP's as part of the reaction of other production process.

Source Category: Tire Production

The Tire Production source category includes, but is not limited to, any facility engaged in producing passenger car and light duty truck tires, heavy duty truck tires, off-the-road tires, aircraft tires, and miscellaneous other tires. The category includes the following processes: rubber compounding; tread rubber, cord and bead production; tire building; green tire spraying; and tire curing and finishing.

INDUSTRY GROUP - MISCELLANEOUS PROCESSES (CONTINUED)

Source Category: Wood Treatment

The Wood Treatment source category includes any facility engaged in the treatment of wood products for preservation or other purposes. Wood treatment is accomplished by impregnating or treating the wood with creosote or other chemicals such as pentachlorophenol. Wood treatment using waterborne preservatives will not be covered by this source category.

Wood treatment is performed using either pressure or non-pressure processes. To initiate either process, wood products are debarked and conditioned. Conditioning, primarily moisture removal, is performed by air seasoning or kiln drying. Depending on the particular preservative to be applied, conditioning may also be performed by steaming the wood in the treatment retort, heating the wood in oil under reduced pressure, or exposing it to hot vapors of organic solvents (vapor drying).

Typical treated wood products include crossties, switch ties, utility poles, crossarms, foundation pilings, and lumber.

APPENDIX B

Public Comment Summaries and Responses to Preliminary Draft Listing

The following is a summary of public comments and responses to the "Preliminary Draft List of Categories and Subcategories Under Section 112 of the Clean Air Act," which was published in the Federal Register on June 21, 1991 (56 FR 28548). The reference numbers provided correspond to the original comment letters in Docket No. A-90-49. The comments and responses are presented for each source category by industry group, as it appeared in the preliminary draft list.

Final dispositions provided for each category reflect decisions made in the preparation of the initial list of categories as it appears in this document. In many instances, the final disposition states that a category was removed from the list becuase no evidence was found to document a major source within the category. The deletion from this initial list does not preclude re-establishing the category on the list if a major source is identified, nor does it preclude listing the area sources within the category if a finding is made of threat of adverse effects warranting regulation under Section 112 as a category of area sources.

1.0 FUEL COMBUSTION

General Comments

Comment: One commenter (#18) requested that two pollutants be added to the Fuel Combustion industry group list: polycyclic organic materials and 1,3-butadiene.

Response: When a source category is identified as one that is emitting hazardous air pollutants (HAP's) and it is determined that it contains a major source, it is placed on the list. Once on the list, the source category will be regulated for any HAP's that it is later identified as emitting. Therefore, addition of another pollutant at this time has no impact on the listing action.

Comment: Three commenters (IV-D-66, IV-D-90, IV-D-89) requested that EPA create a subcategory for each listed category that identifies the use of natural gas fuel. The second commenter requested that EPA remove subcategories that use natural gas because no source exclusively burning natural gas fuel will be a source of HAP's and therefore warrant regulation under Title III. The third commenter requested that EPA remove all natural gas combustion sources that lack technical data supporting the existence of major sources.

Response: The purpose of this list is to identify categories of major sources for which standards will be established, not to provide the final determination upon which standards will be based. Only the major sources within the categories on this list will be regulated. The source categories under the Fuel Combustion industry group are not based on combustion of fuel types but on process units, because there is great potential for co-firing of fuels at a given process unit; traditionally, potential fuels have been examined when considering a process

unit. During standards development, classes, types, and sizes of process units will be specified. Clarification of fuel type used with a specific process unit will also be made during the standards development process.

Comment: One commenter (IV-D-32) requested that the list be limited to major sources and sufficiently well characterized area sources to allow EPA and concerned parties to concentrate their efforts in the areas where near-term results will be most effective.

Response: After considering public comments and performing additional evaluations of emissions data, EPA has developed a list of categories of major sources under the Fuel Combustion industry group that are well characterized.

Comment: One commenter (IV-D-119) requested that the following source categories be added to this industry group: Residential Furnaces - Oil, Gas, Wood, and Coal; Commercial Furnaces - Oil, Gas, Wood and Coal; and Commercial Boilers - Oil, Gas, Wood, and Coal.

Response: The source categories under Fuel Combustion are not based on combustion of fuel types but on process units, because there is great potential for co-firing of fuels at a given process unit; traditionally, potential fuels have been examined when considering a process unit. During standards development, classes, types, and sizes of process units will be specified. Clarification of fuel type used with a specific process unit will also be made during the standard development process. Additionally, commercial boilers have been included on the list.

Comment: Four commenters (IV-D-33, IV-D-45, IV-D-74, IV-D-89) requested that the categories be subcategorized by the type of fuel combusted. For example, Turbines, Internal Combustion

Engines, Industrial Boilers, and Commercial Boilers that burn natural gas would be separate subcategories. In addition, the commenters requested that EPA (1) evaluate whether such subcategories potentially include major sources, and (2) not list these subcategories unless they can be expected to trigger the major source definition.

Response: The source categories under Fuel Combustion are not based on combustion of fuel types but on process units, because there is great potential for co-firing of fuels at a given process unit; traditionally, potential fuels have been examined when considering a process unit. During standards development, classes, types, and sizes of process units will be specified. Clarification of fuel type used with a specific process unit will also be made during the standards development process.

Comment: One commenter (IV-D-135) requested that a category for combustion of waste fuels be created under the Fuel Combustion industry group.

Response: The Fuel Combustion industry group is categorized by process unit, not by fuel combusted. Any process unit that has the potential to combust waste fuel has been described as such.

Comment: One commenter (IV-D-27) noted that if the source category Test Engine Aircraft constitutes a major source, then municipal airports should also be included as a major source under the Fuel Combustion industry group. The commenter included volatile organic compound estimates as documentation.

Response: This listing includes only those categories that contain stationary sources that exceed the major source cutoff. Other types of sources are not subject to the requirements of this list.

Comment: One commenter (IV-D-41) requested clarification regarding whether used oil-fired space heaters fall within the source category Industrial External Combustion Boilers or External Combustion Space Heaters. The commenter also stated that used oil-fired space heaters should not appear on the list for three reasons: (1) these space heaters are not operated by industrial users; (2) these space heaters generate heat by internal combustion; and (3) emissions generated by these space heaters are extremely small.

Response: Source categories are not defined by combustion fuel types, but by process units. The units may potentially be fired by any type of fuel. The category of Space Heaters has been deleted; however, any major sources fitting within the description of boilers may be regulated in those categories.

Comment: One commenter (IV-D-59) noted that EPA should provide more detail about how it intends to classify specific industries under broad categories. The commenter said it appears that EPA intends to develop some maximum achievable control technology (MACT) standards across industries. Examples of such categories include but are not limited to Process Heaters, Oil and Gas Steam Generation, Industrial In-Situ Fuel Use, and Prescribed Burning.

Response: Nothing precludes further clarification of classes, types, and sizes of operations during development of the regulations. Regarding the examples provided by the commenter, EPA determined, after additional review of available data that Oil and Gas Steam Generation was duplicative with categories of boilers using any fuel type; Industrial In-Situ Fuel Use was too vague to define; and Prescribed Burning had no documentation of major sources, but Process Heaters, because it included major sources, has been retained on the list.

Comment: One commenter (IV-D-89) stated that EPA has not adequately reviewed its data base on fuel combustion sources to be able to rely on speciation profiles. The commenter also noted that EPA has combined profiles for a source category without regard to the fuel being used.

Response: The approach taken to develop this list was the best one due to the large amount of data necessary to fulfill the requirements of the Clean Air Act (CAA). In addition, the list was developed based on process units, not on the type of fuel combusted, because there is a great potential for co-firing at many facilities. Thus, the use of several profiles within a category is warranted.

Comment: One commenter (IV-D-108) requested that source categories related to electric utility steam-generating units (e.g., Industrial or Institutional External Combustion Boilers) should not be listed pending the results of the Section 112 (n)(1) study.

Response: Available information supports that industrial and institutional/commercial boilers contain major sources or are commonly located on the premises of major sources, and therefore they have been listed. Categories that lack documentation of major sources have not been listed. Section 112(n)(1) refers specifically to electric utility boilers and provides no basis for not including other boiler categories on the list.

Comment: One commenter (IV-G-03) requested that the combustion of refuse-derived fuel (RDF) in external combustion boilers (both electric utility and industrial) be added to the list. The commenter noted that the type of emissions from combustion of RDF are undetermined and potentially pose a threat to public health.

Response: Source categories are not determined by combustion of fuel types but by process units. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

1.1 Industrial External Combustion Boilers

Comment: Five commenters (IV-D-62, IV-D-67, IV-D-75, IV-D-116, IV-D-120) stated that Industrial Boilers should not be considered for listing until after the study of utility boilers has been completed. The first and third commenters pointed out that if EPA is uncertain about the need to regulate larger utility boilers, then the same uncertainty should apply to small industrial boilers. The commenters believed that if Industrial Boilers are listed at this time, it should be limited to major sources. The second commenter (IV-D-67) requested that EPA exclude Industrial External Combustion Boilers from the source category listing until it is determined that their emission sources are major or present a threat of adverse health effects. The commenter also stated that this issue should be considered in the context of other area source emissions, such as during domestic heating and cooking, when use of these same fuels may present greater exposure to the population. The fourth commenter (IV-D-116) requested that Industrial External Combustion Boilers not be listed because the potential for these units to release air toxics is dependent on the fuels combusted. The commenter stated that EPA should evaluate the release potential for these units and, if regulation is warranted, a narrow source category should be defined to cover only those areas of concern. The fifth commenter (IV-D-120) stated that there is no basis for including Industrial External Combustion Boilers that combust natural gas. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Available information supports that industrial and institutional/commercial boilers contain major sources or are commonly located on the premises of major sources, and therefore they have been listed. Determining whether a source poses a threat of adverse health effects is not necessary to list categories of major sources. Categories that lack documentation of major sources have not been listed. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

Final Disposition: Because major sources have been documented, this source category will remain on the list, but has been renamed Industrial Boilers.

1.2 Institutional External Combustion Boilers

Comment: Three commenters (IV-D-67, IV-D-70, IV-D-120) requested that EPA exclude Institutional External Combustion Boilers from the source category listings until it is determined that their emissions are major or present a threat of adverse health effects. The commenter also stated that this issue should be considered in the context of other area source emissions such as domestic heating and cooking when the use of these same fuels may present greater exposure to the population. The second commenter noted that it is unclear why Institutional External Combustion Boilers is listed as a source category, since no HAP emissions are readily identified. The third commenter (IV-D-120) stated that there is no basis for including Institutional External Combustion Boilers that use natural gas fuel. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Available information supports that commercial/ institutional boilers contain major sources or are commonly located on the premises of major sources and therefore they have

been listed. Determining whether a source poses a threat of adverse health effects is not necessary for major sources. Categories that lack documentation of major sources have not been listed. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

Comment: One commenter (IV-D-97) requested that EPA perform a study to determine if any incremental increase in public health protection that results from the control of emissions from institutional steam boilers is equal to or greater than the decrement that will occur when institutions that are providing public health services with limited resources must reallocate funds to comply with the regulations.

Response: The purpose of this list is to identify categories for which standards will be established and not to provide an assessment of economic or other impacts. Such studies will be performed during development of the regulations.

Final Disposition: This source category will remain on the list and has been renamed Institutional/Commercial Boilers, for which documentation of major sources exists.

1.3 External Combustion Space Heaters

Comment: One commenter (IV-D-120) stated that there is no basis for including External Combustion Space Heaters that use natural gas as fuel on the list. The commenter noted that this source category, when specifying the use of natural gas, is not well-characterized.

Response: This source category was deleted from the list; however, any process units fitting within the description of boilers may be regulated within those categories.

Final Disposition: External Space Combustion Heaters was deleted from the list because available information was not sufficient to support the listing of such a distinct and clear source category; however, any units that fit within the description of boilers may be regulated within those source categories.

1.4 Industrial Electric Generation Turbines

Comment: One commenter (IV-D-116) requested that Industrial Electric Generation Turbines not be listed because the potential for these units to release air toxics is dependent on the fuels combusted. The commenter stated that EPA should evaluate the release potential for these units and, if regulation is warranted, a narrow source category should be defined to cover only those areas of concern.

Response: Source categories are not determined by combustion of fuel types but by process units. They have been described to include any potential fuels used in those units. Additional clarification of fuel types associated with those units will be provided during standards development.

Comment: One commenter (IV-D-120) stated that there is no basis for including Industrial Electric Generation Turbines that combust natural gas. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Available information supports that Industrial Electric Generation Turbines contain major sources or are commonly located on the premises of major sources, and, therefore they have been listed. Categories that lack documentation of major sources have not been listed. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

Final Disposition: Because major sources have been documented, this source category will remain on the list but has been renamed Stationary Turbines.

1.5 Industrial Reciprocating Internal Combustion Engines

Comment: One commenter (IV-D-90) noted that only 9 of the 15 HAP's for which the category is listed are potentially emitted by natural gas-fired, industrial reciprocating, internal combustion engines. The commenter noted that based on this data, the same nine HAP's are potentially emitted by natural gas-fired sources within the categories Utility Reciprocating Engines and Commercial Reciprocating Engines. Therefore, it is necessary to establish separate categories or subcategories in addition to, or within, those cited in the preliminary draft list for engines and turbines that are fired by natural gas. This will ensure that EPA establishes appropriately tailored emission factors for such sources, as compared with sources within the listed categories that use different fuels.

Response: When a category is identified as one that is emitting HAP's and it is determined that it contains a major source or is commonly located on the premises of major sources, it is placed on the list. Once on the list, it will be regulated for any HAP that it is later identified as emitting. Furthermore, source categories are not based on combustion of fuel types, but on process units. Considerations regarding types of fuels used will be made during development of the standards.

Final Disposition: Because major sources have been documented, this category will remain on the list but has been renamed Stationary Internal Combustion Engines.

1.6 Commercial/Institutional Turbines

Comment: One commenter (IV-D-120) stated that there is no basis for including Commercial/Institutional Turbines that combust natural gas. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Available information supports that commercial/institutional turbines contain major sources or are commonly located on the premises of major sources, and therefore they have been listed. Categories that lack documentation of major sources have not been listed. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

Final Disposition: Because major sources have been documented, this source category will remain on the list but has been renamed Stationary Turbines.

1.7 Commercial Reciprocating Internal Combustion Engines

Comment: Two commenters (IV-D-67, IV-D-120) requested that EPA exclude this source category until it is determined that emission sources are major or present a threat of adverse health effects. The commenters also stated that this issue should be considered in the context of other area source emissions, such as during domestic heating and cooking, when the use of these same fuels may present greater exposure to the population. The second commenter (IV-D-120) stated that there is no basis for including Commercial Reciprocating IC Engines that combust natural gas. The commenter noted that this source category, using natural gas, is not well characterized.

Response: Available information supports that internal combustion engines contain major sources or are commonly located on the premises of major sources, and therefore they have been listed. Determining whether a source poses a threat of adverse health effects is not necessary for major sources. Categories that lack documentation of major sources have not been listed. Categories have been described to include any potential fuel type; these fuels will be assessed during regulatory development.

Final Disposition: Because major sources have been documented, this source will remain on the list but has been renamed Stationary Internal Combustion Engines.

1.8 Test Engine-Aircraft

Comment: None

Final Disposition: Because major sources have been documented, this source will remain on the list but has been renamed Engine Test Facilities.

1.9 Test Engines - Turbine

Comment: None

Final Disposition: Because major sources have been documented, this source will remain on the list but has been renamed Engine Test Facilities.

1.10 Test Engines - Reciprocating

Comment: None

Final Disposition: Because major sources have been documented, this source will remain on the list but has been renamed Engine Test Facilities.

1.11 Process Heaters

Comment: None

Final Disposition: Because major sources have been documented, this category will remain on the list.

1.12 Secondary Metals Process Heaters

Comment: One commenter (IV-D-120) stated that there is no basis for including Secondary Metals Process Heaters that use natural gas as fuel. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Source categories are not based on combustion of fuel types but on the process unit. The effects of fuel will be addressed during regulatory development. However, this category was found to be overlapping with Process Heaters and is now listed under that category.

Comment: Two commenters (IV-D-62, IV-D-67) noted that the description of this source category in the draft background documentation is significantly lacking. The first commenter (IV-D-62) requested that it be deleted from the list because it is either based on little or no available data or is not identified with sufficient precision. The second commenter requested that this source category be deleted due to the absence of factual data.

Response: Each category has been better and more fully described regarding its coverage. This clarification does not preclude further distinctions for classes, types, and sizes for the purposes of MACT as allowed by the CAA. However, this category was found to be overlapping with that of Process Heaters and is now listed under that category.

Final Disposition: Because this source category was found to be overlapping with Process Heaters, it is now listed under the Process Heaters category, which is documented as containing major sources.

1.13 Petroleum Industry Process Heaters

Comment: One commenter (IV-D-67) noted that definition of this source category in the draft background documentation is significantly lacking. The commenter requested that this source category be deleted due to the absence of factual data.

Response: Each category has been better and more fully described regarding its coverage. This clarification does not preclude further distinctions for classes, types, and sizes for the purposes of MACT as allowed by the CAA. However, this category was found to be overlapping with that of Process Heaters and has been listed under that category.

Comment: One commenter (IV-D-120) stated that there is no basis for including Petroleum Industry Process Heaters that use natural gas as fuel. The commenter noted that this source category, when specifying the use of natural gas, is not well characterized.

Response: Source categories are not based on combustion of fuel types but on the process unit. The effects of fuel will be addressed during regulatory development. However, this category was found to be overlapping with that of Process Heaters and has been listed under that category.

Final Disposition: Because this source category was found to be overlapping with that of Process Heaters, it has been listed under the category Process Heaters, which is documented as containing major sources or having sources commonly located on the premises of major sources.

1.14 Oil and Gas Steam Generation

Comment: One commenter (IV-D-70) noted that it is unclear why Oil and Gas Steam Generation is listed as a source category, since no HAP emissions are readily identified.

Response: Though preliminary information indicated that there were HAP emissions from this source category, further review of the information indicated an overlap with the category of Boilers. Therefore, this source category has been deleted from the list.

Comment: One commenter (IV-D-88) noted that if utility steam generators are included on the list, there should be separate categories for oil-fired steam generators, very low-sulfur, oil-fired steam generators, and natural gas-dominated steam generators. In addition, the commenter requested that Oil and Gas Steam Generation be amended to read Non-Utility Steam Generation or at least Steam Generation Other than Utility, Natural-Gas-Dominated Steam Generation.

Response: Source categories are not based on combustion of fuel types but on process units. Furthermore, this source category was found to be overlapping with the category of boilers. Therefore, this source category has been deleted from the list.

Comment: Two commenters (IV-D-85, IV-D-108) requested that EPA list the source classification code (SCC) and title for each entry because, for example, the listed category of Oil and Gas Steam Generation appears to cover all categories of sources that burn oil and gas for steam generation. However, the background document "Documentation for Developing the Source Category List" indicates that this category covers only SCC category 310004, "Oil and Gas Production - Fuel-Fired Equipment - Steam Generators." The second commenter (IV-D-108) noted that it is not clear what is included in this source category. Presumably, this does not include gas- or oil-fired electric utility steam-generating units.

Response: This source category was found to be overlapping with the category of Boilers, and therefore, has been deleted from the list.

Final Disposition: Because additional review of available data indicated that this source category overlapped with Boilers, Oil and Gas Steam Generation has been deleted as an individual category on the list.

1.15 Industrial In-Situ Fuel Use

Comment: Three commenters (IV-G-04, IV-D-62, IV-D-67) requested that Industrial In-Situ Fuel Use be regulated as a subcategory of the respective process category. The second commenter (IV-D-67) specifically noted that the definition of this source category in the draft background documentation is significantly lacking. The commenter requested that this source category be deleted due to

the absence of factual data. The third commenter (IV-D-62) requested that Industrial In-Situ Fuel Use be dropped from the list because the source category is either based on little or no available data or is not identified with sufficient precision.

Response: Additional review of available information could not support a clear definition of the intended coverage of this category, and it has been deleted from the list.

Final Disposition: Because additional review of available information could not support a clear description of the intended coverage of this category, Industrial In-Situ Fuel Use was deleted from the list.

1.16 Prescribed Burning

Comment: None

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within the category.

1.17 Residential Boilers

Comment: One commenter (IV-D-119) noted that based on the given source description, residential size boilers and furnaces would be classified as area sources, therefore this source category has been deleted.

Response: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within the category.

Final Disposition: No documentation of major sources was found for this source category; it subsequently has been removed from the list.

1.18 Residential Wood Combustion - Fireplaces

Comment: One commenter (IV-D-63) noted that listing fireplaces as area sources of HAP's is premature and probably unjustified. The commenter urged EPA to defer any listing until the need for regulation can be fully documented and a practical regulatory approach can be developed.

Response: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within the category. No determination has yet been made as to whether it is a category of area sources.

Final Disposition: No documentation of major sources was found for this source category; it subsequently has been removed from the list.

1.19 Residential Wood Combustion - Woodstoves

Comment: One commenter (IV-D-63) noted that listing woodstoves as area sources of HAP's is premature and probably unjustified. The commenter urged EPA to defer any listing until the need for regulation can be fully documented and a practical regulatory approach can be developed.

Response: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within the category. No determination has yet been made as to whether it is category of area sources.

Final Disposition: No documentation of major sources was found for this source category; it has been removed from the list.

2.0 NONFERROUS METALS

General Comments

Comment: Three commenters (IV-G-01, IV-D-104, IV-D-76) requested that EPA more narrowly describe subcategories within the source categories in the Nonferrous Metals industry group. The narrow description would allow the regulated community to submit constructive comments and assess the potential impacts of final regulations. The second commenter also suggested considering the following types of information when more narrowly describing the subcategories: types of raw materials processed/used; types of manufacturing/treatment processes; nature and composition of principal products; and types of pollution control/treatment technology used. The third commenter noted that refining and smelting processes differ in the type of metal processed and, in certain instances, more than one process exists for refining, smelting, or further processing of specific metals or metal compounds.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the Clean Air Act (CAA) allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of maximum achievable control technology (MACT).

Comment: One commenter (IV-D-76) stated that a category for facilities that smelt and refine copper in an integrated operation should be listed distinctly from Primary Copper Smelters. The commenter noted the processes and emission profiles of integrated facilities are significantly different from those of free-standing copper smelters.

Response: The source category Primary Copper Smelters has been described such that it is clear that integrated operations are distinct from nonintegrated ones. Such differences will be taken into account during regulatory development.

Comment: One commenter (IV-D-75) noted that EPA's proposal to list primary copper smelters only on the basis of cadmium emissions appears to reflect an Agency conclusion that smelters should not be regulated under Section 112 on the basis of other emissions. The commenter agreed with this approach.

Response: In fact, the EPA has studies on arsenic emissions that indicate that primary copper smelters are a major source for arsenic emissions. In addition, when a source category is identified as one that is emitting hazardous air pollutants (HAP's), and it determined that it contains a major source, it is placed on the list. Once on the list, it will be regulated for any HAP's that it is later identified as emitting.

Comment: One commenter (IV-D-01) stated that metals product manufacturing is being lumped into a category that is too broad to adequately differentiate both process and emission characteristics.

Response: At this time, there is no metals product manufacturing source category; furthermore, the Primary Metals - Miscellaneous and the Secondary Metals - Miscellaneous categories have been deleted from the list. Even with the list being now clarified, nothing precludes further clarification during standards development, since the Clean Air Act allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of MACT.

Comment: One commenter (IV-D-56) requested that the source category Aluminum Rolling and Annealing be included under the industry group Nonferrous Metals.

Response: Because no documentation was provided with the comments, and EPA has not identified any information indicating that the processes of aluminum rolling and annealing constitute an individual category of major sources, these specific source categories have not been included on the list at this time.

Comment: One commenter (IV-D-56) stated that Primary Aluminum Production should be a separate source category under the Nonferrous Metals industry group.

Response: Primary Aluminum Production and Secondary Aluminum Production are listed as distinct categories and have been clearly described to include processes and emission points that potentially emit HAP's.

2.1 Aluminum Production

Comment: Five commenters (IV-D-01, IV-D-15, IV-D-37, IV-D-38, IV-D-56) requested that reasonable and technically accurate categories be developed under this industry group. Two commenters suggested the following divisions: Material Handling, Prebake Reduction Process, Bake Ovens, Vertical Stud Soderberg Process, Horizontal Stud Soderberg Process, and Paste Mixing. The commenters believed that this proposed subcategorization is supported by the fundamental differences in each process. The second commenter stated that individual aluminum processes must be categorized separately from that of ferrous or other nonferrous metals. The commenter felt this separation was justified because of differences between metal manufacturing

processes and the manufacture of aluminum products, such as trace metals, molten metal temperatures, and fabrication, and lubrication methods from the metal mining operations.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the Clean Air Act allows distinctions for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of MACT.

Comment: Two commenters (IV-D-15, IV-D-38) provided a list of proposed categories and subcategories for aluminum processes as well as descriptions of process differences. The 11 proposed categories were Bauxite Processing, Primary Aluminum Production, Aluminum Melting and Ingot Casting, Secondary Melting and Casting, Aluminum Rolling and Annealing, Aluminum Coating, Aluminum Wire Manufacturing, Aluminum Extrusion Operations, Aluminum Can Making, Aluminum Foundry Operations, and Aluminum Forging Operations. The commenters also proposed multiple subcategories for each suggested category. In addition, the second commenter requested that Aluminum Powder and Pigment Production be included as a source category.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the Clean Air Act allows distinctions for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of MACT.

Final Disposition: Available information indicates that Aluminum Production contains a major source. Therefore, this source category will remain on the list, but has been renamed Primary Aluminum Production.

2.2 Primary Lead Smelting

Comment: One commenter (IV-D-76) stated that inclusion of Primary Lead Smelting as a single category could potentially cover facilities with significantly different production processes. In addition, lead smelters can either be free-standing facilities or can be integrated with lead refineries. The commenter requested that lead smelting be listed as Primary Lead Smelters Principally Processing Complex Ore Feedstocks and Integrated Primary Lead Smelters Processing High Grade Ore Feedstocks.

Response: The Primary Lead Smelting source category has been clearly described regarding the processes and emission points included under this source category. The description also reflects the information supplied by the commenters; this information will be supplemented during the development of regulations to account for various types of operations.

Final Disposition: Available information indicates that Primary Lead Smelting contains a major source. Therefore, this source category will remain on the list.

2.3 Primary Metals - Miscellaneous

Comment: Three commenters (IV-D-62, IV-D-66, IV-D-76) noted that the category Primary Metals - Miscellaneous is so general that it is impossible to know which types of facilities are covered by it. The commenters noted that such a category could include facilities engaged in smelting and refining nonferrous metals as well as facilities engaged in manufacturing castings or other basic metal products. In addition, the third commenter noted that such a general source category makes it impossible to develop MACT standards. The second and third commenters requested that Primary Metals - Miscellaneous be dropped from the

list because the category is too broad and is based on little or no available data. In addition, the third commenter requested that this source category be replaced by four source categories: Primary Copper Smelters with Flash Furnaces, Primary Copper Smelters with Reverberatory Furnaces, Primary Copper Smelters using Other Processes, and Integrated Primary Copper Refineries and Smelters.

Response: The EPA noted that many of the processes that could be included in this source category already appear on the list. Because Primary Metals - Miscellaneous is duplicative and unclear, it has been deleted from the list.

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source in this category.

2.4 Secondary Aluminum

Comment: None

Final Disposition: The EPA has information indicating that Secondary Aluminum contains a major source. Therefore, Secondary Aluminum will remain on the list, but has been renamed Secondary Aluminum Production.

2.5 Secondary Copper

Comment: None

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source in this category.

2.6 Battery Manufacture: Non-Lead Types

Comment: None

Final Disposition: Because available information did not indicate that Battery Manufacture: Non-Lead Types contains a major source, this category will not be listed at this time.

2.7 Cadmium Refining

Comment: Two commenters (IV-D-62, IV-D-76) stated that cadmium refining should not be listed as a major source. The commenters stated that the Toxic Release Inventory System (TRIS) data base reported cadmium emissions in 1989 for facilities with cadmium refining operations ranging from 0.05 to 1.85 tons per year. In addition, the commenters stated that aggregate emissions associated with cadmium emission are also well below the 25 tons per year threshold. Finally, the commenters noted that stand-alone cadmium refineries are different facilities and have different emission profiles from facilities that are primarily zinc smelters or refineries, but also refine cadmium as a by-product. Therefore, if EPA does not delete cadmium refining, it should narrow the category to cadmium refining and identify a separate category for cadmium refining as an auxiliary to primary zinc smelting or refining operations.

Response: Available information does not indicate that cadmium refining contains a major source nor are there refiners commonly located on the premises of major sources. Therefore this source category has been deleted.

Final Disposition: This source category has been deleted from the list at this time because available information does not indicate that cadmium refining contains a major source nor are refiners commonly located on the premises of major sources.

2.8 Lead Acid Battery Manufacturing

Comment: None

Final Disposition: Available information indicates that this source category contains a major source. Therefore, Lead Acid Battery Manufacturing will remain on the list.

2.9 Nonferrous Alloys Production

Comment: None

Final Disposition: Because of the prior ambiguity regarding the coverage of this category, and because no major source is documented in the source category, Nonferrous Alloys Production has been deleted from the list.

2.10 Primary Copper Smelters

Comment: One commenter (IV-D-62) noted that copper refineries should not be listed under the Primary Copper Smelters category. The commenter stated that emissions data from the TRIS data base indicate that copper refineries are not a major source.

Response: The Primary Copper Smelters category includes only those source categories that contain major sources. Area sources will be added to the list after an area source finding has been made. This addition could occur at any time up to and including during standards development for the source category. Additionally, this category has been described to clarify what is included.

Comment: One commenter (IV-D-75) stated that copper smelters should not be regulated on the basis of lead emissions. The commenter noted that smelter lead emissions are already controlled pursuant to the ambient air quality standards for lead and fine particulate matter (PM_{10}) and new State PM_{10} reductions are expected to achieve even further lead emission reductions at the commenters smelter.

Response: When a source category is identified as one that is emitting HAP's, and it is determined that it contains a major source, it is placed on the list. Once on the list, it will be regulated for any HAP's that it is later identified as emitting. The effect of current (or future) regulations may be taken into account in developing the standards.

Comment: One commenter (IV-D-75) asked that Primary Copper Smelters be taken off the list, but if it remains on the list, the commenter requested that low-risk smelters be excluded from the category. The commenter noted that low-risk smelters are those where carcinogenic risk is less than 1 in 1 million.

Response: Available data support the presence of a major source; therefore, Primary Copper Smelters will remain on the list. Risk is not a determining factor in establishing the list.

Final Disposition: Available information indicates that Primary Copper Smelters contain a major source of HAP's. Therefore, Primary Copper Smelters will remain on the list, but has been renamed Primary Copper Smelting.

2.11 Secondary Metals - Miscellaneous

Comment: Two commenters (IV-D-62, IV-D-76) requested that Secondary Metals - Miscellaneous be dropped from the list because the category is too broad and is based on little or no available data or is not identified with sufficient precision.

Response: The EPA noted that some of the categories that could be contained in this source category (e.g., Secondary Aluminum Production) already appear on the list individually. Therefore, Secondary Metals - Miscellaneous has been deleted from the list.

Final Disposition: This source category has been deleted from the list because many of the processes it could contain are already source categories. However, now that Secondary Metals - Miscellaneous has been deleted from the list, EPA will add Secondary Lead Smelting to the list due to available information indicating that this category contains a major source.

2.12 Zinc Smelting

Comment: None

Final Disposition: Zinc Smelting has been deleted from the list since, upon review, no evidence was found to document a major source in this category.

3.0 FERROUS METALS

General Comments

Comment: One commenter (IV-D-104) requested that EPA more narrowly describe the categories within the Ferrous Metals industry group and the subcategories within each source category. The commenter suggested that in doing so, EPA consider the following information: types of raw material processed or used at the facility; types of manufacturing or treatment processes involved; nature and composition of principal products from the operation; and types of pollution control and treatment technologies used in the operation. The commenter thought that possession of this basic information would allow EPA to identify more narrow and more logical subcategories within the Ferrous Metals industry group.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the Clean Air Act (CAA) allows distinction for "classes, types, and sizes within a category or subcategory..." where necessary to meet purposes of maximum achievable control technology (MACT). Therefore, clarification of the list has no impact on the already listed categories or subcategories.

Comment: One commenter (IV-G-03) stated that the category of Ductile Iron Foundries should be added to the Ferrous Metals industry group because stack tests conducted in Wisconsin indicated that these facilities have the potential to emit benzene and formaldehyde from mold pouring, cooling, and shake-out operations. The commenter thought these emissions were the result of thermal breakdown of the organic binders used to make the mold cores. The commenter included estimated benzene and formaldehyde emission rates from two Wisconsin foundries.

Response: The source category Iron Foundries will be described to include the processes used at facilities that emit hazardous air pollutants (HAP's). Ductile Iron Foundries will be included in the source category Iron Foundries. Any further rulemaking will include all specific sources within the category that are major sources of HAP's.

3.1 Ferroalloys Production

Comment: None

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Ferroalloys Production remains on the list.

3.2 Iron and Steel Manufacturing

Comment: Four commenters (IV-D-30, IV-D-58, IV-D-59, IV-G-01) stated that the listing of Iron and Steel Manufacturing as a single category under the Ferrous Metal industry group is too broad and that a number of more specific categories should be identified. The first commenter pointed out that iron and steel manufacturing plants typically consist of a collection of very distinct processing units that utilize different processing technologies and raw materials. One commenter (IV-D-30) recommended that as a minimum the iron and steel manufacturing category be replaced with four categories: Iron Sintering, Iron Blast Furnaces, Basic Oxygen Steelmaking, and Electric Arc Furnace Steelmaking. In addition, the commenter recommended that several subcategories within each of these categories would need to be identified. For example, because of differences in the products and raw materials utilized, the commenter believed it may be necessary to separate Electric Arc Furnace Steelmaking into subcategories such as Carbon Steelmaking or Specialty Steelmaking.

The second commenter (IV-D-58) requested that EPA subcategorize iron and steel manufacturing into four processes: Sintering, Pickling, Basic Oxygen Furnaces, and Electric Arc Furnaces. In addition, the commenter requested that EPA subcategorize the various melting processes included in iron and steel manufacturing in an analogous manner to the categorical effluent standards under the Clean Water Act.

The third and fourth commenters (IV-D-59, IV-G-01) asked that EPA specify the emission points, process, or equipment that will be regulated under Iron and Steel Manufacturing because this source category could include at least 20 different processes that potentially emit regulated HAP's. The commenter felt that many of these steel manufacturing processes (such as coke ovens and sintering) do not occur at specialty steel facilities; therefore, it would be difficult to assess whether the specific iron and steel manufacturing processes at facilities are targeted for regulations.

Response: As a result of comments received, many source categories have been described more precisely. This source category has been divided into seven distinct source categories (Integrated Iron and Steel Manufacturing, Non-Stainless Steel Manufacturing, Stainless Steel Manufacturing, Coke By-Product Plants, three categories for coke ovens and one for steel pickling), and has been described to include all processes that potentially emit HAP's and are a major source. However, nothing precludes further clarification during standards development, since the Clean Air Act allows distinction for "classes, types, and sizes within a category or subcategory..." where necessary to meet the purposes of MACT. Therefore, clarification has no impact on the already listed categories or subcategories.

Final Disposition: The Iron and Steel Manufacturing source category has been divided into three distinct source categories: Integrated Iron and Steel Manufacturing, Non-Stainless Steel Manufacturing - Electric Arc Furnace Operation; and Stainless Steel Manufacturing - Electric Arc Furnace Operation. In addition, the existing Steel Pickling and Coke Oven source categories remain on the list.

3.3 Gray Iron Foundries

Comment: One commenter (IV-G-04) stated that a single category for Gray Iron Foundries is too broad; the commenter also supported and agreed with the comments of the American Foundryman Society (IV-G-02) on the appropriate categories for gray iron foundries.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the Clean Air Act allows distinction for "classes, types, and sizes within a category or subcategory..." where necessary to meet the purposes of MACT. Therefore, clarification has no impact on the already listed categories or subcategories.

Comment: One commenter (IV-G-02) stated that Gray Iron Foundries should be further subcategorized using source classification codes (SCC's). This commenter also felt that subcategories for thermal sand reclamation and mechanical sand reclamation should be included in this foundry category. The commenter stated that while quantitative information on emissions of HAP's from this foundry category and subcategories is limited, sufficient surrogate data (i.e., volatile organic compounds [VOC] emission rates) exist to establish that this category for the most part is

not a major source of HAP's and should be classified as an area source. The commenter included some VOC emissions data as well as SCC descriptions of Gray Iron Foundries.

Response: Because major sources have been documented, this source category will remain on the list but has been renamed Iron Foundries. It has been described to include all major sources of HAP's. Those subcategories that are not found to be major sources will be subject to an area source finding.

Comment: One commenter (IV-D-135) requested that the final definitions of foundries not be described so as to exclude those specialty foundries that may emit nickel compounds. The commenter requested that the foundry source categories include any source category that produces a risk greater than 1 in 1 million, regardless of the emission, and that the general control of fugitive emissions that are generated during pouring operations be more restrictive.

Response: This source category is described to include all operations at a foundry that emit HAP's including nickel compounds. In addition, EPA is mandated to regulate MACT by emission magnitude and will address residual risks from emissions at a later date. Risk is not a determining factor in establishing the list.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, it will remain on the list but has been renamed Iron Foundries.

3.4 Steel Foundry

Comment: One commenter (IV-G-02) stated that Steel Foundries should be further subcategorized using SCC's. This commenter also felt that subcategories for thermal sand reclamation and

mechanical sand reclamation should be given to this foundry category. The commenter noted that while quantitative information on emissions of HAP's from this foundry category and subcategories is limited, sufficient surrogate data (i.e., VOC emission rates) exist to establish that this category, for the most part, is not a major source of HAP's and should be classified as an area source. The commenter included some VOC emissions data, as well as SCC descriptions of steel foundries.

Response: Because major sources have been documented, this source category will be described to include all major sources of HAP's. Those categories that are not found to contain major sources will be subject to an area source finding.

Comment: One commenter (IV-D-135) requested that the final definitions of foundries not be so rigidly described so as to exclude those specialty foundries that may emit nickel compounds. Also, for the same source category, the commenter requested that the foundries source categories include any source categories that produce a risk greater than 1 in 1 million, regardless of the emission rate, and that general control of fugitive emissions that are generated during pouring operations be more restrictive.

Response: This source category is described to include all operations at a foundry that emit HAP's including nickel compounds. In addition, the EPA is mandated to regulate MACT by emission magnitude and will address residual risks from emissions at a later date. Risk is not a determining factor in establishing the list.

Comment: One commenter (IV-D-66) felt that the Steel Foundry category should be clarified to include only facilities that are producing steel by the component process and not simply melting steel. Based on an evaluation of the commenter's facilities which simply melt steel and could be included under this

category, the commenter feels that regulation is not warranted. Any emissions would fall far below those thresholds described for major sources, as well as any level that posed a threat of adverse effects to human health and the environment.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the CAA allows distinction for "classes, types, and sizes within a category or subcategories..." where necessary to meet the purposes of MACT. Therefore, clarification of the list has no impact on the already listed categories or subcategories. Furthermore, only those major sources of HAP's will be regulated.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Steel Foundry will remain on the list, but has been renamed Steel Foundries.

3.5 Coke By-Product Plants

Comment: One commenter (IV-D-66) stated that the category Coke By-Product Plants should be described consistently with the definition under historic national emission standards for hazardous air pollutants (NESHAP) regulations and should exclude form-coke plants.

Response: The description of this source category will include only those sources that are major. Attempts to maintain consistency between existing and current definitions will be made as appropriate. Source categories/subcategories and process units subject to regulation will be described specifically during regulatory development.

Final Disposition: The EPA has information indicating that this source category contains a major source; therefore Coke By-Product Plants will remain on the list.

3.6 Coke Ovens

Comment: One commenter (IV-D-66) felt that the category Coke Ovens should be described consistently with the definition under historic NESHAP regulations and should exclude form-coke plants.

Response: The description of this source category only includes those sources that are major. Attempts to maintain consistency between existing and current descriptions have been made as appropriate. Source categories/subcategories and process units subject to regulation will be described specifically during regulatory development.

Comment: One commenter (IV-D-45) requested that EPA redescribe Coke Ovens as Coke Production. The commenter pointed out that this would include three categories of coke production: one each for wet coal-charged by-product coke ovens, dry coal-charged ovens, and nonrecovery ovens.

Response: The Coke Oven source category has been divided into two source categories: Coke Ovens: Charging, Top Side, and Door Leaks; and Coke Ovens: Pushing, Quenching, and Battery Stacks. Documentation of major sources exists for both source categories.

Final Disposition: The Coke Oven source category has been divided into two source categories: Coke Ovens: Charging, Top Side, and Door Leaks; and Coke Ovens: Pushing, Quenching, and Battery Stacks. Documentation of major sources exists for both source categories.

3.7 Metal Shredding (Recycling)

Comment: Two commenters (IV-D-78, IV-D-112) stated that Metal Shredding (Recycling) is inappropriately listed because the basis for originally listing this category is a letter with no documentation that suggested that shredding iron and steel for recycling may generate particles of these metals that could become airborne. The first commenter noted that the metal shredding process incorporates dust controls and is designed to produce steel fragments of a diameter of approximately three inches. The commenter requests that, in the absence of any evidence that shredders are adding cadmium or chromium to the ambient air, this source category be removed from the list. The second commenter noted that scrap metal from the fabrication process is collected and recycled through a scrap dealer. Other wastes are collected for off-site disposal.

Response: This source category has been deleted from the list, since, upon review, no evidence was found to document a major source in this category, nor was it commonly found to be located on the premises of major sources.

Final Disposition: In the absence of any information indicating that this source category contains a major source or is commonly located on the premises of major sources, Metal Shredding (Recycling) was removed from the list.

3.8 Steel Pickling

Comment: One commenter (IV-D-58) requested that EPA clarify steel pickling operations to refer to hydrochloric acid pickling at integrated carbon steel facilities. The commenter felt that this category should not apply to specialty steel pickling operations that do not emit sulfuric or hydrochloric acid. The commenter mentioned that pickling operations at specialty steel

facilities may emit the regulated pollutant hydrogen fluoride, but these emission most likely fall below the "major source" thresholds, and consequently pickling operations at specialty steel facilities should not be a regulated subcategory.

Response: Steel pickling operations have been described to include hydrochloric acid pickling where they are major sources.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, the category will remain on the list, but has been renamed Steel Pickling-HCl Process.

4.0 MINERAL PRODUCTS PROCESSING AND USE

General Comments

Comment: One commenter (IV-D-76) noted that the list of categories related to the mineral processing industry could be improved by the creation of more distinct and accurate categories.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development since the Clean Air Act (CAA) allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of maximum achievable control technology (MACT). Therefore, clarification will have no impact on the listed categories or subcategories.

Comment: Two commenters (IV-D-62, IV-D-76) noted that EPA may have used fugitive emissions when listing ore flotation, stone quarries, and sand and gravel mining operations as major sources because these categories produce mostly fugitive emissions. The commenter also pointed out that EPA may only count fugitive emissions from a source for purposes of determining whether it is a major source after it has conducted a rulemaking pursuant to Section 302(j) of the CAA.

Response: These source categories have been deleted from the list since, upon review, no evidence was found to document a major source in this category. Source categories are only included on the list when they contain a major source or when such sources are commonly found to be located on the premises of major sources.

Comment: One commenter (IV-D-62) noted that the unique characteristics of the mining industry provide a prime example of why careful scrutiny must be given to special factors associated with each source, source category, and source subcategory. The commenter requested that Section 112 decisions recognize that the mining industry is unique. Their unique characteristics include locations in remote areas; these remote locations mean public health risks will be minimized.

Response: The EPA only lists those source categories that are documented as containing major sources or which are commonly located on the premises of major sources. Determination of major sources includes close scrutiny of multiple parameters associated with each category or subcategory. However, if one source is considered major, the agency will regulate the source category. Risk is not a determining factor in establishing the list.

Comment: One commenter (IV-D-62) noted that the mining industry is already heavily regulated to address environmental concerns and for many mining categories and subcategories, it is likely that existing or planned controls will satisfy Section 112 requirements.

Response: The CAA requires EPA to list all categories of major sources. Provisions will be made during standards development for those categories already regulated to assess whether the existing or planned controls reflect MACT.

Comment: One commenter (IV-D-75) requested that EPA not list uranium mines and mill tailings, unless it can be determined that additional air toxics regulations are necessary to protect public health.

Response: Uranium mines and mill tailings are not currently listed. Only if the EPA finds that these categories contain major sources, or contain sources that are commonly located on the premises of major sources, or warrant regulation as area sources would they be added to the list.

4.1 Taconite Iron Ore Processing

Comment: One commenter (IV-D-62) requested that Taconite Iron Ore Processing be deleted from the list because it is listed based on the National Emission Data System (NEDS) approach, "D-quality" data. The commenter stated that this is an insufficient basis for listing.

Response: The approach taken for listing source categories was the best approach for obtaining the large amount of data necessary to fulfill the requirements of the CAA. The EPA contends that the Taconite Iron Ore Processing source category contains a major source and must be listed. If during regulatory development this category were found not to contain a major source, it would be deleted from the list.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Taconite Iron Ore Processing will remain on the list.

4.2 Asphalt Concrete Manufacture

Comment: One commenter (IV-D-23) recommended that asphalt concrete manufacture be deleted from the list when hazardous air pollutant (HAP) emissions do not exceed defined *de minimis* levels and public health risks do not exceed prescribed levels. The commenter also requested that if asphalt concrete manufacture is

retained on the list, EPA ensure that sources with *de minimis* levels of HAP emissions or risk may be exempt from the federal operating permit program.

Response: The Asphalt Concrete Manufacture source category has been described so that only major sources will be listed and regulated. Those sources that do not emit enough HAP's to qualify as a major source will not be listed. Risk is not a determining factor in establishing the list.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Asphalt Concrete Manufacturing will remain on the list.

4.3 Brick Manufacturing

Comment: None.

Final Disposition: This category has been renamed Clay Products Manufacturing and EPA has information indicating that this source category contains a major source.

4.4 Cement Kilns

Comment: One commenter (IV-D-62) requested that Cement Kilns be deleted from the list because this category is listed based on the NEDS approach, D-quality data. The commenter stated that this is an insufficient basis for listing.

Response: The approach taken for listing source categories was the best approach for obtaining the large amount of data necessary to fulfill the requirements of the CAA. The EPA contends that this source category contains a major source and must be listed.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, it will remain on the list but has been renamed Portland Cement Manufacturing.

4.5 Glass Manufacture

Comment: One commenter (IV-D-54) requested that Glass Manufacture be deleted from the list because EPA's data indicate that emissions of HAP's from glass furnaces are extremely low and do not present a threat of adverse effect to human health or the environment.

Response: Upon review, EPA found no evidence to document a major source in this category nor is it commonly located on the premises of major sources. This source category has been deleted from the list.

Final Disposition: Glass Manufacture has been deleted from the list since, upon review, no evidence was found to document a major source in this category nor is it commonly located on the premises of major sources.

4.6 Stone Quarries

Comment: Five commenters (IV-D-66, IV-D-98, IV-D-111, IV-D-122, IV-D-125) requested that the source category Stone Quarries be removed from the list. The second commenter noted that if the source category is not removed, it should be amended to read "stone quarries except limestone" because the commenter believes that given the Occupational Safety and Health Administration's (OSHA) permissible exposure limit of 15 $\mu g/m^3$ for limestone and the relatively low content of manganese and lead in typical compounds, air emissions from limestone quarries likely do not pose an adverse threat to human health and the environment.

Commenters IV-D-66, IV-D-111, IV-D-122, and IV-D-125 requested that Stone Quarries be removed from the list. The first commenter noted that the basis for inclusion of this category is a single study conducted in Montana that recorded the presence of background or trace amounts of lead and manganese at a limestone quarry. The commenter noted that to use this one study as the basis for an industry-wide hazardous pollutant regulatory scheme is unconscionable and irresponsible. The second commenter noted that stone quarries have effective in-place controls and nonhazardous air emissions. The third and fourth commenters noted that the data used to list stone quarries is not representative of the industry and the occupational health data characteristics of the industry do not demonstrate any health effect traceable to either lead or manganese.

Response: The EPA has no data indicating that the source category Stone Quarries contains a major source nor is it commonly located on the premises of major sources. Therefore, this source category will not be listed at this time.

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source in this category nor is it commonly located on the premises of major sources.

4.7 Mining Operations - Sand/Gravel

Comment: Five commenters (IV-D-23, IV-D-62, IV-D-111, IV-D-122, IV-D-125) requested that Mining Operations - Sand/Gravel be removed from the list. The first commenter noted that the basis for inclusion of this category is a single study conducted in Montana which recorded the presence of background or trace amounts of lead and manganese at a limestone quarry. The commenter noted that to use this one study as the basis for an industry wide hazardous pollutant regulatory scheme is

unconscionable and irresponsible. The second commenter noted that Mining Operations - Sand/Gravel have effective in place controls and non-hazardous air emissions. The third commenter noted that the data used the list sand and gravel mining is not representative of the industry and the occupational health characteristics of the industry do not demonstrate any health effect traceable to either lead or manganese. The fourth commenter noted that there is little or no data supporting inclusion of this source category. The fifth commenter (IV-D-23) recommended that Mining Operations - Sand/Gravel be deleted from the list when HAP emissions do not exceed defined *de minimis* levels and public health risks do not exceed prescribed levels. The commenter also requested that if Mining Operations - Sand/Gravel is retained on the list, to ensure that sources with *de minimis* levels of HAP emissions or risk may be exempted from the federal operating permit program.

Response: The EPA has no data indicating that the source category Mining Operations - Sand/Gravel contains a major source. Therefore, this source category will not be listed at this time.

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source in this category.

4.8 Metal Pipe Coating-Asphalt/Coal Tar

Comment: None

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Metal Pipe Coating-Asphalt/Coal Tar will remain on the list, but has been renamed Asphalt/Coal Tar Application - Metal Pipes.

4.9 Asbestos Fabricating

Comment: None

Final Disposition: While emissions from sources within this category have not justified listing it as a major source, a finding of threat of adverse effects to human health or the environment has been made. Therefore, EPA has listed Asbestos Fabrication as a category of area sources.

4.10 Asbestos Manufacturing

Comment: None

Final Disposition: While emissions from sources within this category have not justified listing it as a major source, a finding of threat of adverse effects to human health or the environment has been made. Therefore, EPA has listed Asbestos Manufacturing as a category of area sources.

4.11 Asbestos Milling

Comment: None

Final Disposition: While emissions from sources within this category have not justified listing it as a major source, a finding of threat of adverse effects to human health or the environment has been made. Therefore, EPA has listed Asbestos Milling as a category of area sources.

4.12 Asbestos Removal: Demolitions

Comment: Four commenters (IV-D-45, IV-D-66, IV-D-114, IV-D-124) noted that this source category appears to be based on little to no available data and is sufficiently ill-defined so as to

preclude meaningful investigation, evaluation, and comments. The second commenter noted that determination of applicability would be improved by better describing the category. Both commenters requested further clarification and categorization of this category. The third commenter (IV-D-45) questioned why Asbestos Removal: Demolitions is listed as a source category if it would still, presumably, be covered by the existing national emission standard for hazardous air pollutants (NESHAP). The fourth commenter (IV-D-114) noted that it appears impossible that emissions from Asbestos Removal: Demolitions could approach 10 tons per year if the emission control and disposal practices required by NESHAP Subpart M are employed. This category would then comprise entirely area sources and would be regulated as such.

Response: Because emissions from sources within this category do not justify listing it as a category of major sources, a finding of threat of adverse effects to human health or the environment would have to be made. However, such a finding has not been made at this time.

Final Disposition: This source category has been deleted from the list.

4.13 Asbestos Removal: Renovations

Comment: Four commenters (IV-D-45, IV-D-66, IV-D-114, IV-D-124) requested clarification of this category. Two commenters noted that this source category appears to be based on little to no available data and is sufficiently ill-defined so as to preclude meaningful investigation, evaluation, and comment. They noted that determination of applicability would be improved by better defining the Asbestos Removal: Renovations category and requested further clarification and categorization. One commenter

(IV-D-45) questioned why Asbestos Removal: Renovations is listed as a source category if it would still, presumably, be covered by the existing NESHAP. Another commenter (IV-D-114) noted that it appears impossible that emissions from Asbestos Removal: Renovations could approach 10 tons per year if the emission control and disposal practices required by NESHAP Subpart M are employed. This category would then comprise entirely area sources and would be regulated as such.

Response: Because emissions from sources within this category do not justify listing it as a category of major sources, a finding of threat of adverse effects to human health or the environment would have to be made. However, such a finding has not been made at this time.

Final Disposition: This source category has been deleted from the list.

4.14 Asbestos Waste Disposal: Demolitions

Comment: Three commenters (IV-D-66, IV-D-114, IV-D-124) requested further clarification of this source category. One commenter noted that it appears impossible that emissions from Asbestos Waste Disposal: Demolitions could approach 10 tons per year if the emission control and disposal practices required by NESHAP Subpart M are employed. This category would then be comprise entirely area sources and would be regulated as such. Two commenters (IV-D-66, IV-D-124) noted that this source category appears to be based on little to no available data and is sufficiently ill-defined so as to preclude meaningful investigation, evaluation, and comment. The commenters requested further clarification and categorization.

Response: Because emissions from sources within this category do not justify listing it as a category of major sources, a finding of threat of adverse effects to human health or the environment would have to be made. However, such a finding has not been made at this time.

Final Disposition: This source category has been deleted from the list .

4.15 Asbestos Waste Disposal: Renovations

Comment: Three commenters (IV-D-66, IV-D-114, IV-D-124) requested further clarification of this source category. One commenter noted that it appears impossible that emissions from Asbestos Waste Disposal: Renovations could approach 10 tons per year if the emission control and disposal practices required by NESHAP Subpart M are employed. This category would then comprise entirely area sources and would be regulated as such. Two commenters (IV-D-66, IV-D-124) noted that this source category appears to be based on little to no available data and is sufficiently ill-defined so as to preclude meaningful investigation, evaluation, and comment. The commenters requested further clarification and categorization.

Response: Because emissions from sources within this category do not justify listing it as a category of major sources, a finding of threat of adverse effects to human health or the environment would have to be made. However, such a finding has not been made at this time.

Final Disposition: This source category has been deleted from the list.

4.16 Construction: Spraying and Insulation

Comment: None

Final Disposition: EPA has no information indicating that this source category contains a major source. Therefore, Construction: Spraying and Insulation has been deleted from the list.

4.17 Asphalt Paving and Roofing Operations

Comment: One commenter (IV-G-04) requested that this source category be split into Asphalt Paving Operations and Asphalt Roofing Operations.

Response: Asphalt Paving and Roofing Operations is no longer listed as a distinct source category since, upon review, no evidence was found to document major sources within this category.

Comment: One commenter (IV-D-23) recommended that Asphalt Paving and Roofing Operations be deleted from the list when HAP emissions do not exceed defined *de minimis* levels and public health risks do not exceed prescribed levels. The commenter also requested that if Asphalt Paving and Roofing Operations is retained on the list, EPA ensure that sources with *de minimis* levels of HAP emissions or risk be exempt from the federal operating permit program.

Response: The EPA must list all source categories that contain a major source. Only those sources emitting HAP's that qualify them as a major source will be regulated. Risk is not a determining factor in establishing categories of major sources. Any listed categories of area sources consider risk as part of the finding of threat or adverse effects.

Final Disposition: Because there was a lack of evidence that this category contained a major source, it was removed from the list.

4.18 Asphalt Processing

Comment: None

Final Disposition: This source category will remain on the list because it is known to be co-located with a major source and will be regulated as such.

4.19 Auto Trans. Plates Manufacturing

Comment: None

Final Disposition: Upon review, EPA found no evidence to document a major source in this category. Therefore, Auto Trans. Plates Manufacturing has been deleted from the list.

4.20 Brake Parts Manufacturing

Comment: None

Final Disposition: Upon review, EPA found no evidence to document a major source in this category. Therefore, Brake Parts Manufacturing has been deleted from the list.

4.21 Ceiling Tile Manufacturing

Comment: One commenter (IV-D-61) requested that Ceiling Tile Manufacture be deleted from the list because fine mineral fibers are not produced in manufacturing ceiling tiles. The commenter noted that only mineral fibers with an average diameter greater than 1 μm are emitted.

Response: Upon review, EPA found no evidence to document a major source in this category. Therefore, Ceiling Tile Manufacturing has been deleted from the list.

Final Disposition: This source category has been deleted since no evidence was found to document that the source category contains a major source.

4.22 Friction Material Manufacturing

Comment: None

Final Disposition: Friction Material Manufacturing has been deleted since no evidence was found to document that this source category contains a major source.

4.23 Mineral Dryers/Calciners

Comment: One commenter (IV-D-66) noted that this source category appears to be based on little to no available data and is sufficiently ill-defined so as to preclude meaningful investigation, evaluation, and comment. The commenter requested further clarification and categorization.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the CAA allows distinction for "classes, types, and sizes within a category or subcategory..." where necessary to meet the purposes of MACT. Therefore, clarification will not have an impact on the listed category or subcategory.

Comment: One commenter (IV-D-75) requested that mineral dryers at primary copper processing facilities be excluded from any listing of mineral dryers/calciners because primary copper processing is not discussed in the background document for new source performance standards for dryers.

Response: This source category will be defined in order to clarify the intended coverage of major sources within this listing.

Final Disposition: Upon additional review of available documentation this category was determined to comprise the source categories Lime Manufacturing and Alumina Processing, each of which has documentation of major sources.

4.24 Mineral Wool Production

Comment: One commenter (IV-D-61) requested that Mineral Wool Production be deleted from the list because fine mineral fibers are not produced in manufacturing mineral wool. The commenter noted that only mineral fibers with an average diameter greater than 1 μm are emitted.

Response: This source category has been identified as containing a major source of formaldehyde and phenol emissions. It will be listed based on emissions of these HAP's.

Final Disposition: Major sources have been confirmed in this category; therefore, it will remain on the list.

4.25 Ore Flotation

Comment: Four commenters (IV-D-62, IV-D-66, IV-D-75, IV-D-76) noted that this source category appears to have been listed based on little data. Three of the commenters indicated that they are

not aware of any ore flotation processes that result in emissions of HAP's beyond the major source threshold levels. The first commenter also noted that there is no information in the EPA docket supporting identification of ore flotation as a Title III major source. The second commenter pointed out that this lack of data also indicates the relatively sparse and poorly reviewed documentation provided by EPA in making its listing decisions and they believe that ore flotation is not a major source of cresol or cresylic acid. The fourth commenter (IV-D-76) noted that the Ore Flotation category is too broad. Various metallurgical facilities use ore flotation, yet depending on the elemental ore, different chemicals and processes are used. Some of these processes do not generate any HAP's; the HAP emissions of others vary greatly.

Response: Upon review, EPA found no evidence to document that the Ore Flotation category contains a major source. This source category has been deleted from the list.

Final Disposition: This source category has been deleted from the list since there is no evidence to document that it contains a major source nor is it commonly located on the premises of major sources.

4.26 Refractories Production

Comment: None.

Final Disposition: This source category has been renamed Chromium Refractories Production and remains on the list due to documented presence of major sources.

4.27 Talc Manufacturing

Comment: None.

Final Disposition: This source category has been deleted since no evidence was found to document that this category contains a major source nor is it commonly located on the premises of major sources.

4.28 Vermiculite Manufacturing

Comment: One commenter (IV-D-62) recommended that EPA drop Vermiculite Manufacturing from the list because it was based on little or no available data.

Response: Upon review, EPA found no evidence to document a major source within this source category nor that it is commonly located on the premises of major sources. Vermiculite Manufacturing has been deleted from the list.

Final Disposition: This source category has been deleted from the list.

4.29 Wool Fiberglass Manufacturing

Comment: One commenter (IV-D-73) requested that wool fiberglass manufacturing be divided into the following four categories: Wool Fiberglass Manufacturing by Rotary Process, Wool Fiberglass Manufacturing by HERM Rotary Process, Fiberglass Manufacturing by Flame Attenuation and Microfiber Manufacturing. The commenter noted that the reason for breaking the industry down by manufacturing process is to ensure that MACT criteria are fully considered in the context of unique factors present in each of these four categories.

Response: As a result of comments received, many source categories have been described more precisely. However, nothing precludes further clarification during standards development, since the CAA allows distinction for "classes, types, and sizes

within a category or subcategory..." where necessary to meet the purposes of MACT. Therefore, clarification will have no impact on the listed category or subcategory.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Wool Fiberglass Manufacturing will remain on the list.

5.0 PETROLEUM REFINERIES

General Comments

Comment: One commenter (IV-D-127) stated that gasoline production is included under the Petroleum Refineries source category and therefore recommended that EPA should either not include it under the industry group Petroleum and Gasoline Production and Marketing or should delete "Gasoline Production" from the title.

Response: The production of gasoline is intended to be covered only under the Petroleum Refineries industry group, which has been renamed Petroleum and Natural Gas Production and Refining.

Comment: Two commenters (IV-D-31, IV-D-64) stated that a potential for overlap exists when using the three methods for creating categories: sector-based, equipment-based, and operation-based. The commenters indicated care must be taken in the creation of categories and in the development of emission standards so the facility is not faced with confusing or contradictory requirements. For example, refineries in Petroleum Refining are sector-based, storage tanks within the refinery are equipment-based and listed under Gasoline/Petroleum Storage, and wastewater discharges from refineries are listed under Wastewater Treatment Systems. The first commenter (IV-D-31) suggested using an API sector-based categorization and included a preliminary list.

Response: The approach taken was the best one for obtaining the large amount of data necessary to fulfill the requirements of the Clean Air Act (CAA). In addition, each source category has been described in a precise manner to preclude overlap. In developing this description, EPA considered comments regarding the appropriate description of processes and operations involved.

Storage tanks and wastewater treatment systems that are associated with the refinery facility are included under the Petroleum Refineries source category and are no longer listed as distinct categories.

Comment: One commenter (IV-D-64) stated that uncertainty exists on how to write compliance plans. Petroleum Refineries is a source category, and presumably maximum achievable control technology (MACT) standards promulgated for this category would apply to storage tanks, process heaters, wastewater treatment systems, or other processes normally associated with refining operations. However, each are listed as separate categories. The commenter questioned whether emission standards proposed for tanks under the Petroleum Refineries category differ from those required under Gasoline/Petroleum Storage.

Response: The source category for Gasoline/Petroleum Storage has been eliminated to avoid overlap regarding storage tanks. In addition, each source category has been described in a precise manner to indicate what associated processes should be included in this category.

Comment: One commenter (IV-D-31) noted that EPA should include compliance flexibility in the final source category rulemaking; the commenter recommended that EPA list subcategories of process units until adequate emissions data is available for evaluation.

Response: Only those categories or subcategories with emission data that indicated that they contain a major source have been listed. Adequate emissions information is not available to support the listing of individual subcategories as suggested by the commenter. The EPA recognizes that different process units exist for this source category, and the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory in establishing emission standards.

Comment: One commenter (IV-D-19) suggested that subcategorization be based on type of process because some sources are large or complex (hydrotreaters, catalytic cracking units, etc.).

Response: Even with the list now being clarified, nothing precludes further clarification during standards development since the Clean Air Act allows distinction for "classes, types, and sizes within a category or subcategory...." where necessary to meet the purposes of MACT.

Comment: One commenter (IV-D-19) stated that area sources should be included as subcategories of the major source category if possible. An example is Biological Waste Treatment, which should be a subcategory under Petroleum Refineries.

Response: Area sources are only included on the list if an area source finding indicates that the source presents significant health risks. Area sources may be added to the list at any time, up to and including during standards development for the source category.

Comment: One commenter (IV-D-19) noted that EPA should identify categories and appropriate subcategories that will enable eventual MACT controls to be imposed first on the process units having the greatest potential public health benefits. In addition, EPA should postpone controls on process units that will have a lesser public health benefit at a later time in the 10-year MACT schedule by using the API-suggested subcategories.

Response: The CAA directs EPA to consider health effects, the quantity and location of emissions, and the efficiency of grouping categories or subcategories in setting priorities for promulgating standards. The schedule for promulgation of emission standards will reflect these considerations.

Comment: One commenter (IV-D-31) noted that MACT requirements and promulgation schedules for storage tanks in a refinery may need to differ substantially from MACT requirements in other sectors. In addition, the same commenter stated that if EPA uses API's proposed list with 19 process units, individualized MACT requirements may be necessary for some of the process units because of differences in operational characteristics.

Response: Even with the list being clarified now, nothing precludes further clarification during standards development, since the CAA allows distinction for "classes, types, and sizes within a category or subcategory...." where necessary to meet the purposes of MACT.

Comment: One commenter (IV-D-39) noted that different MACT requirements may be applicable within the same category. One could apply to storage within a refinery as well as the storage of much smaller quantities at a market outlet. It is not practical or necessary to apply the same emission standards to both storage facilities.

Response: For the current listing, EPA has only listed those categories where a major source has been identified or which are commonly located on the premises of major sources. In addition, the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory in establishing emission standards.

Comment: One commenter (IV-D-31) stated that API's suggested subcategories for Petroleum Refineries are based on types of process units, some of which may not be major sources of HAP emissions. Data are not readily available to show whether they are or are not major sources of HAP emissions.

Response: The EPA has only listed those categories and subcategories for which emissions data exist indicating a major source or which are commonly located on the premises of major sources.

Comment: One commenter (IV-D-46) stated that small refineries should be subcategorized. The commenter noted that the status of small refiners requires creation of a separate subcategory under Section 112(c). Small refineries have less access to capital and are less diversified than large refineries, thus the economic requirements are greater on small refineries. Section 410(h) recognizes the appropriateness of special treatment of small refineries and provides special sulfur allowances.

Response: The source category Petroleum Refineries has been described to clarify what subcategories are included in the source category. In addition, the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory in establishing emission standards.

5.1 Petroleum Refineries

Comment: Four commenters (IV-D-19, IV-D-31, IV-D-44, IV-D-64) noted that the API Process Unit Breakdown List should be used and gave the list of subcategories suggested. In addition, the third commenter (IV-D-44) noted that if EPA chooses to use the API list, the following statement should be included: "Refinery equipment leaks should not be broken down into process unit subcategories if EPA is not inclined to allow pooling of fugitive sources across process limits."

Response: The approach taken was the best approach for obtaining the large amounts of data necessary to fulfill the requirements of the CAA. Furthermore, the API process unit breakdown was used in defining the source category of Petroleum Refineries.

Comment: One commenter (IV-D-31) recommended adding the following paragraph: "If future MACT standards are written to apply across all process subcategories at a facility, they will include the flexibility to provide specific individual criteria for certain subcategories and permit the facility the flexibility to group subcategories where appropriate for compliance purposes taking into consideration the cost of achieving such emission reductions [Section 112(d)(2)], and the efficiencies of grouping categories or subcategories [Section 112(e)(2)(C)]."

Response: The CAA states that emission standards developed through Section 112 will require the maximum degree of reduction in emissions of HAP's that the EPA, taking into consideration the cost of achieving such a reduction, along with other non-air quality impacts, determines is achievable. Also, within each category or subcategory, EPA is allowed to distinguish among classes, types, and sizes of sources in establishing MACT standards.

Comment: One commenter (IV-D-31) noted that EPA should add the subcategories Storage Tanks, Wastewater Treatment, and Process Heaters & Boilers. The commenter suggested that these be included as subcategories when in HAP service. No other references were given.

Response: The Petroleum Refining source category has been described to clarify which processes will be regulated under the source category, including wastewater treatment operations, etc.

Final Disposition: The EPA has information indicating that this source category contains a major source. Therefore, Petroleum Refining will remain on the list, but will be divided into two source categories: Petroleum Refineries - Catalytic Cracking (Fluid and Other) Units, Catalytic Reforming Units and Sulfur Plant Units) and Petroleum Refineries - Other Sources Not Distinctly Listed.

6.0 PETROLEUM AND GASOLINE PRODUCTION AND MARKETING

General Comments

Comment: Two commenters (IV-D-127, IV-D-05) suggested that the name of this industry group be definitive and consistent with the source categories that are included in it. The commenters pointed out that, for example, gasoline production is covered in the Petroleum Refineries category. The commenters further explained that the industry group name does not reflect the natural gas industry source categories included in the group. These commenters urged that the subcategories specified under this industry group need to be clear and distinct to prevent overregulation.

Response: The EPA has changed the names of the Petroleum Refining and Petroleum and Gasoline Production and Marketing industry groups to more accurately reflect the two source categories contained in them. The new names are Petroleum and Natural Gas Production and Refining, and Liquids Distribution. Nothing precludes further clarification during standards development, since the Clean Air Act (CAA) allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of maximum achievable control technology (MACT).

Comment: Two commenters (IV-D-66, IV-D-05) stated that they support limiting "Production and Marketing" sources so as to completely exclude users and small quantity producers that do not engage in marketing. The commenters stated that if EPA chooses to regulate these "users," sufficient data should be provided to prove that a threat of adverse health effects exists, and a cutoff point would be necessary to exempt small sources. The

commenters noted that costs for compliance due to overregulating can approach a constitutional Fifth Amendment "takings" situation (see Executive Order 12630).

Response: The EPA has listed only those source categories that contain major sources or that are commonly located on the premises of major sources. Area sources may be added to the list after an adverse public health finding has been made. Additions of area sources can occur at any time.

Comment: One commenter (IV-D-05) requested that EPA recognize the difference between industrial plant operations and oil and gas production operations. However, the commenter provided no additional documentation to support this request.

Response: The Oil and Gas Production source category has been further defined to clarify processes and emissions that will be regulated under the source category. It has been renamed Oil and Natural Gas Production (excluding the following: individual wells and equipment specifically associated with individual wells, pipeline compressors and pump stations).

Comment: One commenter (IV-D-05) stated that the definition of a "major source" as worded violates Section 112(n)(4)(A) and (B) of the CAA as to oil and gas production operations. This commenter provided no additional documentation to support this statement.

Response: Sections 112 (n)(4)(A) and (B) of the CAA give special provisions for determining what constitutes major sources and area sources for oil and gas production wells. These provisions do not conflict with the definition of "major source" as it appears elsewhere in the CAA and in the draft Preamble, but give EPA specific directions on procedures for listing these facilities.

Comment: Four commenters (IV-D-127, IV-D-31, IV-D-64, IV-D-95) requested that several source categories be added under this industry group. The first commenter requested the addition of glycol dehydration units, which can be major sources of benzene, and sour gas processing facilities, which can be major sources of carbonyl sulfide and hydrogen sulfide.

The second and third commenters suggested the following disaggregation of source categories for this industry group: Crude Oil Loading and Marine Loading of Petroleum Products, (each with several subcategories); Oil and Gas Exploration and Production, (to differentiate MACT requirements for storage facilities for pipelines involved in crude handling and/or other petroleum products); Pipeline Transportation - Crude Storage and Pipeline Transportation - Product Storage (to differentiate MACT requirements for those storage facilities with pipelines involved in crude handling from storage facilities with pipeline transporting various petroleum products); and Research Facilities (to develop equitable separate MACT standards for new process and product research and development operations). The fourth commenter also requested the addition of Crude Oil Loading, Marine Loading of Crude Oil, Pipeline Transportation - Crude Storage and Pipeline Transportation - Product Storage for the same reasons as the other commenters.

Response: The categories suggested by the first commenter have been included under the Oil and Gas Production source category, which has been renamed Oil and Natural Gas Production. At this time, EPA has no information indicating whether the additional source categories suggested by the second, third, and fourth commenters contain major sources. If information becomes available indicating the existence of a major source in any of these suggested categories, such categories will be included in the list.

6.1 Oil and Gas Production

Comment: One commenter (IV-D-05) suggested that there are no additional sources to add to this industry group. The commenter further stated that it is not timely for the generic inclusion of the Oil and Gas Production category under Section 112 of the CAA. This commenter provided no additional documentation to support this statement.

Response: The CAA requires EPA to list all source categories with major sources or that are commonly located on the premises of major sources. Section 112(n)(4) further states that EPA shall not aggregate any wells, well head equipment, pipeline compressors, or pump stations to determine whether such units are major sources. EPA has determined that other non-wellhead operations individually exceed the major source threshold. Therefore, this source category will remain on the list, but has been renamed Oil and Natural Gas Production.

Comment: One commenter (IV-D-05) stated that oil and gas wells acidizing has a short duration and overall insignificant impact on the environment, but must be considered according to the stipulations of Section 112(n)(4)(A) and (B) of the CAA. Therefore, this operation should be included under the Oil and Gas Production source category.

Response: Certain non-wellhead related equipment have been individually identified as major sources, and as such, must be listed. No consideration of risk or hazard is necessary under Section 112(n)(4)(A) for listing categories of major sources if the major source threshold is exceeded.

Comment: One commenter (IV-D-31) was concerned that a standard for the Oil and Gas Production source category would overlap with standards for Oil and Gas Steam Generation, Natural Gas Storage/Transmission, Enhanced Oil Recovery, and Oil/Gas Well Acidizing.

Response: The Oil and Gas Production source category has been described to include Enhanced Oil Recovery and Oil/Gas Well Acidizing. Furthermore, the list has been reviewed to eliminate duplications. This source category has been renamed Oil and Natural Gas Production.

Comment: Three commenters (IV-D-120, IV-D-89, IV-D-36) stated that the proposed source category notice gave no evidence to support the addition of Natural Gas Production as a major source under Title III. The first two commenters pointed out that Section 112(n)(4) states that EPA shall not list gas production wells as an area source category under Section 112(c), unless this category is determined to present more than a negligible risk. The commenters further suggested that if no negligible risk is found, the source category Oil and Gas Production should be deleted from the list. The third commenter requested that Oil and Gas Production be deleted from the source category list because wells are specifically excluded as an area source under Title III of the CAA of 1990.

Response: This category is not listed as a category of area sources, so no demonstration of risk is needed. This source category will remain on the list as a category of major sources, but has been renamed Oil and Natural Gas Production.

Final Disposition: The EPA has information indicating that individual, non-wellhead operations in this source category are major sources. Therefore, Oil and Gas Production will remain on the list, but has been renamed Oil and Natural Gas Production.

6.2 Gasoline/Petroleum Storage

Comment: One commenter (IV-D-23) requested that the source category Gasoline/Petroleum Storage be deleted from the draft list because hazardous air pollutant (HAP) emissions from this source category do not exceed *de minimis* levels and public health risks do not exceed prescribed levels. The commenter further requested that if this source category is not deleted from the source category list the EPA ensure that it is exempt from the Federal operating permit program.

Response: Each source category retained on the list has been determined to contain a major source. However, upon review, the source category Gasoline/Petroleum Storage has not been determined to contain a major source, and it has been incorporated into the Gasoline Distribution (Stage I) source category and the Organic Liquids Distribution source category.

Comment: Two commenters (IV-D-31, IV-D-39) stated that according to the way the source category list is structured, there is potential for overlapping standards and different MACT requirements to apply within this source category. As an example, the commenter pointed out that a source category for Gasoline/Petroleum Storage is listed in addition to source categories for Refineries, Marketing Terminals, Bulk Plants, and Oil and Gas Production.

Response: Each source category has been further described to clarify which major source it includes. In addition, the Petroleum Marketing (with bulk terminals and plants) source category has been deleted from the list.

Comment: Three commenters (IV-D-39, IV-D-62, IV-D-75) suggested that the Gasoline/Petroleum Storage source category be clarified to include a cutoff point for smaller users/facilities that are not major sources and pose no significant health or environmental threat.

Response: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within this category.

Final Disposition: The EPA has no information indicating that the Gasoline/Petroleum Storage source category contains a major source to warrant its being listed as a distinct source category. Therefore, Gasoline/Petroleum Storage has been incorporated into the Gasoline Distribution (Stage I) source category and the Organic Liquids Distribution source category.

6.3 Petroleum Marketing (with Bulk Terminals and Plants)

Comment: One commenter (IV-D-31) requested that this category be subcategorized into Petroleum Bulk Terminals and Petroleum Bulk Plants due to differences in size, complexity, emission potential, MACT timing, and standard setting.

Response: Descriptions have been developed to clarify each source category; but even with the list being clarified now, nothing precludes further clarification during standards development since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of MACT.

Final Disposition: This source category has been renamed Organic Liquids Distribution (Nongasoline).

6.4 Manganese Fuel Additives

Comment: None

Final Disposition: Upon review, EPA found no evidence to document that this source category contains a major source or that it is commonly located on the premises of major sources. Therefore, Manganese Fuel Additives has been deleted from the list.

6.5 Natural Gas Storage/Transmission

Comment: Four commenters (IV-D-74, IV-D-86, IV-D-120, IV-D-90) suggested that this source category be deleted for the following reasons: First, EPA did not distinguish clearly enough between area and major sources in this category; second, the facilities in this category are very low in trace contaminants; and third, the reference to support EPA's listing of this source category based on its emissions of 1,1-dichloroethane is unfounded. The third commenter pointed out that storage facilities are part of many natural gas transmission systems; however, these storage facilities would generally be excluded by law (unless they are located in highly populated areas). This commenter further noted that acidizing is a process applied to individual wells, and because individual wells are exempt from this category, it is not necessary to indicate acidizing.

Response: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within this source category. Moreover, Section 112(n)(4)(A) precludes aggregating emissions from pipeline compressors or pump stations to determine if such units are major sources.

Final Disposition: The EPA has no information indicating that individual units within this source category are major sources. Therefore, Natural Gas Storage/Transmission has been deleted from the list as a distinct source category.

6.6 Oil Shale Retorting

Comment: None

Final Disposition: The EPA has no information indicating that this source category contains a major source or that it is commonly located on the premises of major sources. Therefore, Oil Shale Retorting has been deleted from the list.

7.0 SURFACE COATING PROCESSES

General Comments

Comment: One commenter (IV-G-15) stated that a source category should be added for medium-to-heavy-duty trucks with the hazardous air pollutants (HAP's) xylene, toluene, methyl isobutyl ketone (MIBK), methanol, and methyl ethyl ketone (MEK). The commenter believed this industry is sufficiently distinct, large, and unique with respect to the high performance and durability requirements of its coatings to be included on the final list of source categories. The commenter provided details about the industry's coating process and paint technology in support of its inclusion as a source category.

Response: The listing procedures used did not identify adequate emissions information concerning the coatings involved with medium-heavy-duty trucks so as to properly identify a distinct category for listing this as a source category. However, EPA intends to investigate the coatings associated with medium-heavy-duty trucks for inclusion within the category of Miscellaneous Metal Parts (Surface Coating). If warranted, EPA can evaluate medium-heavy- duty truck coatings separately during the regulatory development process.

Comment: One commenter (IV-D-23) suggested the addition of two source categories - Plasma Arc and Metallizing Spray Operations - with HAP's such as chrome and nickel. The comment was based on the commenter's State agency permitting and air toxics experience.

Response: The listing procedures used did not indicate that Plasma Arc and Metallizing Spray Operations are distinct categories containing major source emissions, and therefore the EPA does not intend to add these categories to the list at this

time. These types of operations would be evaluated, as applicable, during the standards development process for listed categories.

Comment: One commenter (IV-D-96) made three general comments about Surface Coating Processes. One comment was that EPA lacks sufficient data and some categories are ill-defined. The commenter was concerned that if these categories and subcategories are not clarified in the final rulemaking then it will not be known what to do if a source falls into two or more categories and subcategories. The commenter also noted the absence of a Miscellaneous Metal Parts category, which was employed by the Federal Clean Air Program in the control of volatile organic compounds (VOC's). The commenter did not understand why this category was not included, when so many other surface coating categories based on controlling VOC's have been included. The third comment made by the commenter was that many of the processes that are identified under Surface Coating Processes would not emit the requisite critical threshold amounts of HAP's so as to be classified as major stationary sources under Section 112 of the Clean Air Act (CAA).

Response: The approach taken for listing source categories was the best one possible due to the large amount of data necessary to fulfill the requirements of the CAA. The EPA feels confident that source categories listed under the Surface Coatings Processes industry group contain major sources and must be listed. EPA agrees with the commenter that more clarification is needed for applicability purposes and has prepared descriptions for each source category on the final list. Based on a review of the industry group, EPA has decided to list a category for Miscellaneous Metal Parts (Surface Coating) to include applicable major sources not covered under other source categories already listed.

Comment: One commenter (IV-G-07) requested that Locomotive and Rail Car Production and Repair and Metal Windows be added as source categories to the Surface Coating Processes industry group.

Response: The EPA could find no evidence of major sources for these source categories. Therefore, they are not included on the list at this time.

7.1 Fabric Printing

Comment: One commenter (IV-D-188) requested that EPA remove fabric printing from consideration as a major source of HAP's, after reviewing the documentation presented in the Draft List from the Air Species Manual, Vol. 1, VOC Species Profiles. The commenter refuted the inclusion with two separate analyses of mineral spirits, the solvent used in their paste formulations, which showed emissions below the thresholds of a major source, even at the maximum measured concentrations. In conclusion, they proposed fabric printing be removed from the list of major sources for HAP's because the solvent base used in fabric printing contains only trace amounts of HAP's.

Response: As a result of the listing procedures used, EPA feels confident that the Fabric Printing source category contains a major source and must be listed. Facilities within this source category that do not emit HAP's in quantities sufficient to be considered major sources may still be listed as area sources, according to Section 112(c)(3) of the CAA, if EPA finds these emission sources to present a threat of adverse effects to human health or the environment.

Comment: One commenter (IV-D-102) requested that EPA delete any reference to textile screen printing within the source category of Fabric Printing because it does not emit HAP's, as proven by a

survey of their industry. They did not recommend deleting the source category, unless the source category is redefined to include only screen printing, because other fabric printing operations may emit listed HAP's.

Response: The CAA allows EPA to distinguish among classes, types, and sizes within a category or subcategory when developing emission standards. The deletion of particular HAP's related only to textile screen printing processes has no effect on the current listing action.

Final Disposition: Fabric Printing has been deleted as a distinct source category. Emission sources associated with Fabric Printing have been included within the scope of the Printing, Coating, and Dyeing of Fabrics source category.

7.2 Surface Coating Operations - General Solvent Uses

Comment: Four commenters (IV-D-96, IV-D-67, IV-D-124, IV-D-66) suggested that the category is too poorly defined to determine applicability by industry and regulations. The first commenter (IV-D-96) suggested that examples of what is to be included be specified in the proposed rulemaking, and also questioned whether the category is too general for the purpose of defining emission sources. The second commenter (IV-D-67) pointed out that this category could be interpreted to be broad; that is, it may refer to paint application on both domestic and commercial sealers. The third commenter (IV-D-124) suggested that the determination of applicability would be much improved by better defining and clarifying the scope of this category. The commenter felt this clarification is necessary to improve an industry's ability to determine applicability and to limit EPA's involvement in having to make determinations for them. The last commenter (IV-D-66) thought the category is ill-defined and that it requires additional defining to exclude small surface coating operations,

and supported that statement with three reasons. First, many of these sources will be regulated under Title I. Second, the qualifier "general solvent uses" is redundant and ill-conceived; this perception might lead to the inclusion of solvent usage not having to do with surface coating operations, such as maintenance degreasing at a plant that uses a dry, electrostatic powder surface coating operation. Third, based on the industry commenter's evaluations, the small quantity sources that remain do not warrant regulation under this section of the CAA amendments.

Response: Upon review of the source categories contained in the Surface Coating Processes industry group, EPA agrees that the source category Surface Coating Operations - General Solvent Uses is potentially redundant and has deleted this category from the list. Instead, specific surface coating processes are listed.

Comment: One commenter (IV-D-78) wanted EPA to create a subcategory within this category for the "high-rise building construction and bridge structural steel fabrication industry." The commenter stated that differences unique to this industry make it difficult to apply control technologies to this industry in other surface coating operations, and thus it warrants a separate subcategory. As a result of defining this new category and developing control technologies, the commenter thought that the subcategory's major sources should not be addressed in maximum achievable control technology (MACT) standards until the 10-year bin.

Response: Emission sources associated with high rise building construction and bridge structural steel fabrication are intended to be included as part of a newly listed category entitled Miscellaneous Metal Parts. The listing of these sources within a broader category does not limit EPA's ability to evaluate distinct operations associated with these sources. After

listing, nothing precludes further clarification during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop appropriate emission standards.

Comment: One commenter (IV-G-04) suggested EPA change the title to Surface Coating Operations - Other if their intent is to regulate sources not mentioned specifically under this industry group. If the intention is that "plastic part" surface coaters meet both category standards, then this would represent duplication by EPA and would not be fair, according to the commenter.

Response: The source category Surface Coating Operations - General Solvent Uses was determined to be duplicative with respect to other listed categories in the Surface Coating Processes industry group and it will be deleted from the list.

Final Disposition: Surface Coating Operations - General Solvent Uses has been deleted from the list due to redundancy with existing source categories within the Surface Coating Processes industry group.

7.3 Fabric Coating

Comment: One commenter (IV-D-102) surveyed the industry for information and requested that EPA remove specific HAP's from the Fabric Coating category. The results of the survey showed the absence of these HAP's within the textile screen printing industry.

Response: The approach used to list Fabric Coating as a source category identified at least one major source based on its HAP emissions. The deletion of particular HAP's related specifically to textile screen printing processes has no impact on the listing

of the category as a whole. However, Fabric Coating has been deleted as a separate source category and is now included in The Printing, Coating and Dyeing of Fabrics Source Category.

Final Disposition: Fabric Coating has been deleted as a separate source category. Emission sources associated with Fabric Coating have been included within the scope of the Printing, Coating, and Dyeing of Fabrics source category.

7.4 Paper Coating

Comment: None

Final Disposition: This source category has been renamed Paper and Other Webs (Surface Coating).

7.5 Large Appliance

Comment: None

Final Disposition: This source category has been renamed Large Appliance (Surface Coating).

7.6 Magnet Wire

Comment: None

Final Disposition: This source category has been deleted as a distinct category and will now be included within the scope of Miscellaneous Metal Parts and Products (Surface Coating).

7.7 Auto and Light Duty Truck

Comment: One commenter (IV-D-103) requested that EPA delete benzene as a pollutant in this category because it is present in only trace amounts, even though it would not change the listing status of this category. This is an example of a problem that the commenter wanted to point out, concerning HAP emission levels not being quantified and included in the rulemaking.

Response: The listing requirements of the CAA do not require that emission levels for each HAP be quantified and included in the listing procedure for each source category. Auto and Light Duty Truck has been identified as a source category containing a major source, and the deletion of benzene as a pollutant does not affect the listing.

Final Disposition: This source category has been renamed Auto and Light Duty Truck (Surface Coating).

7.8 Metal Can

Comment: One commenter (IV-D-53) had two comments regarding this category: (1) There are criteria to justify subcategorizing the broad matrix of manufacturing activities into one Metal Can Surface Coating group with 10 distinct processes; and (2) EPA is urged to adopt these subcategories already established by New Source Performance Standards (NSPS) and Reasonably Available Control Technology (RACT) in this industrial category, especially where those subcategories are long-established and historically have been relied on by facility operators and State air agencies. The commenter provided supporting technical data and legislative citations for the establishment of these subcategories under this category by EPA.

Response: Nothing precludes subcategorization during standards development since the Clean Air Act allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop the appropriate emission standards. The EPA intends to refer to existing NSPS-and RACT-regulated activities, to the extent practicable, for further describing this category upon standards development.

Final Disposition: This source category has been renamed Metal Can (Surface Coating).

7.9 Metal Coil

Comment: None

Final Disposition: This category has been renamed Metal Coil (Surface Coating).

7.10 Wood Furniture

Comment: One commenter (IV-D-84) requested that EPA allow submission of an independent study, completed in September 1991, to help in the determination of categorization and subcategorization for the furniture industry.

Response: Nothing precludes further subcategorization during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop the appropriate emission standards. Therefore, EPA will maintain this source category on the list, and use, upon review and acceptance, information submitted by the furniture industry for further redefining of this category during standards development.

Final Disposition: This category has been renamed Wood Furniture (Surface Coating).

7.11 Metal Furniture

Comment: One commenter (IV-D-84) requested that EPA allow submission of an independent study, completed in September 1991, to help in the determination of categorization and subcategorization for the furniture industry.

Response: Nothing precludes further subcategorization during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop the appropriate emission standards. Therefore, EPA will maintain these source categories on the list, and use, upon review and acceptance, information submitted by the furniture industry for further redefining of this category during standards development.

Final Disposition: This category has been renamed Metal Furniture (Surface Coating).

7.12 Flat Wood Products

Comment: One commenter (IV-D-84) requested that EPA allow submission of an independent study, completed in September 1991, to help in the determination of categorization and subcategorization for the furniture industry.

Response: Nothing precludes further subcategorization during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop the appropriate emission standards. Therefore, EPA will maintain these source categories on the list,

and use, upon review and acceptance, information submitted by the furniture industry for further redefining of this category during standards development.

Final Disposition: This source category has been renamed Flat Wood Paneling (Surface Coating).

7.13 Plastic Part

Comment: One commenter (IV-G-15) stated a concern about the lack of definition in the Plastic Part category. They believed it should be made clear that the rules are not intended to regulate the coating of plastic or nonplastic parts in the same booth. They cited a court decision in Ohio to substantiate their claim on the subject. Another commenter (IV-D-103) was concerned about the broadness and differences from one source to another. The commenter thought a distinction needed to be made between the types of parts being coated. To accomplish this, the commenter suggested that EPA clearly stated how it will utilize subcategories in the final rule.

Response: Precise descriptions for each source category and the emission sources that are intended to be included in them are part of the final rule establishing a standard for the category. Sufficient information was not available to define appropriate and consistent subcategories for most broad categories included on the initial list. Nothing precludes further subcategorization during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop appropriate emissions standards. As a result, the inclusion of emission sources within a broader source category does not limit EPA's ability to evaluate distinct operations and processes associated with these sources.

Final Disposition: This source category has been renamed Plastic Parts and Products (Surface Coating) to provide more description.

7.14 Large Ship

Comment: None

Final Disposition: This source category has been renamed Shipbuilding and Ship Repair (Surface Coating) to provide more description.

7.15 Large Aircraft

Comment: None

Final Disposition: This source category has been renamed Aerospace Industries.

7.16 Printing/Publishing

Comment: Two commenters (IV-D-50, IV-D-70) gave input on the category of Printing/Publishing. The first commenter (IV-D-50) proposed two actions: (1) to create a separate industry group named Graphic Arts, and (2) to include under this industry group subcategories of all the major printing processes. The commenter urged EPA to consider the chemicals, inks, and potential HAP's as sufficiently distinct for the creation of a Graphic Arts category with each printing process as a subcategory. This would reduce confusion by providing uniformity with the applications of Prevention of Significant Deterioration (PSD), NSPS, and nonattainment regulations, in accordance with previous control technology guidelines (CTG's) and RACT/LAER (Lowest Achievable Emission Rate) guidance.

The second commenter (IV-D-70) suggested Graphic Arts Electroplating as a subcategory in the Printing/Publishing category, and agreed with the first commenter's suggestion to subcategorize the printing processes.

Response: Regarding appropriate disaggregation, EPA acknowledges that there are different types of printing/publishing processes within this source category. However, the CAA allows EPA to distinguish between classes, types, and sizes within a category or subcategory where necessary to develop appropriate emission standards. Where applicable and to the extent practicable, EPA will define categories and subcategories that conform to those defined under existing regulations, such as those for the graphic arts industries.

Final Disposition: This source category has been renamed Printing/Publishing (Surface Coating).

7.17 Architectural

Comment: One commenter (IV-D-96) argued that applying architectural paints and coatings to structures or products should not be regulated as stationary sources (major or area), as defined by the CAA. The commenter noted that "a stationary source...is any building, structure, facility, or installation which emits or may emit any air pollutant..." Consequently, it would appear the CAA does not authorize the regulation of Architectural paints and coatings as products under Section 112, according to the commenters' interpretation. Therefore, the commenter recommended deleting this as a source category.

Response: The EPA concurs with the commenter's recommendation to delete Architectural coatings from the list of categories due to the inconsistency the category has with the CAA definition for stationary sources.

Final Disposition: This source category has been deleted from the list of source categories.

7.18 Magnetic Tapes

Comment: None

Final Disposition: This source category has been renamed Magnetic Tapes (Surface Coating).

8.0 WASTE TREATMENT AND DISPOSAL

General Comments

Comment: Four commenters (IV-D-28, IV-D-77, IV-D-107, IV-D-09) agreed with the Agency's position that solid waste incinerators should not be included on the list because of Congress' determination that these sources should be regulated exclusively under the authority of Section 129 of the Clean Air Act (CAA). Two commenters (IV-D-77, IV-D-107) concurred with EPA for the same reasons, that municipal waste combustors should not be listed, and one commenter (IV-D-107) said that medical waste incinerators should not be listed.

Response: The EPA has not listed most solid waste incineration source categories, opting, after review, to preserve the requirements established in existing regulatory activities under Section 129 of the CAA involving these sources. The Section 129 standards are based on maximum achievable control technology (MACT). The exceptions are sewage sludge incineration and hazardous waste incineration units, which are listed because they are not listed under Section 129 of the Clean Air Act, and because they contain major sources.

Comment: One commenter (IV-D-43) requested clarification regarding how this industry applies to pharmaceutical manufacturing plants with on-site wastewater treatment systems.

Response: Each source category within this industry group has been described to make it clear what processes and emissions are intended to be regulated.

Comment: One commenter (IV-D-66) stated that regulation under Section 112 is not warranted because most of the Waste Treatment and Disposal sources are regulated under separate EPA programs that provide for extremely tight control of emissions.

Response: Where regulations exist for some source categories, EPA has reviewed, and will continue to review that regulatory activity to determine its applicability and consistency with Section 112 of the CAA. However, in many cases it will be appropriate to regulate a source under Section 112 to accomplish the purpose of controlling hazardous air pollutant (HAP) emissions to a level achievable using MACT. The same source may also be regulated under other authorities (such as the Resource Conservation and Recovery Act [RCRA]) for other concerns. EPA has no general discretion not to list categories of waste treatment and disposal that may be regulated under other authorities than Section 112, except for categories covered under 129.

Comment: One commenter (IV-D-109) observed that chlorine is a category within the industry group for Production and Use of Inorganic Chemicals and also is utilized in several categories within the Waste Treatment and Disposal industry group. The commenter's concern was that even though the technology that is or can be applied to regulating chlorine emissions in a chlorine production facility is different from technology applied in a chlorine use facility, the EPA may intend to regulate chlorine in the same fashion, regardless of whether the facility uses or produces chlorine.

Response: The CAA allows EPA to distinguish between classes, types, and sizes within a category or subcategory where necessary to meet the purposes of MACT. Also, each source category appearing on the final list will be defined to make it clear what processes and emissions are intended to be regulated. As each source category (and each type or class of source within each

category) is considered for regulation, EPA will assess the applicability of potential control technologies. Also the selected MACT may be different for different types or classes of sources emitting the same pollutant.

Comment: One commenter (IV-D-110) argued that it is not necessary to list commercial and industrial solid waste incinerator facilities because they are hazardous waste incinerators and subject to regulation under RCRA. Regulations and standards already exist and additional regulation of the facilities under the CAA is redundant.

Response: EPA is not listing commercial and industrial solid waste incineration because of provisions in Section 129 precluding listing of categories subject to Section 129. Hazardous Waste Incinerators are listed because they are not subject to regulation under Section 129 and because of the existence of major sources in the category. Also, EPA cannot omit a category because it is subject to regulation under RCRA; however, Section 112(n)(7) requires EPA to take into account and be consistent with any regulations promulgated under RCRA when establishing MACT.

8.1 Solid Waste Disposal - Open Burning

Comment: None

Final Disposition: This source category has been deleted from the list since, upon review, no evidence was found to document a major source within this category.

8.2 Sewage Sludge Incineration

Comment: Three commenters (IV-D-101, IV-D-114, IV-D-77) requested the removal of Sewage Sludge Incineration from the Waste Treatment and Disposal industry group because emissions of HAP's from sewage sludge incineration are already regulated under the Clean Water Act (40 CFR 503), and new source performance standards (NSPS) exist for sewage sludge incinerators [40 CFR 60 (O)]. One of the commenters also stated that national emissions standards for hazardous air pollutants (NESHAP) for particulate, beryllium, and total mercury have been established for Sewage Sludge Incinerations under Section 112 of the CAA. By removing this category from the list, duplication of effort will be avoided.

Response: The EPA does not have the discretion to not list this category even though standards exist, or are being established, under the Clean Water Act or under NSPS. EPA will evaluate any existing standards during regulation when determining MACT floors for this category. In addition, NSPS regulatory activity applies only to new sources, and under Section 112, EPA is required to develop emission standards based on MACT for new and existing sources.

Comment: One commenter (IV-D-77) requested that EPA postpone listing sewage sludge incinerators as a regulated category until sufficient data has been gathered to demonstrate that this category warrants regulation as a major or area source under Section 112(d). The data used as a basis for including this source category on the draft source category list were based on speciation profiles of poor quality, and it appears the data were derived from a single facility. The commenter thought EPA should also consider controls in evaluating whether a source emits or has the potential to emit 10 tons per year (tpy) or more of a HAP

or 25 tpy or more of a combination of HAP's, and also when determining whether an area source warrants regulation under Section 112(d).

The commenter also stated that EPA should collect sufficient data to correctly distinguish among sewage sludge incineration subcategories before listing or regulating HAP emissions from these operations under Subsection 112(d). Sewage sludge is incinerated at many different types of facilities, which, in turn, employ various combustion technologies. For example, an incinerator that will employ a Lurgi circulating fluid bed boiler has substantially different operating parameters and emissions compared to technologies used at many existing sewage sludge incinerators, such as multiple hearth incinerators.

Response: While the listing of Sewage Sludge Incineration was based, in part, on limited pollutant information using species profiles, EPA has obtained additional data that support the listing of this source category as a category of major sources. Regarding the regulation of different types of facilities and operations associated with sewage sludge incineration, Section 112(d)(1) of the CAA allows EPA to distinguish among classes, types, and size of sources within a category or subcategory in establishing emissions standards.

Final Disposition: The EPA has sufficient information indicating that this source category contains a major source. Section 129 does not preclude the listing of this category under Section 112(c). Therefore, Sewage Sludge Incineration will remain on the list.

8.3 Municipal Landfills

Comment: Three commenters (IV-D-09, IV-D-28, IV-D-8-77) stated that municipal landfills should not be included in the Waste Treatment and Disposal industry group. One commenter (IV-D-77) thought that municipal landfills should not be included on the list of major and area sources of HAP's until the Agency has sufficient data to determine that they warrant regulation as either a major or area source under Section 112(d). The draft list states that the listing of municipal landfills "is based in part on speciation profiles of relatively poor quality ranking" (56 FR 28557). The draft documentation appears to have only considered emissions from two landfills. Additionally, the emissions surveyed through EPA's National Emissions Data System (NEDS) were not HAP's but rather criteria pollutants. Based on this information, it is unclear that the HAP emissions from the two facilities would qualify as major sources. The data presented in the draft documentation also do not demonstrate that emissions from municipal landfills present a threat of adverse effects to human health or the environment, therefore the criteria necessary to warrant an area source listing has not been established.

Response: The CAA requires EPA to list categories of major sources. The source category Municipal Landfills was identified as a major source through the NEDS approach, as described in the Supplementary Information Section of the June 21, 1991 Federal Register notice. While the listing of Municipal Landfills was based, in part, on speciation profiles of relatively poor quality, EPA believes a profile need only be representative of one or several sources within a category in order to qualify that source category for inclusion on the list.

Comment: Two commenters (IV-D-09, IV-D-28) stated that municipal landfills should not be included in the Waste Treatment and Disposal industry group because the Agency had proposed to regulate municipal landfills under Section 111 (56 FR 24468) and deliberately chose not to regulate municipal solid waste landfills under Section 112 (53 FR 33314) or under RCRA. One commenter stated that when this decision was made, EPA was cognizant that Section 112 of the CAA (which can be used to develop NESHAP) could have been used. However, given the uncertainty and difficulty in setting standards under Section 112, EPA decided to proceed with standards development under Section 111.

Another commenter (IV-D-77) stated that EPA should delay listing municipal landfills on the Section 112(c) source category list until after the impact of the recently proposed NSPS and the Section 111(d) guidelines on HAP emissions from municipal solid waste (MSW) landfills can be evaluated. The proposed NSPS rulemaking and guidelines would establish controls on the emissions of nonmethane organic compounds from MSW landfills. In order to list municipal landfills, EPA must demonstrate that municipal landfill HAP emissions remaining after imposition of the NSPS warrant regulation as major or area sources under Section 112(d) of the CAA.

Response: The CAA requires EPA to list categories of major sources and, to the extent practicable, be consistent with the listing of source categories pursuant to Section 111. The decision not to regulate landfills under Section 112 had to be recommended in light of the new NESHAP requirements as set forth in the CAA Amendments of 1990. A review of existing and proposed regulatory activity under Section 111 and NSPS rulemakings involving municipal landfills indicated that all Section 112 listed HAP's and source identification requirements would not be addressed by this activity; therefore, Municipal Landfills was

included on the list. The EPA will, however, consider NSPS and Section 111 regulatory activity upon the development of standards for this category.

Comment: One commenter (IV-D-77) asked EPA to develop appropriate subcategories based on the different types of solid waste disposed at municipal landfills because HAP emissions from landfills can vary depending on the types of solid waste that are disposed in the landfill.

Response: Section 112 (d)(1) of the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory in establishing emission standards.

Final Disposition: Through the listing procedures, EPA has identified that this source category contains a major source. Therefore, Municipal Landfills will remain on the list.

8.4 Groundwater Cleaning

Comment: Three commenters (IV-D-09, IV-D-66, IV-D-77) suggested further wording to define what the EPA intends to include in this category. Commenter IV-D-09 posed concerns regarding water treatment devices used in groundwater remediation projects. These projects tend to be site-specific and unique for each installation, and the constituent mix, amounts, and exposure scenarios vary dramatically. The second commenter (IV-D-66) thought that differentiation by class, type and size, quantity, and nature of influent or material treated is necessary so that facilities that are not sources of HAP's are not included in the category. The third commenter (IV-D-77) recommended that each different type of groundwater cleaning activity be considered as separate subcategories because each activity may have different levels and types of emissions and different technologies to control HAP's.

Response: This source category has been deleted from the list as a separate source category but will be included in the scope of the Site Remediation source category. The source category will be concisely described during rulemaking to clarify what processes will be regulated.

Comment: Three commenters (IV-D-62, IV-D-66, IV-D-77) stated that groundwater cleaning operations should not be included on the list of categories because EPA has not demonstrated that groundwater cleaning operations warrant regulation as a major source of air toxics. The Agency does not provide data in the Draft Documentation showing that such operations emit greater than the 10/25 tpy cutoff. Two of the commenters (IV-D-62, IV-D-77) questioned whether groundwater cleaning is actually an area source category because EPA has not demonstrated that groundwater cleaning operations present an adverse threat to human health or the environment. Further study of HAP emissions from these operations is requested.

Response: Groundwater cleaning operations are to be included under the description of the category Site Remediation, which will be provided as part of the final listing action. An EPA study report entitled "Air Stripping of Contaminated Water Sources - Air Emissions and Controls" (EPA-450/3/87-017) was used to identify major source emissions from these operations. This study will be part of the supporting docket reference for the listing of the Site Remediation category.

Comment: One commenter (IV-D-14) recommended that the category Groundwater Cleaning be revised to Groundwater Remediation at Federal or State Designated Hazardous Waste Sites.

Response: Emission sources associated with groundwater cleaning will be included in the scope of the category Site Remediation. Within the description of this category, EPA has included applicable groundwater remediation activities that are associated with Federal- and State-designated hazardous waste sites.

Comment: One commenter (IV-D-66) observed that groundwater cleaning is not a waste treatment operation. Groundwater is a resource and if it is being cleaned to remove a contaminant, although this operation may generate a waste, it is the beneficiation and improvement of this resource which is the motivation. In situ groundwater cleaning frequently involves the destruction of any contaminants that are present, and not their release to the air. Even groundwater cleaning systems, which involve the extraction of groundwater, treatment, and reinjection, do not result in emissions of HAP's unless those contaminants being cleaned are volatile.

Response: The CAA directs EPA to list major and area emission sources of HAP's, and in doing so, major sources associated with groundwater cleaning activities have been identified. There are no further requirements of the CAA that would preclude the listing of these sources.

Comment: One commenter (IV-D-75) noted that facilities at mineral processing operations that may overlap the groundwater cleaning category should be excluded from the list because they do not emit the pollutant of concern. The EPA listed groundwater cleaning for ethylidene dichloride, which is not present in metals cleaning systems.

Response: The listing of groundwater cleaning for ethylidene dichloride emissions does not limit EPA's ability to identify any and all HAP's that are associated with emission sources within the category of Site Remediation.

Comment: One commenter (IV-D-124) requested a clearer definition of the groundwater cleaning category so as to improve each industries ability to determine applicability. Further clarification of the scope of this category is also requested. The duration of groundwater cleanup projects should be considered, with an exemption for projects of less than 12 months, because remediation projects can be of short duration.

Response: Groundwater cleaning emission sources will be clearly described and included in the category Site Remediation. Also, upon standards development, the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory, and it is at that time that such considerations as duration of cleanup projects will be considered.

Final Disposition: Groundwater cleaning has been deleted as a separate source category and will be included in the scope of the Site Remediation source category.

8.5 Hazardous Waste Incineration

Comment: Three commenters (IV-D-28, IV-D-66, IV-D-110) noted that Hazardous Waste Incineration should not be included in the Waste Treatment and Disposal industry group because of the Agency's prior actions to regulate air emissions for this source solely pursuant to RCRA (55 FR 17863). When standards were proposed for the burning of hazardous waste in boilers and industrial furnaces (56 FR 7134), EPA recognized the limitations imposed upon it by Congress pursuant to Section 112(n)(7).

Response: The EPA has reviewed existing regulatory activity involving the Hazardous Waste Incineration source category, including the promulgated boiler and industrial furnace rule (56 FR 7134) and concluded that it does not completely fulfill the requirements of Section 112 so as to preclude the listing of

the category here. During Section 112 regulatory development EPA will, however, take into account any RCRA regulatory activity to ensure consistency in regulating emissions for hazardous waste incinerators.

Comment: Two commenters (IV-D-62, IV-D-66) recommend that EPA delete the hazardous waste incineration category from the list because there is either insufficient data available or the category was not identified with sufficient precision to warrant inclusion.

Response: The CAA requires EPA to list categories of major sources. The EPA is confident that the Hazardous Waste Incineration category contains a major source. Therefore, this source category will remain on the list.

Comment: One commenter (IV-D-62) questioned whether Hazardous Waste Incineration is actually an area source category.

Response: The EPA has information indicating that this source category contains at least one major source.

Comment: One commenter (IV-D-114) stated that the Hazardous Waste Incineration category should be further divided into groups of incinerators that burn similar types of materials together (e.g., polychlorinated biphenyls). The commenter claimed that the creation of subcategories would facilitate the regulation of emissions from incinerators that burn similar materials while maintaining overall consistency within the categories.

Response: Section 112 (d)(1) of the CAA allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory in establishing emission standards.

Where appropriate, EPA would make such distinctions in the Hazardous Waste Incineration category during regulatory development.

Final Disposition: This source category will remain on the list.

8.6 Tire Burning

Comment: One commenter (IV-D-45) requested that the Tire Burning category be subdivided such that one category be specified for facilities where tires represent more than 50% of the heating load and a separate category where tires represent less than 50% of the heating load, because MACT will be different for both categories.

Response: Tire Burning has been deleted from the list since no evidence was found to document that this source category contains a major source.

Final Disposition: The EPA has no information indicating that this source category contains a major source. Therefore, Tire Burning has been deleted from the list.

8.7 Tire Pyrolysis

Comment: None

Final Disposition: Upon review, EPA found no evidence indicating that this source category contains a major source. Therefore, Tire Pyrolysis has been deleted from the list.

8.8 Cooling Water Chlorination - Steam Electric Generators

Comment: Two commenters (IV-D-77, IV-D-88) recommended that the EPA not list utility Cooling Water Chlorination as a category. Commenter IV-D-77 asked the EPA not to list this source category until there is sufficient data available to demonstrate that this category warrants regulation, under Subsection 112(d), as a major source emitting more than the 10/25 tpy cutoff of HAP's or area sources that present a threat of adverse effects to human health or the environment. In addition, the second commenter (IV-D-88) stated that if this category is listed, then Municipal Drinking Water Chlorination and Swimming Pool Chlorination should also be categories. The commenter suggested that an EPA study include the chlorination of drinking water as one of the largest sources of risk.

Response: Cooling Water Chlorination-Steam Electric Generators has been deleted from the list due to the lack of information indicating this source category contains a major source.

Final Disposition: Upon review, EPA found no evidence indicating that this source category contains a major source. Therefore, Cooling Water Chlorination-Steam Electric Generators has been deleted from the list.

8.9 Wastewater Treatment Systems

Comment: Five commenters (IV-D-11, IV-D-77, IV-D-85, IV-D-101, IV-D-130) requested that the EPA establish a subcategory for Publicly Owned Treatment Works (POTW's). The concern is that the EPA may not be consistent with provisions under the CAA, Section 112(e)(5) and Section 112(n)(3), if there is only one category for wastewater treatment systems. These CAA sections provide POTW's up to 5 years from the date of CAA enactment to quantify air emissions, demonstrate new technology-based standards, and

ensure adequate input from POTW's when control requirements are developed. Commenter (IV-D-77) observed that Congress did not intend for EPA to regulate POTW's in the same manner as other wastewater treatment systems.

Response: The EPA agrees with these commenters and has limited the Wastewater Treatment Systems source category to Publicly Owned Treatment Works (POTW) emissions. The EPA will study emissions from POTW's according to Section 112(n)(3) and promulgate standards regulating such emissions not later than 5 years after the enactment of the CAA amendments of 1990. A category named Publicly Owned Treatment Works (POTW) Emissions has been added to the list.

Comment: One commenter (IV-D-33) thought that the Wastewater Treatment Systems category is too broad and the applicable emissions should be regulated under individual source categories because this category is proposed as a separate emission point in the synthetic organic chemical manufacturing industry (SOCMI).

Response: The commenter is correct in saying that wastewater treatment of SOCMI facilities will be regulated as part of the source categories associated with EPA's Hazardous Organic NESHAP (HON) project. In addition, EPA has decided to limit Wastewater Treatment Systems to POTW emissions.

Comment: Two commenters (IV-D-43, IV-D-83) requested clarification regarding how this category applies to pharmaceutical manufacturing plants with on-site wastewater treatment systems. Such plants would be subject to MACT standards for the pharmaceutical source category. Would a pharmaceutical facility's wastewater treatment operation then be classified under the wastewater standard, or as part of the overall pharmaceutical standard, as in the case of HON?

Response: Wastewater Treatment Systems has been limited to POTW emissions; EPA intends to regulate wastewater treatment systems through the applicable, listed source categories that contain these systems. For example, a pharmaceutical facility's wastewater treatment operation would be included and regulated within the scope of that source category. In addition, EPA will be conducting a study of emissions from POTW's according to the direction given in Section 112 (n)(3) of the CAA.

Comment: Three commenters (IV-D-48, IV-D-66, IV-D-77) thought that there is insufficient data available to warrant listing Wastewater Treatment Systems as a source category. One commenter (IV-D-77) urged EPA to conduct further studies before listing the appropriate categories or establishing standards for POTW's.

Response: For the reasons described above, EPA has limited Wastewater Treatment Systems as a source category to POTW emissions.

Comment: One commenter (IV-D-66) felt that differentiation by class, type and size, quantity, and the nature of the material treated in the wastewater stream is necessary so that facilities that are not sources of HAP's will not be included in the category.

Response: For the reasons described above, EPA has limited Wastewater Treatment Systems as a source category to POTW emissions. In addition, the CAA allows EPA to distinguish between classes, types, and sizes of emission sources within a category or subcategory upon development of emission standards. Therefore, differences in wastewater treatment operations will be considered under the appropriate category during regulatory development.

Comment: Two commenters (IV-D-66, IV-D-75) noted that the EPA has listed wastewater treatment systems for a number of pollutants not present in systems used at their facilities. One commenter (IV-D-66) operates small-batch wastewater pretreatment systems to remove contaminants from metal finishing to comply with effluent guidelines and says that these systems do not result in the emissions of HAP's. The second commenter operates wastewater treatment systems at mineral processing facilities. The commenters believed the final listing should exclude plants that do not emit the pollutants of concern.

Response: For the reasons described above, EPA has limited Wastewater Treatment Systems as a source category to POTW emissions.

Comment: One commenter (IV-D-77) also suggested that EPA evaluate the AB 2588 data base of air toxics emissions when assessing HAP emissions from POTW's located in California. AB 2588 is the data base that contains the air toxics information gathered pursuant to the requirements of the Air Toxics Hot Spot Information and Assessment Act of 1987. The commenter believes that AB 2588 is a more reliable source of information on HAP emissions from POTW's located in California than any of the information sources referenced in the draft documentation.

Response: EPA will be conducting a study of emissions from POTW's according to the direction given in Section 112(n)(3) of the CAA.

Comment: Two commenters (IV-D-104, IV-D-114) suggested that the EPA define how broad the wastewater treatment category is and clarify whether the applicable emissions attributed to wastewater treatment should be regulated under individual source categories that are identified elsewhere on the preliminary list. Otherwise, EPA should define how the overlap of categories that

are defined in terms of a particular type of equipment or activity that is common to a variety of different industrial operations should be handled.

Response: For the reasons described above, EPA has limited Wastewater Treatment Systems as a source category to POTW emissions.

Comment: Two commenters (IV-D-77, IV-D-114) recommended that the Wastewater Treatment Systems category be subdivided into Industrial and Municipal Wastewater Treatment Operations to reflect the variety of operations and types of discharges into wastewater treatment facilities as well as the variety in the character and the amount of hazardous emissions from the two operations. Commenter IV-D-114 stated that further category division will allow wastewater treatment sources that result in large emissions, or emit particularly hazardous pollutants, to be targeted for early regulation, while allowing less significant emissions to be deferred for later regulation. The commenter also recommended dividing Industrial Wastewater Treatment into subcategories according to the applicable industry, or to restrict the wastewater treatment category to municipal wastewater treatment facilities and to regulate the hazardous emissions from industrial wastewater treatment under the source generating the waste water.

Response: For the reasons described above, EPA has limited Wastewater Treatment Systems as a source category to POTW emissions.

Final Disposition: Wastewater Treatment Systems has been deleted as a separate source category; however, EPA will regulate POTW emissions which will encompass all or part of this previously listed category. Those systems not associated with specific

facilities under listed source categories may be included within the scope of a new source category: Solid Waste Treatment, Storage, and Disposal Facilities.

8.10 Water Treatment Purification Category

Comment: One commenter (IV-D-11) requested that the EPA establish a subcategory for Municipal Water Treatment Purification in order to reflect the differences between Municipal Waste Treatment Districts and commercial and industrial water purification systems.

Response: Water Treatment Purification has been deleted from the list since no evidence was found to document that this source category contains a major source.

Comment: One commenter (IV-D-11) requested that the EPA promulgate standards for Municipal Waste Treatment Purification at the same pace as POTW's under the CAA, Section 112(e)(5) and 112(n)(5), because current knowledge is so limited.

Response: Water Treatment Purification has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: One commenter (IV-D-14) recommended that the water treatment purification category be deleted from the list because water treatment plants are a relatively minor source contribution to air pollution. Very few of these plants would be classified as a major source due to the major source emissions cutoff of less than 10 tpy of any HAP's or 25 tpy of any combination of HAP's. The commenter presented, as an example, the modeling data presented in the proposed radon rule for drinking water. The proposed rule designates aeration towers as the Best Available

Control Technology (BACT) for removal of radon from drinking water. None of the models developed a radon concentration in the off-gas that presented a risk to public health.

Response: Water Treatment Purification has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: One commenter (IV-D-66) recommended that EPA drop the Water Treatment Purification category from the list because there is either insufficient data available or the category was not identified with sufficient precision to warrant inclusion. The commenter also observed that water treatment purification is not a waste treatment operation.

Response: Water Treatment Purification has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: One commenter (IV-D-66) felt that differentiation by class, type and size, quantity, and the nature of the material treated is necessary so that facilities that are not sources of hazardous air pollutants will not be included in this category.

Response: Water Treatment Purification has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: One commenter (IV-G-04) stated that the Water Treatment Purification category should be located within a more appropriately titled industry group: Water and Waste Treatment and Disposal.

Response: Water Treatment Purification has been deleted from the list since no evidence was found that this source category contains a major source.

Final Disposition: Upon review, EPA found no information indicating that this source category contains a major source. Therefore, the Water Treatment Purification source category has been deleted from the list.

8.11 Water Treatment - Boilers

Comment: Two commenters (IV-D-14, IV-D-88) recommended that the Water Treatment - Boilers category be deleted from the list because these sources have a relatively minor contribution to air pollution. One commenter stated that very few of these plants would be classified as a major source due to the major source emissions cutoff of less than 10 tpy of any HAP's or 25 tpy of any combination of HAP's. The commenter raised as an example the modeling data presented in the proposed radon rule for drinking water. The proposed rule designates aeration towers as the BACT for removal of radon from drinking water. None of the models developed radon concentrations in the off-gas that presented a risk to public health.

Response: Water Treatment-Boilers has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: Two commenters (IV-D-77, IV-D-66) recommended that EPA drop the Water Treatment - Boilers category from the list because there is either insufficient data available or the category was not identified with sufficient precision to warrant inclusion. The second commenter (IV-D-66) also observed that Water Treatment - Boilers is not a waste treatment operation. The first commenter (IV-D-77) suggested, as an alternative to deleting this

category, that EPA provide additional data to demonstrate that this category warrants regulations as major or area source under Subsection 112(d).

Response: Water Treatment - Boilers has been deleted from the list since no evidence was found that this source category contains a major source.

Comment: One commenter (IV-D-66) felt that differentiation by class, type and size, quantity, and nature of the influent treated is necessary so that facilities that are not sources of hazardous air pollutants are not included in the category.

Response: Water Treatment - Boilers has been deleted from the list since no evidence was found to document that this source category contains a major source.

Comment: Two commenters (IV-D-75, IV-D-77) said that the EPA has listed water treatment boilers for hydrazine, which is not present in boilers at their facilities. The final listing should be restricted to boilers that emit the pollutant of concern, or the category should be defined to be inclusive of water treatment boilers that use hydrazine as an oxygen scavenger.

Response: Water Treatment - Boilers has been deleted from the list since no evidence was found to document that this source category contains a major source.

Comment: One commenter (IV-G-04) said that the Water Treatment - Boilers category should be located within a more appropriately titled industry group: Water and Waste Treatment and Disposal.

Response: Water Treatment-Boilers has been deleted from the list since no evidence was found to document that this source category contains a major source.

Final Disposition: Upon review, EPA found no evidence to document that this source category contains a major source. Therefore, the Water Treatment - Boilers category has been deleted from the list as a category of major sources.

9.0 AGRICULTURAL CHEMICALS PRODUCTION AND USE

General Comments

Comment: One commenter (IV-D-93) suggested that inconsistent interpretations can be made for the categories from the industry group heading as to whether they qualify under production or under use. To clarify this question, the commenter recommended removing "Production" from the industry group heading and instead listing the group as Agricultural Chemicals.

Response: This industry group has been renamed Agricultural Chemicals Production to specify what processes will be included as source categories.

Comment: One commenter (IV-D-66) noted a lack of definition concerning "Production," "Use," and "Production and Use" within the source categories included under this industry group. The commenter suggested to EPA that all categories under this industry group be separated into "Manufacture" and "Formulation" and that all ultimate end-uses of these products should be deleted as source categories. Also, the "Formulation" activities that result in a category should be differentiated or subcategorized according to the type of end product.

Response: End use of products in this industry group has been deleted because it is an ill-defined application. This industry group has been disaggregated into production type processes, not use or formulation type processes. The industry group has been renamed Agricultural Chemicals Production.

Comment: One commenter (IV-D-121) noted that pesticide and herbicide manufacturing categories and subcategories should be disaggregated by production and then by formulation of a liquid

or solid product. Also, the same commenter (IV-D-121) suggested adding Fugitive Emissions as a subcategory under the pesticides manufacturing areas.

Response: As a result of comments received, this industry group has been disaggregated into production type processes, not end use applications. In addition, formulation is a distinct type of process not usually associated with production and is therefore not used to disaggregate source categories. However, nothing precludes further clarification during standards development since the Clean Air Act (CAA) allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of maximum achievable control technology (MACT). Fugitive emissions are one of several emission source types within a source category and will be addressed under individual source categories.

9.1 2,4-D Salts and Esters Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.2 4,6-Dinitro-o-cresol Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.3 4-Chloro-2-Methylphenoxyacetic Acid Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.4 Baygon™ Production

Comment: None

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.5 Captafol Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.6 Captan Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.7 Carbamate Insecticides Production

Comment: One commenter (IV-D-66) urged EPA to differentiate or subcategorize among Carbamate Insecticides Production processes. The commenter stated that this would exclude "neat" carbomylation processes from the category list because they result in less than

5 tons per year (tpy) of hazardous air pollutant (HAP) emissions, thus making them area sources. Derivatives of Carbamate Insecticide Production should also be excluded from the list according to the commenter because the processes used to produce them are sufficiently different.

Response: This source category has been deleted from the list since, upon further review, no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.8 Chlorothalonil Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.9 Dacthal™ Production

Comment: One commenter (IV-D-123) questioned why Dacthal™ Production is on the draft list of source categories when it does not appear to be one of the compounds on the CAA Section 112 list. The commenter said it would be helpful for the EPA to explain why these chemicals are included on the draft list of source categories and subcategories. The commenter speculated that Dacthal™ Production was listed as a source category because the production of this chemical requires ingredients or creates a by-product that is a HAP on the Section 112 list.

Response: This source category contains a major source emitting carbon tetrachloride. Carbon tetrachloride is the particular solvent used in the chlorination process for producing Dachthal™.

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

9.10 Dichlorodiphenyltrichloroethane (DDT) Production

Comment: None

Final Disposition: This source category has been deleted from the list because DDT production has been banned in the United States so there is no reason to regulate production.

9.11 Fumigation Use

Comment: One commenter (IV-D-115) said the category Fumigation Use should be deleted because it duplicated the categories Soil Fumigant Use and Space Fumigant Use. Concerning the categories Fumigation Use, Soil Fumigant Use, and Space Fumigant Use, the commenter stated that the uses of these fumigants are already regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Therefore, the commenter said that fumigants should not be dually regulated both by FIFRA and the CAA. According to the commenter, this dual regulation would cause confusion to regulators and put unnecessary burden on fumigant applicators.

Response: Fumigant Use is not included on the list as a source category because it overlaps with several other source categories in this industry group.

Comment: One commenter (IV-D-123) urged EPA to be more specific with respect to which HAP's produced by fumigation it intends to designate as categories and subcategories in this industry group.

Response: No subcategorization or clarification is necessary in this case, since this source category has been deleted from the list. Furthermore, categorization has not been based on the HAP's they emit.

Comment: One commenter (IV-D-123) questioned the term use when describing the category Fumigation Use. The commenter's confusion stemmed from what exactly is being used within the category's name. The commenter urged EPA to be more specific in this industry group with respect to which HAP's produced by fumigation it intends to designate as categories and subcategories within this industry group.

Response: This source category has been deleted from the list because the end use is not anticipated to be regulated under Title III of the CAA.

Final Disposition: This source category has been deleted from the list due to overlap with other source categories in this industry group.

9.12 Grain Fumigation Production

Comment: One commenter (IV-D-115) noted that the category Grain Fumigation Production should be renamed Grain Fumigant Production. Another commenter (IV-D-18) suggested that carbon tetrachloride be added to this category as an emitted pollutant based on the commenter's knowledge of the industry process.

Response: Although the recommended name change would have been correct, this source category has been deleted from the list.

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.13 Metribuzin Production

Comment: None

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.14 Parathion Use

Comment: None

Final Disposition: This source category has been deleted from the list because production of parathion in the United States has stopped; consequently, the EPA was unable to establish major source documentation for this source category.

9.15 Pentachloronitrobenzene Production

Comment: None

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.16 Pentachlorophenol Production

Comment: None

Final Disposition: This source category has been deleted from the list because it is a chemical regulated within the Synthetic Organic Chemical Manufacturing industry group.

9.17 R-11 (Butadiene-Furfural-Cotrimer) Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented. However, it has been moved to the Polymers and Resins industry group and has been renamed Butadiene-Furfural Cotrimer (R-11).

9.18 Sodium Pentachlorophenate Manufacture

Comment: None

Final Disposition: This source category will remain on the list but will be renamed Sodium Pentachlorophenate Production.

9.19 Soil Fumigant Use

Comment: One commenter (IV-D-115) noted that the use of fumigants is already regulated under FIFRA. Therefore, the commenter stated that fumigants should not be dually regulated both by FIFRA and the CAA. According to the commenter, this dual regulation would cause confusion to regulators and put unnecessary burden on fumigant applicators.

Response: This source category has been deleted from the list because, upon review, no evidence was found to document a major source within this category.

Comment: One commenter (IV-D-123) questioned the term "Use" when discussing the category Soil Fumigant Use. The commenter's confusion stemmed from what exactly is being used within the category's name. The commenter urged EPA to be more specific in this industry group with respect to which HAP's produced by fumigation it intends to designate as categories and subcategories within this industry group.

Response: This source category has been deleted from the list because, upon review, no evidence was found to document a major source within this category.

Final Disposition: This source category has been deleted from the list because, upon review, no major source was confirmed in the source category.

9.20 Space Fumigant Use

Comment: One commenter (IV-D-115) stated that the end uses of fumigants are already regulated under FIFRA. Therefore, the commenter stated that fumigants should not be dually regulated both by FIFRA and the CAA. According to the commenter, this dual regulation would cause confusion to regulators and put unnecessary burden on fumigant applicators.

Response: This source category has been deleted from the list because, upon review, no evidence was found to document major sources within this catgeory.

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.21 Substituted Phenyl Ureas Production

Comment: None

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.22 Thiocarbamates Production

Comment: None

Final Disposition: This source category has been deleted from the list because no major source was confirmed in the source category.

9.23 Tordon™ Acid Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

10.0 FIBERS PRODUCTION PROCESSES

10.1 Acrylic Fibers/Modacrylic Fibers

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

10.2 Nylon Fibers

Comment: None

Final Disposition: This source category has been deleted from the list because it was found to overlap with the Nylon 6 Production source category in the Polymers and Resins industry group.

10.3 Rayon

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

10.4 Spandex

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

10.5 Triacetate Fibers

Comment: None

Final Disposition: This source category has been deleted from the list, because, upon review, no evidence was found to document major sources within this category.

11.0 FOOD AND AGRICULTURE INDUSTRY

Comment: One commenter (IV-D-13) requested that the Cellulose Food Casing Industry be listed as a separate source category. The commenter stated that there are only two companies in the United States that use the Viscose process in the cellulose food casing industry and that the Viscose process could be incorrectly included under three different categories: (1) Fiber Production Process - Rayon, (2) Polymers and Resin Production - Cellophane Production, and (3) Production and Use of Inorganic Chemicals - Carbon Disulfide. The commenter added that significant differences in the process/product quality requirements make the effluent technology appropriate for the cellulose food casing industry very different from the rayon, cellophane, and carbon disulfide industries, thus justifying a separate category.

Response: Because evidence of a major source for this distinct category has been documented, the category Cellulose Food Casing Manufacturing has been added to the source category list, and will be regulated under this industry group. The commenter provided material that demonstrated differences in production technology, characteristics of emissions, controls that may be applied and the associated costs.

Comment: One commenter (IV-D-16) suggested using State Standard Industrial Classification (SIC) codes rather than listing industry groups for categories.

Response: Standard Industrial Classification codes are not sufficiently detailed to identify distinct source categories. For this reason, the EPA has not used them widely to implement the CAA.

Comment: One commenter (IV-D-133) suggested adding corn wet milling and soybean processing to the list based on the hexane emissions from these source categories.

Response: At this time, EPA has no information indicating that Corn Wet Milling and Soybean Processing are major sources of hexane emissions. For this reason, these two source categories are not being added to the list.

11.1 Baker's Yeast Manufacturing

Comment: One commenter (IV-D-155) suggested broadening the Baker's Yeast Manufacturing category to Yeast Manufacture and Use or splitting the category into four categories: Bakers Yeast Manufacturing, Brewers Yeast Manufacturing, Bakeries, and Breweries.

Response: At this time, documentation of major sources exists only for the Baker's Yeast Manufacturing category; the other source categories cannot be listed without sufficient documentation of such.

Final Disposition: The EPA has documentation indicating that Baker's Yeast Manufacturing contains a major source. Therefore, this source category will remain on the list.

11.2 Coffee Roasting

Comment: Two commenters (IV-D-10, IV-D-23) requested that Coffee Roasting be deleted from the source category list. The first commenter (IV-D-10) stated that emissions of hazardous air pollutants (HAP's) from coffee roasting are not significant enough to make this a major source category. This commenter added that total aggregate HAP emissions in the U.S. from coffee roasting do not pose a significant health risk which warrant

listing coffee roasting as a category of area sources. The second commenter (IV-D-23) requested that the source category Coffee Roasting be deleted from the draft list because HAP emissions do not exceed the defined *de minimis* levels and public health risks do not exceed prescribed levels. The commenter stated that alternatively, if the Coffee Roasting source category is retained on the list, the EPA needs to include provisions in the Federal operating permit program to exempt those sources with *de minimis* levels of HAP emissions or public health risk.

Response: Coffee Roasting has been deleted from the list since no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list.

11.3 Cotton Ginning

Comment: The commenter (IV-D-129) requested that Cotton Ginning be deleted from the source category list based on phosphorous emissions because cotton ginning does not emit elemental phosphorous. The commenter also requested that Cotton Ginning be removed from the list of source categories for any listed chemical because cotton gins are not a major source of any HAP's.

Response: This category has been documented as emitting arsenic compounds; however, upon review, EPA found no information documenting a major source within this category.

Final Disposition: This source category has been deleted from the list since no evidence was found to document major sources in this category.

11.4 Prepared Food Manufacturing

Comment: One commenter (IV-D-16) requested that subcategories under Prepared Food Manufacturing be developed to include other support operation processes such as Can Manufacturing, Surface Coating, Boilers, Wastewater Treatment Systems, Fumigation Use, Chlorine Use, and Industrial Cooling Towers. As an alternative to this request, the commenter suggested that subcategories specific to the prepared food processing industry be created to include these support operation processes under the appropriate source category listed in the Federal Register. The commenter added that this recategorization would eliminate the need for the Prepared Food Manufacturing category.

Response: The Prepared Food Manufacturing source category has been deleted from the list since, upon review, no evidence was found to document a major source within this category.

Final Disposition: This source category has been deleted from the list.

Comment: Two commenters (IV-D-23, IV-D-126) requested that the source category Prepared Food Manufacturing be deleted from the draft list. The first commenter (IV-D-23) noted that Prepared Food Production should be deleted because HAP emissions do not exceed the defined *de minimis* levels and public health risks do not exceed prescribed levels. The commenter stated that alternatively, if this source category is retained on the list, the EPA needs to include provisions in the Federal operating permit program to exempt those sources with *de minimis* levels of HAP emissions or public health risk. The second commenter (IV-D-126) noted that the average emissions of benzidine (8.8 lbs/yr) per facility are less than the amount required to be considered a major source.

Response: The Prepared Food manufacturing source category has been deleted from the list due to lack of information indicating that it contains a major source.

Final Disposition: This source category has been deleted from the list because no major sources have been documented.

12.0 PHARMACEUTICAL PRODUCTION PROCESSES

General Comments

Comment: Four commenters (IV-D-43, IV-D-66, IV-D-83, IV-D-121) stated that EPA needs to further define and differentiate the Pharmaceutical Production Processes industry group. One commenter (IV-D-66) supported further differentiation and definition by adding the qualifier "active ingredients" or by adding other categories/subcategories. Another commenter (IV-D-121) suggested that the Pharmaceutical Production Processes industry group be divided into 11 categories: Fermentation, Extraction, Chemical-Synthesis, Formulation, Animal Health Product Manufacture, Animal Health Product Formulation, Biosynthesis, Solvent Recovery Operations, Fugitive Emissions, Product Coating, and Research Pilot Plants.

Response: As a result of comments received, the description of Pharmaceutical Production Processes industry group source category has been clarified.

Final Disposition: The Pharmaceutical Production Processes industry group has one source category, Pharmaceuticals Production, which will remain on the list.

13.0 POLYMERS AND RESINS PRODUCTION

General Comments:

Comment: One commenter (IV-D-57) stated that there is a strong basis for collecting the following source categories under a new industry group with the heading: Rubber Manufacturing or Rubber Compounds and Products: Acrylonitrile-Butadiene-Styrene/ Styrene-Acrylonitrile, Butyl Rubber Production, Neoprene Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, Styrene Butadiene Rubber and Latex Production. The rubber industry is well recognized as a separate industry grouping, as illustrated by EPA's past regulatory practice involving effluent guideline regulations issued under the Clean Water Act and prior actions under Section 111 of the Clean Air Act (CAA). The commenter (IV-D-57) also believed that if a new Rubber Manufacturing industry group was created, a more refined list would need to be established to promote development of appropriate standards for the sources within the categories and to reflect significant differences in processes.

Response: The industry groups used in the list are used for convenience and do not limit EPA's ability to regulate source categories in the most effective manner. Current groupings would not preclude EPA from grouping the categories as suggested by the commenter if that is determined to be the best method. As required by Section 112(d)(7) of the CAA, EPA will develop emission standards that are consistent with requirements established pursuant to Section 111 and other parts of the CAA. The CAA also allows EPA to distinguish among classes, types, and sizes of sources within a category or subcategory to develop appropriate emission standards.

Comment: One commenter (IV-D-33) stated that additional categories should be included in the Polymers and Resins Production industry group for specific continuous and batch production processes for vinyl chloride and polyester resins. The commenter thought that the listed source categories are too broad and do not recognize that many of the polymers and resins are produced with different continuous or batch operations, resulting in different emissions and control technologies.

Response: For the initial list, EPA has included only those categories for which a major source has been identified. Other categories will be added to the list at a later time, if identified, Once a category is on the list, the CAA allows EPA to distinguish among classes, types and sizes of sources within a category or subcategory in establishing emission standards. This would allow EPA to address situations where different sizes, types, or classes or sources within a category warrant separate consideration.

Comment: One commenter (IV-D-33) suggested that if a category or a subcategory is overly broad, the best-performing top 12 percent in terms of average emission limitation may represent production technology that is fundamentally different from the remaining sources in that category or subcategory. If this occurs, the top performers may use emission control technology that is impossible to apply to the remaining sources. Another possibility resulting from categories that are too broad would be the development of maximum achievable control technology (MACT) standards that do not represent the true performance capabilities of subsets of the category or subcategory.

Response: Within each category or subcategory, EPA is allowed to distinguish among classes, types and sizes of sources in establishing MACT standards. The CAA states that emission standards developed through Section 112 will require the maximum

degree of reduction in emissions of hazardous air pollutants (HAP's) that the EPA, taking into consideration the cost of achieving such reduction along with other nonair quality impacts, determines is achievable.

Comment: One commenter (IV-D-47) wanted EPA to correct and refine its category and subcategory approaches as it undertakes the development of emission control standards in the future. Another commenter (IV-D-35) would like to participate in the subcategorization process.

Response: As the CAA allows EPA to distinguish among classes, types and sizes of sources within a category or subcategory to develop appropriate standards, the EPA will be evaluating the potential of further refinement of those categories as the rulemaking process proceeds. EPA will consider the commenter's suggestions regarding subcategorization during the development of the list and upon standards development. Public participation is encouraged at all stages of regulatory development.

Comment: One commenter (IV-D-45) encouraged EPA to limit its listing of categories and subcategories to those that truly warrant regulation under Section 112 of CAA, because it will be the basis for decisions about businesses, investments, operations, and proactive/reactive programs aimed at emission reductions for the current listing action.

Response: As directed by Section 112 of the CAA, and through the listing procedures identified in the June 12, 1991 Federal Register notice, EPA has listed those categories or subcategories with emission data indicating they contain a major source(s) of HAP's, or when a threat of adverse effect to human health or the environment has been found.

Comment: One commenter (IV-D-85) requested that EPA reorganize the listed chemical production source types into a higher grouping for the purpose of defining categories in the same way as other industrial groupings. By doing so, it would obviate the need to decide now on any proposals to establish specific subcategories at this stage.

Response: Source categories have been listed within the Polymers and Resins industry group for which EPA has identified major source emissions and distinct production processes. The industry groups used in the list are used for convenience and do not limit the EPA's ability to regulate source categories in the most effective manner.

Comment: One commenter (IV-D-106) suggested that clarification be provided as to whether the term "production" includes further polymerization processes of a given listed substance.

Response: Each source category has been described in a precise manner for the initial listing action, in order to indicate what associated processes are intended to be included in that category.

Comment: One commenter (IV-D-106) suggested that "polymerization" not be included in the definition of "production." The commenter noted that EPA implied this by listing some polymerization activities separate from production activities (e.g., polymerization of vinylidene chloride in the Polymers and Resins Production industry group versus the listing of vinylidene chloride production in the Production of Synthetic Organic Chemicals industry group.

Response: Each source category has been described in a precise manner to avoid overlap in the final listing action.

Comment: One commenter (IV-D-93) noted that there are inconsistencies in the titles of source categories by not using the word "production" in all the source categories. The commenter believed that "production" should be used in all categories to prevent confusion during the regulatory process and clarify the intent of the regulation process.

Response: The word "production" has been added to each source category name within this industry group.

Comment: One commenter (IV-D-04) will submit information in the future regarding the breakdown of categories and subcategories affecting the composites segment of the plastics industry.

Response: Comments submitted by affected industries regarding appropriate subcategorizations will be evaluated by EPA during the standards development process and in making distinctions between classes, types, and sizes within a category or subcategory upon development of emission standards.

Comment: One commenter (IV-D-23) suggested that a Fiberglass/ Polyester Resin Products Manufacturing source category be added to the draft list, subject to *de minimis* emissions and risk criteria.

Response: Source categories have been listed based on documentation of major source emissions data and identification through the various EPA listing approaches. Fiberglass/Polyester Resin Products Manufacturing was not identified as a distinct source category through these listing procedures.

Comment: One commenter (IV-D-33) believed that a subcategorization approach similar to that used in the development of Water Effluent Guidelines should be used for the

Polymers and Resins industry group. The commenter provided a list of suggested subcategories based on batch and continuous polymerization processes.

Response: Even with the list being clarified now, nothing precludes further clarifications during standards development since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary when developing emission standards.

Comment: One commenter (IV-D-03) stated that their industry, plastics fabrication, should be broken down into a sufficient number of subcategories so that the significant and meaningful differences in the respective operations are recognized. Factors that must be included in the creation of reasonable subcategories are laminate surface areas, product size, and the ability to contain or capture pollutants.

Response: Even with the list being clarified now, nothing precludes further clarifications during standards development since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop appropriate emission standards. The types of evaluations mentioned by the commenter would be conducted during standards development, as appropriate.

13.1 Acetal Resins Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.2 Acrylonitrile-Butadiene-Styrene/Styrene-Acrylonitrile

Comment: Two commenters (IV-D-45, IV-D-106) suggested that the EPA establish separate categories for Acrylonitrile-Butadiene-Styrene/Styrene-Acrylonitrile (ABS/SAN) Polymers that distinguish between the major types, the processes employed, the emissions involved, and the products produced. The ABS polymers and SAN polymers are produced using batch- and continuous-type processes. One commenter (IV-D-106) pointed out that the resin materials are inherently different. The characteristics of the resins vary according to the type of polymerization process, as well as whether they are made via batch or continuous manufacturing methods. Each product/process combination utilizes a different process stream with different emission levels. The commenter gave examples of differences between batch and continuous processes. Because emissions differ widely, the suggested subcategories would not be susceptible to uniform pollution control strategies.

Response: ABS/SAN has been split into two separate source categories: Acrylonitrile-Butadiene-Styrene Production and Styrene-Acrylonitrile Production. Also, nothing precludes further clarifications during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop appropriate emission standards.

Final Disposition: The source category Acrylonitrile-Butadiene-Styrene/Styrene-Acrylonitrile has been split into two source categories: Acrylonitrile-Butadiene-Styrene Production and Styrene-Acrylonitrile Production.

13.3 Alkyd Resins Production

Comment: None

Final Disposition: This source category will remain on the list because no evidence of major sources has been documented.

13.4 Butyl Rubber Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.5 Carboxymethylcellulose Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.6 Cellophane Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.7 Cellulose Ethers

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Cellulose Ethers Production.

13.8 Epichlorohydrin Elastomers

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Epichlorohydrin Elastomers Production.

13.9 Epoxy Resins

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Epoxy Resins Production.

13.10 Foamed Plastics

Comment: None

Final Disposition: This source category has been deleted from the list due to duplication with existing production categories already listed for this industry group.

13.11 Formaldehyde Resins Production

Comment: None

Final Disposition: This source category will remain on the list, but has been renamed Amino Resins Production.

13.12 Hypalon™

Comment: None

Final Disposition: This source category will remain on the list and has been renamed Hypalon™ Production.

13.13 Maleic Copolymers Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented. However, it has been renamed Maleic Anhydride Copolymers Production.

13.14 Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene Production.

13.15 Methyl Methacrylate-Butadiene-Styrene Terpolymers

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Methyl Methacrylate-Butadiene-Styrene Terpolymers Production.

13.16 Methylcellulose Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.17 Neoprene Production

Comment: None

Final Disposition: This source category will remain on the list, because evidence of major sources has been documented.

13.18 Nitrile Butadiene Rubber Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.19 Nylon Plastics Production

Comment: None

Final Disposition: This source category will remain on the list, but has been renamed Nylon 6 Production.

13.20 Phenolic Resins Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.21 Polybutadiene Rubber Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.22 Polycarbonates Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.23 Polyester Plastics

Comment: None

Final Disposition: Polyester Plastics has been deleted from the list due to duplication with existing production categories already listed for this industry group.

13.24 Polyester Resins Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.25 Polyether Polyols Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented. However, additional information obtained by EPA reveals that this category should not be a part of the Polymers and Resins Industry Group. Therefore, Polyether Polyols has been moved to the Miscellaneous Industry Group.

13.26 Polyethylene Terephthalate Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.27 Polymerization of Vinylidene Chloride

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Polymerized Vinylidene Chloride Production.

13.28 Polymethyl Methacrylate Resins Production

Comment: None

Final Disposition: This source category will remain on the list, because evidence of major sources has been documented.

13.29 Polystyrene Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

13.30 Polyurethane Foam

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Flexible Polyurethane Foam Production.

13.31 Polyurethane Production

Comment: None

Final Disposition: This source category has been deleted from the list due to duplication with existing categories in this industry group.

13.32 Polyvinyl Acetate Emulsions

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Polyvinyl Acetate Emulsions Production.

13.33 Polyvinyl Alcohol Production

Comment: None

Final Disposition: This source category will remain on the list, because evidence of major sources has been documented.

13.34 Polyvinyl Butyral Production

Comment: One commenter (IV-D-45) believed Polyvinyl Butyral Production should be split into two categories, with one based on solvent process and the other on nonsolvent process due to different starting materials and completely different HAP's use and generation. The starting materials for the solvent process is a vinyl acetate monomer (HAP), where the process generates acetaldehyde. The nonsolvent process utilizes polyvinyl alcohol resin as the staring material with no HAP's used or generated.

Response: The source category Polyvinyl Butyral Production has been identified through EPA's listing procedures as containing major source emissions. Even with the list being clarified now, nothing precludes further clarification during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to develop appropriate emission standards.

Final Disposition: This source category will remain on the list.

13.35 Polyvinyl Chloride and Copolymers Production

Comment: None

Final Disposition: This source category will remain on the list.

13.36 Reinforced Plastics

Comment: One commenter (IV-D-136) suggested that the subcategory Field Manufacturing Facilities be added. The commenter recommended that the definition include a permitted life span of at least 5 years. The commenter believed that this subcategory is very important because there are temporary facilities that manufacture on or near a client's property if a product is too large to be shipped. At these facilities, an emission control system would not be cost effective.

Response: No documentation was included by the commenter to support that Field Manufacturing Facilities be added as a distinct category within this industry group. Upon standards development, such facilities may be identified as emission sources within existing source categories, at which time EPA may consider the uniqueness of these types of operations.

Comment: One commenter (IV-D-136) suggested that Corrosion Resistant and Fire Retardant subcategories be added along side categories that include general purpose resins. Each branch should then include a lower-tier subcategory for the custom manufacturing of plastic products where variability in size and shape of product is recognized. Each of these branches should then include lower-tier subcategories for fixed facilities and for temporary facilities.

Response: No documentation was included by the commenter to support that Corrosion Resistant and Fire Retardant Resins be listed as a distinct source category. Information was not submitted that would substantiate a separate listing of this category. However, the source categories may be evaluated during rulemaking.

Comment: One commenter (IV-D-47) suggested that a clarification be made, despite the information in the docket, because there still may be confusion between the scope of this category and other categories on the Agency list. The Agency should expressly define the scope of each category. At a minimum it should confirm that, based on the information in the docket and in these comments, sources in the Reinforced Plastics category do not fall within the Polyester Plastics category.

Response: Each source category within the industry group will be described to indicate what emission sources are intended to be included in each category, and to avoid any potential overlaps in terms of applicability.

Comment: One commenter (IV-D-47) suggested that emissions of dimethyl formamide and 1,4-dichlorobenzene do not originate from the thermoset process and, therefore, these emissions should be regulated under a different source category. The commenter continued by stating that EPA should clarify the scope of the Reinforced Plastics source category to include only operations using styrene cross-linked thermoset resins with reinforcement such as glass fiber and inert fillers. In addition, this commenter thought the EPA should establish a subcategory for Closed Molding Operations and a subcategory for Open Molding Operations. These should then be distinguished by their potential to emit styrene and the nature of feasible emission control techniques.

Response: The Reinforced Plastics source category will be described as part of the initial list to indicate what emission sources are intended to be included in this category. Upon emission standards development, the CAA also allows EPA to distinguish between classes, types, and sizes within a category or subcategory.

Comment: One commenter (IV-D-47) pointed out that based on a review of styrene environmental fate and toxicity, industrial emissions of styrene from this category do not pose a threat to human health or the environment. Thus, the commenter believed that styrene emissions from this source category should be assigned a low priority and placed in the 10-year regulatory cycle.

Response: The CAA directs EPA to develop a schedule for emission standards promulgation based not only on health and environmental effects, but also on exposure and the efficiency of grouping categories. Thus, the health effects of styrene will be only one criteria EPA uses in establishing the appropriate standards promulgation schedule for this source category.

Final Disposition: This source category will remain on the list but has been renamed Reinforced Plastic Composites Production.

13.37 Styrene Butadiene Rubber and Latex Production

Comment: None

Final Disposition: This source category will remain on the list, because evidence of major sources has been documented.

14.0 PRODUCTION AND USE OF INORGANIC CHEMICALS

General Comments

Comment: Twelve commenters (IV-D-32, IV-D-36, IV-D-43, IV-D-59, IV-D-66, IV-D-67, IV-D-72, IV-D-76, IV-D-77, IV-D-83, IV-D-93 and IV-D-94) suggested that, because the production and use of certain substances release different pollutants and the control technologies would likely differ, these two areas be separate industry groups.

The last ten commenters (IV-D-36, IV-D-43, IV-D-59, IV-D-66, IV-D-67, IV-D-72, IV-D-76, IV-D-77, IV-D-83, IV-D-93) suggested an overall clarification and better definition of the name of this industry group because it seemed to include only those sources that both produce and use the identified inorganic chemicals. If the name were to remain the same, facilities should not be considered for listing based on only use or only production. Commenter IV-D-93 suggested the industry group title Inorganic Chemicals.

Response: The source categories within this industry group are now comprise only production-type activities; this industry group has been renamed Production of Inorganic Chemicals to reflect the current situation.

Comment: One commenter (IV-D-17) requested the magnesium source category be moved from this industry group and into the industry group Nonferrous Metals. Its production facility is not a producer of inorganic chemicals, but rather, a producer of magnesium metal products with emissions of chlorine and hydrofluoric acid.

Response: No source category for magnesium compounds was published in the draft list; however, Primary Magnesium Refining contains a major source and has been listed within the Nonferrous Metals Processing industry group.

Comment: Three commenters (IV-D-76, IV-D-104, IV-D-107) suggested that EPA better define the categories to facilitate the subsequent maximum achievable control technology (MACT) determinations. The EPA's attempt to avoid excluding any possible sources of hazardous air pollutants (HAP's) has resulted in a potential to overlap source categories by the chemical, industry, operation, and equipment specific natures of the categories, potentially subjecting one source category to a myriad of MACT standards. The possibility of overlap with synthetic organic chemical manufacturing industry (SOCMI) processes could also exist.

Response: The EPA has reviewed the list in an attempt to eliminate duplicative listings. But even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Comment: One commenter (IV-D-85) requested that EPA reorganize the listed chemical production source types into larger groupings for the purpose of listing categories, in the same way as EPA has handled other industrial groupings in this notice. This comment is made for the following groups on the draft list:
(1) Production and Use of Inorganic Chemicals (first group), and
(2) Production and Use of Inorganic Chemicals (second group).

This reorganization would obviate the need to decide on any proposals that may be made in comments to establish specific subcategories at this stage. Claims regarding process

differences should be deferred until the standards development process, at which time EPA can obtain and analyze the appropriate information or refute such claims.

Response: It appears that, due to typographical errors in the draft Federal Register notice, the commenter misinterpreted the listing; industry groups have not been classified as a Group 1, Group 2, and such. Even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations. Additionally, categories have been defined in order to clarify their coverage.

14.1 Aluminum Chloride

Comment: None

Final Disposition: Due to questions regarding the applicability of the data used in listing Aluminum Chloride, the category has been deleted.

14.2 Aluminum Fluoride

Comment: None

Final Disposition: Due to questions regarding the applicability of the data used in listing Aluminum Fluoride, the category has been deleted.

14.3 Ammonium Phosphates

Comment: One commenter (IV-D-45) suggested that a distinction be made between Ammonium Phosphate - Wet Process Phosphoric Acid, and Ammonium Phosphate - Furnace Phosphoric Acid. If ammonium

phosphates are produced from wet acid, or by some other processing route that contains HAP impurities, then there should be two ammonium phosphate categories.

Response: Categories on the list have been defined to include multiple types of operations or processes; however, Ammonium Phosphates is no longer listed as a distinct category.

Comment: Two commenters (IV-D-79, IV-D-80) suggested the deletion of this source category due to its listing being based solely on its suspected emissions of phosphorus. The fertilizer industry emits phosphates, not phosphorus. The EPA has erroneously interpreted its data base regarding such emissions.

Response: The category Ammonium Phosphates has also been identified as emitting hydrogen fluoride in addition to phosphates. However, this source category has been incorporated into the Phosphate Fertilizers Production source category.

Comment: One commenter (IV-D-12) requested the deletion of this source category because it does not emit elemental phosphorus.

Response: The category Ammonium Phosphates has also been identified as emitting hydrogen fluoride in addition to phosphates. However, this source category has been incorporated into the Phosphate Fertilizers Production source category.

Final Disposition: Ammonium phosphate plants have also been identified as emitting hydrogen fluoride; however, this source category is no longer listed as a distinct category, but has been incorporated into the Phosphate Fertilizers Production source category.

14.4 Ammonium Sulfate

Comment: None

Final Disposition: This category will remain on the list but has been renamed Ammonium Sulfate Production - Caprolactam By-Product Plants.

14.5 Calcium Oxide Production

Comment: Two commenters (IV-D-45, IV-D-98) suggested the deletion of this source category. The commenter noted that Table 3-1 of "Documentation for Developing the Source Category List" states that the pollutant of regulatory concern for calcium oxide production plants is cadmium; the reference for this information is an Office of Air Quality Planning and Standards (OAQPS) study on the cadmium refining industry. This study, however, addresses cadmium oxide manufacturing plants, not calcium oxide manufacturing plants. Thus, it seems the listing of Calcium Oxide Production was inadvertent; instead, Cadmium Oxide Production facilities were the intended source for listing. The first commenter (IV-D-45) recommended that if this source category is to remain on the list, only the production of this material be considered for regulation under the MACT concept. Regulating the use of this item would be immense in scope, cost, and base, and would be questionably unbeneficial due to the wide usage by consumers.

Response: The listing of calcium oxide production was an error; the appropriate metal should have been cadmium. Furthermore, only production-type activities have been listed; regulation of end uses is not anticipated unless so noted.

Final Disposition: Though the correct metal would have been cadmium, this category was deleted because no major source was documented from available data.

14.6 Carbon Black

Comment: None

Final Disposition: This category was deleted since, upon review, no evidence was found to document major sources within this category.

14.7 Charcoal

Comment: One commenter (IV-D-45) recommended that if this source category is to remain on the list, only the production of this material be considered for regulation under the MACT concept. Regulating the use of this item would be immense in scope, cost, and base, and would be questionably unbeneficial due to the wide usage by consumers.

Response: The source categories within this industry group now comprise only production-type activities.

Final Disposition: This category was deleted because no major source was documented from available data.

14.8 Chemical Intermediates

Comment: One commenter (IV-D-45) recommended that if this source category is to remain on the list, only the production of chemical intermediates be considered for regulation under the MACT concept. Regulating the use of this item would be immense in scope, cost, and base, and would be questionably unbeneficial to the wide usage by consumers.

Response: The source categories within this industry group now comprise only production-type activities.

Comment: One commenter (IV-D-93) requested the deletion of this source category because the two apparent chemicals of interest, hydrochloric acid and methyl ethyl ketone, will be included elsewhere in the rule.

Response: Once a source category is identified as emitting a HAP, it is on the list. Regulations will be set later for all HAP's potentially being emitted.

Comment: Two commenters (IV-D-43, IV-D-83) requested the deletion of this source category because it is too vague of a description for a source category.

Response: Descriptions have been developed to clarify the scope of listed source categories.

Final Disposition: This source category was deleted because no major source was documented from available data.

14.9 Chlorine

Comment: One commenter (IV-D-91) suggested that this source category be included as a subcategory under Semiconductor Manufacturing Operations. The commenter stated that the draft list of categories and subcategories are too broad and inclusive to reflect different emission issues and would result in conflicting sets of requirements and standards within the semiconductor industry.

Response: By definition, chloride production is distinctly different than semiconductor manufacturing. But even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Comment: One commenter (IV-D-109) stated that within the draft list Chlorine appears as a category under Production and Use of Inorganic Chemicals. Other categories appear within other groups that specifically list chemical production and use activities that utilize chlorine. Some examples in the industry group Production of Synthetic Organic Chemicals are Chloroform Production, Perchloroethylene Production, and Vinyl Chloride Production. Another group where chlorine is utilized in several categories is Waste Treatment and Disposal.

Because of the listing of the category Chlorine per se, the commenter is concerned that there may be some intent to regulate chlorine in the same fashion, regardless of whether it is a chlorine production or chlorine use facility. The technology that is or can be applied to regulating chlorine emissions in a chlorine production facility is different from technology applied in a chlorine use facility. This difference is due to the vast difference between the electrolytic cell technology used to produce chlorine and the wide variety of chemical reaction technologies involved in chlorine use.

Response: The categories within this industry group now comprise only production-type activities. Additionally, this source category will be defined to include various methods for chlorine production.

Final Disposition: This category will remain on the list; however, it has been renamed Chlorine Production.

14.10 Chromium Chemicals Manufacture

Comment: None

Final Disposition: Because major sources have been documented, Chromium Chemicals Manufacturing will remain on the list.

14.11 Cyanuric Chloride

Comment: One commenter (IV-D-12) noted that this source category appears under two industry groupings--Production of Synthetic Organic Chemicals and Production and Use of Inorganic Chemicals. One of the listings should be deleted.

Response: This category is now only included within this industry group.

Final Disposition: Because major sources have been documented, Cyanuric Chloride Production will remain on the list in the Production of Inorganic Chemicals industry group.

14.12 Detergents

Comment: One commenter (IV-D-48) suggested defining this source category. Companies do not know what is meant by the term Detergents.

Response: The categories within this industry group now comprise only production-type activities and definitions have been provided for all categories remaining on the list.

Comment: One commenter (IV-D-45) recommended that if this source category is to remain on the list, only the production of this material be considered for regulation under the MACT concept.

Regulating the use of this item would be immense in scope, cost, and base, and would be questionably unbeneficial due to the wide usage by consumers.

Response: The categories within this industry group now comprise only production-type activities.

Final Disposition: This source category was deleted because no major source was documented from available data.

14.13 Fertilizer Formulation

Comment: One commenter (IV-D-45) recommended that if this source category is to remain on the list, only the production of this material be considered for regulation under the MACT concept. Regulating the use of this item would be immense in scope, cost, and base and would be questionably unbeneficial due to the under usage by consumers.

Response: The categories within this industry group now comprise only production-type activities.

Comment: Three commenters (IV-D-12, IV-D-79, IV-D-80) suggested the deletion of this source category due to its listing being based solely on its suspected emissions of phosphorus. The fertilizer industry emits phosphates not phosphorus. The EPA has erroneously interpreted its data base regarding such emissions.

Response: Fertilizer plants have also been identified as emitting hydrogen fluoride in addition to phosphates. In addition, a major source has been identified so this source category will remain on the list.

Final Disposition: This category will remain on the list; however, it has been renamed Phosphate Fertilizers Production.

14.14 Fluorides

Comment: None

Final Disposition: This category has been deleted due to its ambiguity and suspected overlap with other specific categories of fluorides.

14.15 Hydrochloric Acid

Comment: One commenter (IV-D-91) suggested that this source category be included as a subcategory under Semiconductor Manufacturing Operations. The commenter stated that the draft lists of categories and subcategories are too broad and inclusive to reflect different emission issues and would result in conflicting sets of requirements and standards within the semiconductor industry.

Response: By definition, the category of Hydrochloric Acid Production is distinctly different than semiconductor manufacturing. But even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Comment: One commenter (IV-D-45) requested the differentiation between hydrochloric acid produced in a stand-alone facility versus hydrochloric acid produced as a co-product for regulatory purposes of MACT standards.

Response: Once a source category is identified as emitting a HAP, it is on the list. Regulations will be set later for all potential HAP emissions. But even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Final Disposition: Because major sources have been documented, this category will remain on the list and has been renamed as Hydrochloric Acid Production.

14.16 Hydrogen Cyanide

Comment: None

Final Disposition: This category will remain on the list and has been renamed Hydrogen Cyanide Production.

14.17 Hydrogen Fluoride

Comment: One commenter (IV-D-23) suggested adding this source category to the draft list, subject to the *de minimis* emissions and risk criteria.

Response: This category was listed in the draft publication. However, risk is not a determining factor in establishing categories of major sources. Any listed categories of area sources consider risk as part of the finding of threat of adverse effects.

Final Disposition: Because major sources have been documented, this category will remain on the list and has been renamed Hydrogen Fluoride Production.

14.18 Isopropanolamines

Comment: One commenter (IV-D-70) requested that this category be moved from the Inorganic industry group to the Organic Chemical industry group. No additional information was given.

Response: This source category has been deleted since no evidence was found to document major sources in this category.

Final Disposition: Because no major sources were documented within this category, it has been deleted from the list.

14.19 Manganese Chemicals

Comment: None

Final Disposition: Because no major sources were documented within this category, it has been deleted from the list. However, Primary Magnesium refining contains a major source and has been listed within the Nonferrous Metals Processing industry group.

14.20 Phosphate Fertilizers

Comment: Three commenters (IV-D-12, IV-D-79, IV-D-80) suggested the deletion of this source category because there are no phosphorus emissions from this category, and because there has been no measurement or factual determination that such sources emit significant quantities of hydrogen fluoride.

Response: Confirmation of a major source of hydrogen fluoride has been made for this category.

Final Disposition: Because documentation provides evidence of major sources within this source category, it will remain on the list. However, the category will be renamed Phosphate Fertilizers Production.

14.21 Phosphoric Acid

Comment: Three commenter (IV-D-12, IV-D-79, IV-D-80) asked for the deletion of this source category because it does not emit elemental phosphorus. The second and third commenters (IV-D-79,

IV-D-80) stated that fertilizer industry emits phosphates not phosphorus. The EPA has erroneously interpreted its data base regarding such emissions.

Response: This category has been determined to emit hydrogen fluoride in addition to phosphates.

Comment: One commenter (IV-D-45) suggested that the distinction be made between phosphoric acid-thermal, and phosphoric acid-wet process. One is produced with high-purity phosphorus, the other is not.

Response: This category has been described to include different types of processes. But even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Final Disposition: This category will remain on the list but has been renamed Phosphoric Acid Manufacturing.

14.22 Phosphorus Pentasulfide Production

Comment: None

Final Disposition: Due to questions regarding the applicability of the data used in listing this source category, it has been deleted from the list.

14.23 Phosphorus Production

Comment: None

Final Disposition: Due to questions regarding the applicability of the data used in listing this source category, it has been deleted from the list.

14.24 Phosphorus Trichloride/Oxychloride Production

Comment: None

Final Disposition: Due to questions regarding the applicability of the data used in listing this source category, it has been deleted from the list.

14.25 Quaternary Ammonium Compounds Production

Comment: None

Final Disposition: Because major sources have been documented, this category will remain on the list.

14.26 Rocket Engine Fuels

Comments: One commenter (IV-D-32) requested the subcategorization of Rocket Engine Fuels into liquid and solid fuels. No additional information was given by the commenter.

Response: Each listed category has been defined to clarify its intended coverage; however, even with the list being clarified now, nothing precludes further clarification of categories by classes, types, and sizes for the purposes of MACT determinations.

Final Disposition: Rocket Engine Fuel Production has been deleted from the list, since no evidence was found to document major sources within this category.

14.27 Sodium Cyanide Production

Comment: None

Final Disposition: Because major sources have been documented, this category will remain on the list.

14.28 Uranium Hexafluoride Production

Comment: None

Final Disposition: Because major sources have been documented, this category will remain on the list.

15.0 PRODUCTION OF SYNTHETIC ORGANIC CHEMICALS

General Comments

Comment: One commenter (IV-D-93) suggested that the term "production" be defined and addressed either in the final list of categories or in the maximum control achievable control technology (MACT) standard because it is a key issue in determining which units will eventually be regulated. The term "production" should refer to the production process that is producing that chemical as a final product. Due to the complex nature of the synthetic organic chemical industry (SOCMI), complex situations occur with mixture streams containing a wide range of chemical concentrations, making a consistent interpretation difficult, if not impossible.

Response: Even if the term "production" is clarified now, nothing precludes further clarifications during standards development, since the Clean Air Act (CAA) allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of determining MACT. The coverage of the specific regulations will describe the applicability of the standards.

Comment: One commenter (IV-D-18) suggested that to reflect the regulatory flexibility of categories and subcategories required under the CAA there is a need to distinguish between types of operations (batch versus continuous) and between size of operations (small plants versus large plants).

Response: Even with the list being clarified now, nothing precludes further clarifications during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of determining MACT.

Comment: One commenter (IV-D-18) recommended that EPA group different batch processes together in the Production of Synthetic Organic Chemicals industry group. This approach is consistent with that of the product/process grouping currently being pursued by the Agency in the development of the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP), also referred to as the HON rule, which will be proposed later this year.

Response: The purpose of this list is to identify categories for which standards will be established, but not to provide the final determination upon which standards will be based. In situations where multiple source categories or subcategories can be regulated under a single rulemaking, this can be considered during the process of developing the MACT standard. On the other hand, it may be determined during regulatory development that the MACT control level is different for different sizes, types, or classes or sources. This process is consistent with provisions in the CAA which allow for distinctions for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of determining MACT.

Comment: One commenter (IV-D-23) asked that the use of propylene oxide be added to the draft list as a source category, subject to the *de minimis* emissions and risk criteria. No additional information was given.

Response: Because no documentation of major sources was provided, this source category has not been added to the list.

Comment: One commenter (IV-D-45) suggested a subcategorization of Linear Alkylbenzene Production. This product is made by two different processes--one using an aluminum catalyst, the other a hydrogen fluoride catalyst. The commenter believed that because

the two processes emit different HAP's EPA should set up two categories--one based upon production via the aluminum catalyst route, the other via the hydrogen fluoride catalyst route.

Response: The purpose of this list is to identify categories for which standards will be established. Even with these processes being identified now, nothing precludes further clarifications during standards development, since the CAA allows distinction for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of determining MACT.

Comment: One commenter (IV-D-59) assumed that as long as a product is not produced for sale nor used as a primary catalyst in the production process then presence in a facility would not trigger the potential application of separate Section 112(d) MACT standards.

Response: Major sources of HAP's within the listed categories will be regulated. The term product is not necessarily intended to connote or be limited to consumer products or marketable products. Furthermore, regulation of HAP's is not limited to products only. For example, some chemical processes are listed not because their products are HAP's, but because a HAP is used as a reactant in the chemical production process and is therefore emitted from the process. Applicability of each standard will be provided when the MACT standards are proposed.

Comment: Two commenters (IV-D-67, IV-D-128) requested that EPA consider each of the processes under the SOCMI list as a separate category, with the opportunity to make appropriate subcategory distinctions where needed. The Production of Synthetic Organic Chemicals list is so extensive that allowing time for appropriate standard consideration, differentiation by process, and adequate MACT implementation is necessary and critical.

Response: Though the list of chemicals under this industry group is very extensive, there are many similarities among the chemical production processes and emission characteristics which will allow them to be considered under one rulemaking effort. Considerations for classes, types, and sizes within a category or subcategory where necessary to meet the purposes of determining MACT will be made during development of the standards and a rationale will be presented at that time.

Comment: One commenter (IV-D-70) asked that Isopropanolamines be moved from the Inorganic to Organic Chemical industry group. No additional information was given.

Response: Though isopropanolamines are organic chemicals, there is no documentation of major source HAP's at this time; therefore, this source category is not currently included on the list. A category may be added to the list at a later date if further information becomes available.

Comment: One commenter (IV-D-76) stated that the inclusion of a broad mixture of categories based on different premises will complicate and confuse the process of developing MACT standards for each category. One category has the potential of being regulated under three of four different industry groups. For example, a mineral processing facility could be in a number of categories including flotation and solvent extraction as well as the chemical specific categories. Therefore, EPA should define the categories more narrowly to facilitate the subsequent MACT determinations.

Response: Even with the list being clarified now, nothing precludes further clarifications of the applicability of MACT standards during standards development. In developing MACT

standards, EPA will consider the potential for overlap and seek to minimize the potential for conflicting regulations to apply to the same source.

Comments: One commenter (IV-D-85) stated that counting the HON as hundreds of categories for Section 112(e) scheduling purposes would be inequitable. Therefore, EPA should list all SOCMI as one category.

Response: The EPA is no longer listing several hundred categories within this industry group. Rather SOCMI will be listed as the only category. A description of this source category has been provided in Appendix A of this document.

Comment: Two commenters (IV-D-107, IV-D-109) urged EPA to consider possible overlaps in the applicability of categories to prevent dual applicability and staggered compliance dates for the same process unit. Some equipment units manufacture different products from different industry groupings. Organic as well as inorganic chemicals may be produced as finished products in the same unit. For example, a chlorinated organic process that produces carbon tetrachloride (Synthetic Organic Chemical Manufacturing industry group) often produces hydrochloric acid (Inorganic Chemicals industry group) as a by-product. Processes such as these should not be subject to two different sets of control standards since these units are often highly integrated and often use common control devices. In addition to the possible overlap of the eventual regulations for the control standards, separate category standards should be avoided because the phase-in of the standards over the next 10 years could establish different schedules for compliance. Different compliance schedules for the same process unit could very easily result in an ineffective use of resources by requiring new revisions to a recently installed control device.

Response: The purpose of this list is to identify categories for which standards will be established, not to provide the final determination for the applicability of the standards. Additional provisions for effective MACT standards will be made during regulation development.

Comment: One commenter (IV-D-121) noted that Cyanuric Chloride Production appears under two industry groups--Production of Synthetic Organic Chemicals and Production and Use of Inorganic Chemicals. One should be deleted.

Response: The draft publication contained duplicative listings for cyanuric chloride. This source category is now listed only within the Production of Inorganic Chemicals industry group.

Comment: One commenter (IV-D-128) suggested that Dodecylbenzene Production is probably included in the Linear Alkylbenzene Production category, and is unaware of a manufacturer producing commercial quantities of pure dodecylbenzene. In order to avoid future confusion, the commenter requested deletion of dodecylbenzene as a category.

Response: Neither Dodecylbenzene Production nor Linear Alkylbenzene Production is listed as a distinct source category. Synthetic Organic Chemical Manufacturing is the only category currently listed in this industry group. Within this singular source category, any production process, whether it produces dodecylbenzene or other linear alkylbenzenes, is anticipated to be covered by the HON. For other source categories, those that are distinctly listed, are excluded from more general source categories.

Comment: One commenter (IV-D-128) asked EPA to delete specific phthalate plasticizer production categories from the Synthetic Organic Chemical Manufacturing industry group and allow all

plasticizer production to be regulated under the generic Miscellaneous industry group category. Phthalic anhydride emissions will be similar for most phthalate plasticizer production facilities.

Response: Synthetic Organic Chemical Manufacturing is the only source category currently listed in the Production of Organic Chemicals industry group. The category of Phthalate Plasticizers Production has been described to include any potential manufacturers of such products. Source categories listed distinctly are not covered under other source categories.

Final Disposition: The numerous subcategories previously listed within this industry group are no longer listed as distinct categories. The current listing is for the source category SOCMI.

16.0 RADIONUCLIDE EMITTERS

General Comments

Comment: Two commenters (IV-D-85, IV-D-114) suggested that additional categories are needed to address industrial processes that have different intricacies to those listed, such as the Department of Energy (DOE) facilities which have the potential to emit radionuclides. Chemical or waste treatment processes employed at DOE facilities are similar to commercial processes; however, their emissions have the potential to be radioactive. This may result in different emission control and monitoring equipment, as well as additional safety concerns. Recognizing these types of activities and placing them into a separate category or subcategories is necessary to avoid potential inconsistencies and problems involved in promulgating regulations that were not necessarily designed to handle the special problems associated with radionuclides.

The first commenter (IV-D-85) also questioned why underground and surface uranium mines, uranium mills, mill tailings, facilities licensed by the Nuclear Regulatory Commission and other Federal facilities, and utility boilers are not included on the proposed list.

Response: At this time, no categories have been listed for radionuclide emissions. However, once EPA has determined the criteria for differentiating between area and major sources, major emitters of radionuclides will be listed and will be clearly defined based on comments received.

Comment: One commenter (IV-D-85) stated that with the Section 112 Subsection (q)(2) exceptions, radionuclide-emitting source categories (both those for which EPA has already issued standards and other sources) must be included on the 112(c) list. The

reasoning is that Section 112(c)(4) states that the Administrator may list categories of sources that have previously been regulated under §112, and the list does reflect many such source categories (i.e., vinyl chloride production, asbestos milling, and other existing National Emission Standards for Hazardous Air Pollutants (NESHAP). Section 112(q)(2) exempts only three types of radionuclide sources from the coverage of §112 as amended in 1990: elemental phosphorus plants, grate calcination elemental phosphorus plants, and phosphogypsum stacks. (These stay under §112 as previously in effect.)

Response: Radionuclides cannot be included on the list until EPA can define the different criteria for differentiating between area and major sources.

Final Disposition: Categories of major and area sources of radionuclides emissions are not included on the list at this time. The EPA has not defined the different criteria for differentiating between area and major sources for radionuclides emitters that are different than the 10 or 25 ton per year thresholds established for other hazardous air pollutants (HAP's).

17.0 MISCELLANEOUS

General Comments

Comment: Two commenters (IV-D-23, IV-D-48) had deletion recommendations to suggest to EPA. The first commenter recommended that the following source categories be deleted from the draft list when hazardous air pollutant (HAP) emissions do not exceed defined *de minimis* levels and public health risks do not exceed prescribed levels: Boat Building; Ion Exchange Resins Production; Asphalt Roofing Manufacturing; Petroleum Dry Cleaning; Halogenated Solvent Dry Cleaning; Paint Removers Use; Paints, Coatings, and Adhesives Use; Photographic Film Processing; Vapor Degreasing; Semiconductors Manufacturing; and Comfort Cooling Towers (with no detectable levels of hexavalent chrome in the cooling tower water). The commenter made this suggestion based on experience that there are many small sources in these categories or sources that do not typically present significant public health risks. The commenter's main concern is that these small sources may be subject to the Federal operating permit program, which would result in significant and unnecessary cost administrative burdens on these sources, on state and local permitting agencies, and on EPA. The second commenter (IV-D-48) suggested deletion of Comfort Cooling Towers and Electric Wiring because of the possibility that insufficient data exist to warrant listing.

Response: Ion Exchange Resins Production, Photographic Film Processing, and Electric Wiring have been deleted from the list. Petroleum Dry Cleaning and Semiconductor Manufacturing will remain on the list because major sources exist in both source categories. Boat Building will also remain on the list but will be renamed Boat Manufacturing. Asphalt Roofing Manufacturing will remain on the list but has been moved to the Mineral Products Processing industry group. Halogenated Solvent Dry

Cleaning has been disaggregated into Dry Cleaning (Chlorinated Solvents) - Commercial, and Dry Cleaning (Chlorinated Solvents) - Industrial. Paint Removers Use has been aggregated into a Paint Stripper Use category. Paints, Coatings, and Adhesive Use will remain on the list but has been moved into the Surface Coating industry group. Vapor Degreasing has been aggregated into the Degreasing/Cleaning Operations source category. Finally, Comfort Cooling Towers is considered an area source under the Industrial Process Cooling Towers area source category. For categories remaining on the list, documentation of major sources exists. However, risk is not a determining factor in establishing categories of major sources. Any listed categories of area sources consider risk as part of the finding of threat of adverse effects.

Comment: Five commenters (IV-G-07, IV-G-21, IV-D-29, IV-D-21, IV-D-70) suggested additional categories for the Miscellaneous industry group. Commenter IV-G-07 suggested the addition of Activated Carbon Regeneration and cites toluene, benzene, polychlorinated biphenyls (PCB's), and dioxins as pollutants. The commenter supported this suggestion with emission rates for criteria pollutants and limited emissions rate per toxics and with specific plant information. The second commenter (IV-G-21) requested that Waferboard/Oriented Strand Board be included under the industry group Miscellaneous. Reasons given by the commenter were that most factories are major sources and that waferboard manufacturing is not similar to the process of plywood/ particleboard manufacturing, as once thought. The commenter provided a study supporting this source inclusion. The third commenter (IV-D-29) suggested that EPA add an additional category--Cellulose Food Casings Manufacturing--with carbon disulfide and hydrogen sulfide as pollutants. The commenter felt this should be regulated as a separate category or subcategory and provided technical information relative to the manufacturing of cellulose casings and emissions control of carbon disulfide.

The fourth commenter (IV-D-21) recommended EPA add Hardboard/ Fiberboard Manufacturing to the Miscellaneous group. The reason given for its inclusion on the list is the manufacturing of these products involves a different process than that of particleboard manufacturing, yet due to the common use of formaldehyde-laden resins, HAP emissions are expected. The last commenter (IV-D-70) suggested the addition of the category Printing Ink Manufacture. The commenter thought the category was worthy of independence because of the relatively large number of related facilities and the great diversity of chemicals employed in their manufacturing. No documentation was supplied in support of this suggestion.

Response: The EPA has no information indicating that Activated Carbon Regeneration contains a major source; therefore it is not included on the list at this time. Waferboard/Oriented Strand Board and Hardboard/Fiberboard Manufacturing will both be regulated under the Plywood/Particle Board Manufacturing source category. The Cellulose Food Casings Manufacturing source category has been included under the Food and Agriculture Processes industry group. Printing Ink Manufacture is addressed in the Surface Coating industry group.

17.1 Asphalt Roofing Manufacture

Comment: None

Final Disposition: Asphalt Roofing Manufacturing will remain on the list but has been moved to the Mineral Products Processing industry group.

17.2 Pulp and Paper Production

Comment: One commenter (IV-D-59) suggested subcategorization or replacement of the Pulp and Paper Production category in recognition of the diversity of the pulping processes by the

following categories: (1) Kraft Pulp Mills; (2) Soda Pulp Mills; (3) Sulfite Pulp Mills; (4) Semi-Chemical Pulp Mills; (5) Mechanical Pulp Mills; (6) Non-Wood Pulp Mills; (7) Secondary Fiber Mills; and (8) Nonintegrated Paper and Paperboard Mills. The first five categories are distinguished by differences in the methods and chemicals used to manufacture the pulp. The commenter based this suggestion on expert knowledge of the pulp and paper production industry.

Response: This source category will remain on the list as Pulp and Paper Production. It will be described to enumerate all processes that are major sources of HAP's.

Final Disposition: This source category has been found to contain a major source and will remain on the list.

17.3 Plywood/Particle Board

Comment: Two commenters (IV-D-21, IV-G-06) urged EPA to clarify and expand the category to include strandboard and waferboard Manufacturing under the category as subcategories. The second commenter (IV-G-06) noted the category should include the manufacture of any wood product that utilizes wood and some type of binder. Also, the commenter (IV-G-06) is concerned with the manufacture of chemically impregnated wood products, such as railroad ties and telephone poles. The first commenter included no supporting documentation, just professional judgement for this claim. The second commenter (IV-G-06) provided documentation consisting of a preliminary analysis for a waferboard plant permit application.

Response: This source category has been described to include many manufactured wood products, including strandboard and waferboard. A separate category for treating wood has been listed. The process within Wood Treatment are notably different than those within this source category.

Comment: Three commenters (IV-D-26, IV-D-25, IV-D-59) said this category should be subcategorized or replaced with the different wood panel industry processes as characterized by the U.S. Commerce Department. They suggest the wood panel industry should be classified by the following major process categories: (1) Hardboard/Cellulose Fiberboard; (2) Hardwood Plywood; (3) Medium- Density Fiberboard; (4) Oriented Strandboard and Waferboard; (5) Particleboard; and (6) Softwood Plywood. The first commenter (IV-D-26) agreed with these subcategories, but separated the Hardboard and Cellulose Fiberboard subcategories, thus making seven categories. This commenter felt subcategorization is necessary because of significant differences in additives, coatings, and processing methods within the wood panel industry. Also, the commenter feels promulgation of a single maximum achievable control technology (MACT) regulation for the entire wood panel industry would be inequitable and technically wrong. The second commenter (IV-D-25) also gives the differences in processes as the reason for subcategorization, whereas they can differ in size, age, and degree of automation. This commenter also sent EPA the U.S. Department of Commerce Lumber and Wood Products grouping list for support of their process categories. The third commenter (IV-D-59) endorsed the proposal of the second commenter.

Response: The source category has been described to enumerate many potential processes within the source category. This description recognizes the variety of processes that exists and identifies them individually.

Final Disposition: This source category has been found to contain a major source and will remain on the list.

17.4 Sawmill Operations

Comment: None

Final Disposition: This source category has been deleted from the list because it does not contain a major source.

17.5 Tire Production

Comment: One commenter (IV-D-33) noted that this category is too broad because the manufacturing of different types of tires results in different HAP's being emitted. The commenter said that Tire Production needs to be expanded to include the production of tires for (1) passenger cars and light-duty truck cars; (2) heavy-duty truck tires; (3) off-the-road truck tires; (4) aircraft tires; and (5) miscellaneous other pneumatic tires. Thus, they believe tire production should be subcategorized based on their expertise of this category.

Response: This source category will be described to differentiate between production of types of tires that may emit different HAP's.

Final Disposition: This source category has been found to contain a major source and will remain on the list of categories of major sources. Also, it is not listed as a category of area sources.

17.6 Dry Cleaning (Petroleum Solvents)

Comment: None

Final Disposition: This source category has been found to contain a major source and, therefore, it will remain on the list.

17.7 Dry Cleaning (Chlorinated Solvents) Coin-Operated - Plant

Comment: None

Final Disposition: This source category does not contain a major source and, therefore, has been deleted from the list of categories of major sources. Also, it is not listed as a category of area sources.

17.8 Dry Cleaning (Chlorinated Solvents) Coin-Operated - Self

Comment: None

Final Disposition: This source category does not contain a major source and therefore, has been deleted from the list.

17.9 Dry Cleaning (Chlorinated Solvents) - Commercial

Comment: None

Final Disposition: This source category contains a major source and will remain on the list, but has been renamed Commercial Dry Cleaning (Perchloroethylene) - Transfer Machines. Within commercial dry cleaning operations, only some types of transfer machines have the potential to emit in major source quatities.

17.10 Dry Cleaning (Chlorinated Solvents) - Industrial

Comment: None

Final Disposition: This source category contains major sources and will remain on the list, but has been divided into two new source categories: Industrial Dry Cleaning (Perchloroethylene) - Transfer Machines and Industrial Dry Cleaning (Perchloroethylene) - Dry-to-Dry Machines.

17.11 Cold Degreasing

Comment: Four commenters (IV-G-04, IV-D-114, IV-D-68, IV-D-104) requested that this source category be clarified and subcategorized because of assumptions as to what the category includes (i.e., should cold water/soap solution be included, and which industries do the processes include?). One commenter (IV-D-114) suggested dividing the Cold Degreasing category based on size, capacity, and throughput of the operations. Thus, smaller degreasers would fall under regulation of area sources. Another commenter (IV-D-68) recommended subcategorizing because the process cuts across many industrial sectors and there are important process-related distinctions that would make the setting of emission standards hard during the rulemaking process. For example, the scale of the operation may impact feasibility of control technologies that are considered by EPA, which was also suggested by another commenter (IV-D-114). Commenter (IV-D-68) suggested this would apply to the categories Conveyorized Degreasing, Open-Top Vapor Degreasing, and Electric Wiring. The commenter (IV-D-104) suggested the same approach should be used for the Industrial Cooling Towers category.

Response: This source category has been combined with other degreasing and cleaning operations to form the Halogenated Solvent Cleaners source category. It has been described to include all processes that are a major source of HAP's. Sources that are not major will not be regulated without making a finding

of threat of adverse effects from the area sources. Size, capacity, and throughput of the operations that will be regulated will be decided during the regulatory process.

Comment: One commenter (IV-D-66) noted that the Cold Degreasing source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been combined with other degreasing and cleaning operations to form the Halogenated Solvent Cleaners source category. This source category has been described to make clear which processes and operations are included in the source category.

Final Disposition: This source category will remain on the list, but has been combined with other degreasing and cleaning operations to form the Halogenated Solvent Cleaners source category.

17.12 Fabric Dyeing

Comment: None

Final Disposition: This category has been removed from the list as a distinct source category and is now combined with the Printing, Coating, and Dyeing of Fabrics source category.

17.13 Solvent Extraction Processes

Comment: Three commenters (IV-D-76, IV-D-83, IV-D-43) requested that EPA clarify and define this category based on how the MACT standards from overlapping categories relate to each other. Two of the commenters (IV-D-83, IV-D-43) want this clarification because of the relationship of this process to the pharmaceutical industry. The first commenter (IV-D-76) requested clarification

so as not to include solvent extraction at metallurgical operations. This commenter references EPA's background documentation to support that the category is limited to solvent extraction processes at inorganic chemical facilities and not at metallurgical operations.

Response: The EPA agreed that this source category was very overlapping and has consequently deleted it from the list.

Comment: Two commenters (IV-D-62, IV-D-76) stated that the EPA may be counting fugitive emissions toward the major source thresholds and that is why Solvent Extraction Processes appears on the list. They argue that such an approach appears to be inconsistent with the proposed operating permit rulemaking and that fugitive emissions should only be counted toward major source thresholds at rulemaking.

Response: After reviewing the available data for this category, evidence of major sources was not found; however, the data did indicate that this category was very overlapping with other source categories.

Comment: Two commenters (IV-D-62, IV-D-66) requested that, due to lack of available data, the Solvent Extraction Processes source category be deleted from the list.

Response: Upon further review of the data that the EPA used for listing this category, it was determined to be very overlapping with other source categories.

Final Disposition: Because the EPA determined that Solvent Extraction Processes overlapped with other source categories, it was deleted from the list.

17.14 Acrylic Sheeting Production

Comment: None

Final Disposition: This source category has been deleted from the list due to lack of documentation of a major source.

17.15 Aerosols Production

Comment: One commenter (IV-D-62) requested that, due to lack of available data, the Aerosols Production source category be deleted from the list.

Response: The EPA had available data which, upon further review, indicated that this category should have been entitled Aerosol Can-Filling Facilities, and which does show evidence of major sources.

Final Disposition: This category remains on the list, but it has been renamed Aerosol Can-Filling Facilities.

17.16 Anesthetics

Comment: None

Final Disposition: This source category has been deleted from the list because no evidence of major sources was documented.

17.17 Benzyltrimethylammoniumchloride Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

17.18 Boat Building

Comment: None

Final Disposition: This source category will remain on the list; however, the name has been changed to Boat Manufacturing and has been moved to the Polymers and Resins Production industry group.

17.19 Butadiene Cylinders, Lab testing

Comment: None

Final Disposition: This source category has been deleted from the list because it was found to overlap with other source categories.

17.20 Butadiene Dimers Production

Comment: None

Final Disposition: This source category will remain on the list, because evidence of major sources has been documented.

17.21 Chelating Agents Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

17.22 Chlorinated Paraffins Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

17.23 Chloroneb Production

Comment: None

Final Disposition: This source category will remain on the list, but has been transferred to the Agricultural Chemical Production industry group.

17.24 Chromium Electroplating

Comment: One commenter (IV-D-70) suggested differentiating the Chromium Electroplating and Other Electroplating categories from printing and industrial electroplating. They recommended a subcategory of Graphic Arts Electroplating in the Printing/Publishing category based on their expertise in the field.

Response: This source category has been divided into three distinct source categories: Hard Chromium Electroplating, Chromic Acid Anodizing, and Decorative Chromium Electroplating. These source categories are listed both as major sources and as area sources, due to a potential threat of adverse health effects to human health or the environment.

Final Disposition: This source category has been divided into three distinct source categories: Hard Chromium Electroplating, Chromic Acid Anodizing, and Decorative Chromium Electroplating. These three source categories are listed as categories of major and area sources.

17.25 Comfort Cooling Towers

Comment: One commenter (IV-D-83) noted that comfort cooling towers should be considered as area sources. The commenter requested that EPA thoroughly study them before adding them to the list. The commenter provided no documentation to support this claim.

Response: No major sources have been documented for this source category; therefore it has been deleted from the list.

Final Disposition: This source category has been deleted.

17.26 Commercial Sterilization Facilities

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented.

17.27 Conveyorized Degreasing

Comment: None

Final Disposition: This source category has been combined with other degreasing and cleaning operations to form the Halogenated Solvent Cleaners source category.

17.28 Deodorant Production

Comment: None

Final Disposition: This source category has been deleted from the list since no evidence was found to document major sources within this category.

17.29 Disinfectants Production

Comment: One commenter (IV-D-66) noted that the Disinfectants Production source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source has been deleted from the list since no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list.

17.30 Dodecanedioic Acid Production

Comment: None

Final Disposition: This source category will remain on the list because it is co-located with a major source.

17.31 Dyes and Pigments Production

Comment: Two commenters (IV-D-24, IV-D-87) suggested separating or subcategorizing this industry group into two distinct groups or categories. The first commenter (IV-D-24) suggested the categories Dyes Production and Pigments Productions because of the confusion that sometimes exists between the two industries. This confusion results because the two industries involve different manufacturing processes, products, chemistry, raw materials, markets, expertise, personnel, and concerns, according to the commenter. The commenter cites submittal of official definitions to government agencies in 1979 as supporting documentation. The second commenter (IV-D-87) recommended the categories be Dyes and Pigments. This commenter thought that after a distinction is made between the two industries it is

questionable whether Dyes Production is a "major source" as defined by Section 112 of the CAA Amendments. Both commenters made suggestions based on knowledge of these industries.

Response: This source category has been deleted from the list since no evidence of major sources has been documented.

Final Disposition: Dyes and Pigments have been deleted from the list.

17.32 Electric Wiring

Comment: Four commenters (IV-G-04, IV-D-114, IV-D-68, IV-D-104) requested that this source category be clarified and subcategorized because of assumptions as to what the category includes.

Response: This source category has been deleted from the list since no evidence of major sources has been documented for this category.

Comment: One commenter (IV-D-108) requested clarification on what the Electric Wiring category was intended to cover. It is not clear to the commenter what pollutants would be emitted either.

Response: This source category has been deleted from the list. since no evidence has been found to document major sources in this category.

Final Disposition: This source category has been deleted from the list.

17.33 Electronics Manufacture

Comment: One commenter (IV-D-68) stated that this category is too broad to regulate under one heading because it and Semiconductor Manufacturing both encompass a large number of widely variant processes. The commenter thought EPA would be hard-pressed to develop one set of emission standards for all processes in a single rulemaking effort. The commenter recommends that to avoid this problem EPA should (1) adopt more limited categories and subcategories applicable to the electronics industry; (2) continue to utilize broad categories but make clear the emissions limitations; or (3) delete electronics-related categories or subcategories until meaningful and workable categories are developed. For documentation, the commenter cites the Federal Register notice in which the Preamble was printed for the listing of categories pertaining to promulgation at the same time for all processes that fall within a source category.

Response: No evidence of major sources within this category was available.

Final Disposition: Electronics manufacture has been deleted from the list.

17.34 Ethylidene Norbornene Production

Comment: None

Final Disposition: This source category will remain on the list.

17.35 Explosives Production

Comment: None

Final Disposition: This source category will remain on the list.

17.36 Flame Retardant Production

Comment: One commenter (IV-D-66) noted that the Flame Retardants Production source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been deleted from the list since no evidence was found to document major sources within this category.

Comment: One commenter (IV-D-66) suggested an overlap exists between the categories, Flame Retardants Production, Lube Oil Additives, and Phosphate Esters, which at one of the commenter's facilities represents one production process. They recommend that EPA differentiate among the different types of flame retardants, lube oil additives, and phosphate esters by the solvolysis process from the listed categories, the alkoxide process, and any others for which the commenter has no knowledge of. Furthermore, the commenter noted that the emissions from these processes are well below the thresholds that define a major source.

Response: This source category has been deleted from the list since no evidence was found to document a major sources within this category.

Final Disposition: This source category has been deleted from the list.

17.37 Hospital Sterilizers

Comment: None

Final Disposition: This source category has been deleted from the list.

17.38 Hydrazine Production

Comment: None

Final Disposition: This source category will remain on the list.

17.39 Industrial Cooling Towers

Comment: Two commenters (IV-D-66, IV-D-83) noted that the Industrial Cooling Tower source category is ill-defined, has insufficient supporting data, and is not a major or area source.

The second commenter (IV-D-83) noted that industrial cooling tower should be considered as area sources. The commenter requested that EPA thoroughly study them before adding this source category to the list.

Response: Industrial Cooling Towers will remain on the list as a category of major sources because they are co-located at major sources, but it has been renamed Industrial Process Cooling Towers.

Comment: Three commenters (IV-D-114, IV-D-116, IV-D-75) requested that EPA designate or subdivide the category to include those industrial cooling towers where chromium, nickel, or phosphorus is emitted. The first commenter (IV-D-114) suggested dividing the category into treatment options employed or deleting the category and including the Targeted Treatment Chemicals as a production/use category. They made this suggestion because they believe HAP emissions are affected by specific cooling water treatment chemicals used. The second commenter (IV-D-116) noted that there is no basis for including all cooling towers as an air

toxics source category. The commenter's use and knowledge of cooling towers gives him reason to question the threat of adverse effect on human health or the environment from all industrial cooling towers. The commenter (IV-D-116) thought only those that emit chromium should be regulated. The third commenter (IV-D-75) made the same suggestion about excluding the industrial cooling towers that do not use nickel, chromium compounds, and are not major sources of phosphorus emissions. Also, they suggested that facilities at mineral processing operations that may fall within various other categories proposed for listing), (i.e., cooling towers) be excluded because they do not emit the pollutant of concern or otherwise fail to pose a significant threat to health or the environment.

Response: Industrial Cooling Towers will remain on the list as a category of major sources, because they are co-located at major sources. They will be regulated for any HAP's that they emit; adding or deleting pollutants at this time will have no impact on the listing action.

Final Disposition: Industrial Cooling Towers will be listed as a category of major sources. The name has been changed to Industrial Process Cooling Towers.

17.40 Industrial Process Aids - Enhanced Oil Recovery

Comment: None

Final Disposition: This source category has been deleted from the list because there was no evidence that is contained a major source.

17.41 Ion Exchange Resins production

Comment: None

Final Disposition: Due to lack of information indicating a major source, this source category has been deleted from the list.

17.42 Jet Fuel Deicer Use

Comment: None

Final Disposition: This source category has been deleted from the list, since no evidence was found to document major sources within this category.

17.43 Leather Tanning

Comment: None

Final Disposition: This source category has been deleted from the list, since no evidence was found to document major sources within this category.

17.44 Lube Oil additives

Comment: One commenter (IV-D-66) noted that the Lube Oil Additives source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been deleted from the list, since no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list, since no evidence was found to document major sources within this category.

17.45 Lube Oil Dewaxing

Comment: None

Final Disposition: This source category has been deleted from the list; however, the processes and operations it encompasses will be included in the Petroleum Refineries source category under the Oil and Natural Gas Production and Refining industry group.

17.46 Moth Repellent

Comment: None

Final Disposition: This source category has been deleted from the list since no evidence was found to document major sources within this category.

17.47 Oil/Gas Acidizing

Comment: The commenter (IV-D-74) noted that there is insufficient data to list this source category and the emissions from the category fall into the requirement of regulating as an area source. The commenter makes this appeal to EPA based on knowledge of the subject.

Response: This source category has been deleted from the list since no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list since no evidence was found to document major sources within this category.

17.48 Open-Top Vapor Degreasing

Comment: One commenter (IV-D-66) noted that the Open-Top Vapor Degreasing source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been combined with other degreasing and cleaning operations to form the Halogenated Solvent Cleaners source category. This source category has been documented as containing a major source and has been described to make clear what processes and operations are included in the source category.

Comment: One commenter (IV-G-04) requested the name of the category be changed to Vapor Degreasing and that EPA clarify what sources are involved with the category.

Response: This source category has been renamed Halogenated Solvent Cleaners and has been clearly described to indicate what processes and operations will be regulated.

Final Disposition: This source category has been renamed Halogenated Solvent Cleaners.

17.49 Other Electroplating

Comment: One commenter (IV-D-66) noted that the Other Electroplating source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: Electroplating operations are now covered only by the three source categories: Hard Chromium Electroplating, Chromic Acid Anodizing, and Decorative Chromium Electroplating. These

have been listed as categories of major and area sources and have been described according to what types of operations are performed.

Final Disposition: This category has been deleted; however, chromium electroplating operations and processes will be covered by the three source categories: Hard Chromium Electroplating, Chromic Acid Anodizing, and Decorative Chromium Electroplating.

17.50 Paint Removers Use

Comment: One commenter (IV-D-66) noted that the Paint Removers Use source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been found to contain a major source and will remain on the list. It has been renamed Paint Stripper Users.

Comment: One commenter (IV-D-83) noted that paint remover use should be considered as an area source. The commenter requested that EPA thoroughly study this source category before adding it to the list.

Response: Because evidence of major sources has been documented, Paint Strippers Users has been listed as a category of major sources. Qualitative information is not adequate to list this category as a category of area sources. Therefore, until quantitative data are obtained that would warrant listing it as a category of area sources, Paint Stripper Users cannot be listed as a category of area sources.

Final Disposition: This source category will remain on the list of categories of major sources. It has been renamed Paint Stripper Users.

17.51 Paints, Coatings, and Adhesives: Manufacturing and Use

Comment: One commenter (IV-G-04) stated that the mixing of these concepts is inappropriate and overlapping with operations that should be considered as surface coating. The commenter believed adhesives should be regulated as a separate category since they are rarely used as a surface coating. Also, the commenter suggested that EPA separate manufacture and use to help determine applicability for industry, thus leaving EPA with two separate categories.

Response: This source category will remain on the list but will only address paints, coatings, and adhesives manufacturing. It has been moved to the Surface Coating processing industry group.

Final Disposition: Paints, Coatings, and Adhesives Manufacture will remain on the list but it has been moved to the Surface Coating Processes industry group, and renamed Manufacture of Paints, Coatings, and Adhesives.

17.52 Phosphate Esters Production

Comment: The commenter (IV-D-66) noted that the Phosphate Esters Production source category is ill-defined, has insufficient supporting data, and is not a major or area source.

Response: This source category has been deleted from the list because it overlaps with other source categories in the Agricultural Chemicals Production industry group.

Final Disposition: This source category has been deleted from the list.

17.53 Photographic Chemical Production

Comment: None

Final Disposition: This source category has been documented to contain a major source and will remain on the list.

17.54 Photographic Film Processing

Comment: Three commenters (IV-D-40, IV-D-70, IV-D-99) urged EPA to delete this category because the information in the background document is incorrect. The commenter suggested this document discusses methylene chloride emissions of 8100 Mg when referring to another process and not film processing. Two of the commenters (IV-D-40, IV-D-99) concur that these emissions are from the film base. They requested that the category Photographic Film Base Manufacture replace the source category listed, with methylene chloride as a pollutant. The commenters based their comments on knowledge of the industry and commenter supporting documentation supplied by IV-D-40 on the processes in question.

Response: This source category has been deleted from the list since no evidence was found to document major sources within this category.

Final Disposition: This source category has been deleted from the list.

17.55 Phthalate Plasticizers Production

Comment: None

Final Disposition: This source category contains a major source and will remain on the list.

17.56 Polymerization Inhibitors Use

Comment: None

Final Disposition: Because there was no evidence of a major source within this category, it has been deleted from the list.

17.57 Resins Catalyst Production

Comment: None

Final Disposition: This source category has been deleted from the list because it overlaps with production processes in the Synthetic Organic Chemical industry group.

17.58 Rubber Antioxidants Production

Comment: None

Final Disposition: This source category has been deleted as a specific source category and combined in the Rubber Chemicals Manufacturing source category.

17.59 Rubber Cement Manufacturing

Comment: None

Final Disposition: This source category has been deleted as a specific source category and combined in the Rubber Chemicals Manufacturing source category.

17.60 Rubber Chemicals Production

Comment: None

Final Disposition: This source category will remain on the list, but has been renamed Rubber Chemicals Manufacturing.

17.61 Semiconductor Manufacturing

Comment: One commenter (IV-D-91) suggested that the category is too broad and overlapping with other source categories. The commenter urged EPA to subcategorize the semiconductor industry because requirements as standards for each of these subcategories would potentially be regulated differently. The commenter based this suggestion on engineering knowledge of the semiconductor industry.

Response: This source category will remain on the list but has been described to indicate which processes and operations occur within this source category. It is difficult to be more specific without more details on how the commenter believes the category should be disaggregated. However, broad categories, like semiconductor manufacturing, can always be disaggregated later.

Final Disposition: This source category will remain on the list.

17.62 Surface Active Agents Production

Comment: None

Final Disposition: Due to lack of information indicating a major source, this source category has been deleted.

17.63 Symmetrical Tetrachloropyridine Process

Comment: None

Final Disposition: This source category will remain on the list because evidence of a major source is documented.

17.64 Synthetic Tanning Agents Production

Comment: None

Final Disposition: Due to lack of information indicating a major source, this source category has been deleted.

17.65 Vinylidene Chloride Copolymer Fabrication

Comment: None

Final Disposition: Due to lack of information indicating a major source, this source category has been deleted.

17.66 Wood Preservation - Direct Use

Comment: None

Final Disposition: This source category will remain on the list but has been renamed Wood Treatment.

17.67 Polyether Polyols Production

Comment: None

Final Disposition: This source category will remain on the list because evidence of major sources has been documented. However, additional information obtained by EPA reveals that this category should not be a part of the Polymers and Resins Industry Group. Therefore, Polyether Polyols has been moved to the Miscellaneous Industry Group.

17.68 Chromic Acid Anodizing

Comment: None

Final Disposition: For final disposition of this source category see comment 17.24.

17.69 Decorative Chromium Electroplating

Comment: None

Final Disposition: For final disposition of this source category see comment 17.24.

17.70 Hard Chromium Electroplating

Comment: None

Final Disposition: For final disposition of this source category see comment 17.24.

18.0 TOXIC RELEASE INVENTORY SYSTEM (TRIS) PRODUCTION AND USE ACTIVITIES

General Comments

Comment: One commenter (IV-D-32) requested that TRIS Production and Use Activities be listed as separate industry groups. This commenter pointed out that a specific substance could release different types of pollutants depending on the specific role of that substance in a production or use activity. The commenter also noted that the appropriate control technologies needed to reduce emissions of the released pollutants could also vary depending on pollutant type.

Response: Unless otherwise reflected in the revised list, it is not generally the intent to regulate end uses under Title III of the Clean Air Act (CAA). Furthermore the TRIS Production and Use Activities industry group, along with all its associated source categories (except Antimony Oxides Manufacturing and Carbonyl Sulfide Production), have been deleted from the list.

Comment: One commenter (IV-D-36) stated that the 1988 TRIS data do not accurately reflect current industrial practices. The information in the TRIS data base is for calendar year 1988. The commenter added that because the TRIS information reporting system was relatively new and not well understood at the time it was compiled, some of the information is of questionable validity. The commenter also noted that there is no direct correlation between chemicals reported on the TRIS and the specific operations identified by Standard Industrial Classification (SIC) codes. For this reason, the commenter stated that there is no way to match a particular SIC code to a chemical released by a particular process at a facility.

Finally, the commenter pointed out that the textile industry has eliminated or significantly reduced the use of a number of chemicals reported in the 1988 TRIS.

Response: The TRIS Production and Use Activities industry group, along with its associated source categories (except Antimony Oxides Manufacturing and Carbonyl Sulfide Production) have been deleted from the list.

Comment: Two commenters (IV-D-69, IV-D-76) urged EPA to establish a separate source category for Production of Antimony Oxides. In addition, the commenter stated that production processes involving antimony oxides should be regulated under separate source categories from end uses of antimony oxides. The circumstances surrounding use of antimony oxides are quite different from those surrounding production. The most common end uses for antimony oxides are fire retardant in plastics, ranging from television cabinets, small appliances, and video cassette cases to airplane interiors and vinyl upholstery. Concerning production processes, antimony oxides are used to produce various polymer compounds. The major resin systems in these processes typically include polystyrene, polyvinyl chloride, polyethylene, polypropylene, and acrylobutadiene styrene.

Response: Because evidence of a major source within Antimony Oxides Manufacturing has been documented, this category has been included on the list within the Inorganic Chemical Production industry group. Unless otherwise reflected in the revised list, it is not generally the intent to regulate end uses under Title III of the CAA.

Comment: Four commenters (IV-D-04, IV-D-48, IV-D-62, IV-D-66) recommended that only producers of and disposal operations for polychlorinated biphenyls (PCB) should be included on the source category list. The second commenter stated that with the current

wording of the source category titles, it is not clear what will be included in the potentially regulated community. The first commenter (IV-D-04) pointed out that because the use of PCB in closed systems (transformers and capacitors) is regulated under the Toxic Substances Control Act (TSCA), there is no need to regulate use of PCB in closed systems beyond what exists today. The commenter stated that either the category should be limited to production of PCB or it should somehow include open systems in the title.

The third and fourth commenters (IV-D-66, IV-D-62) requested that the "use" portion of the TRIS Production and Use Activities industry group be deleted from these listings. These commenters urged that a more careful characterization of the source categories is needed to avoid an expensive and time-consuming delisting process.

Response: Due to difficulty in identifying specific categories of major sources, the TRIS Production and Use Activities industry group, along with its associated source categories (except Antimony Oxides Manufacturing and Carbonyl Sulfide Production), have been deleted from the list.

Comment: Two commenters (IV-D-76, IV-D-124) requested that the "Production and Use" wording in the title of this industry group be clarified. The commenter maintains that only those sources that both produce and use, not just use, the listed chemicals should be regulated. This commenter suggested that EPA's listing of categories is too general for this industry group and that a potential overlap of source categories exists due to the different approaches used for listing. The second commenter (IV-D-121) stated that numerous listed categories appear to be duplicative, especially those included in the TRIS Production and

Use industry group. The commenter thought that some of these items ought to appear as subcategories of pesticide/herbicide manufacturing or organic chemicals manufacturing.

Response: The TRIS Production and Use Activities industry group, along with its associated source categories (except Antimony Oxides Manufacturing and Carbonyl Sulfide Production) have been deleted from the list. This deletion action was due, in part, to the potential for duplication created by source categories listed in this industry group.

Final Disposition: The EPA has determined that the TRIS Production and Use Activities industry group included source categories that were duplicative with other listed categories or that were not sufficiently distinct for the listing of specific source categories. Therefore, EPA has deleted these source categories (except for Antimony Oxides Manufacturing and Carbonyl Sulfide Production).

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16. ABSTRACT

Under the authority of Section 112 of the Clean Air Act, the EPA has developed an initial list of categories of all major sources and selected area sources which emit one or more of the 189 hazardous air pollutants identified in Section 112(b) of the Clean Air Act. This document summarizes the technical approach used to develop the initial list, lists the categories by industry groups, provides a brief description of each listed category, and includes a summary of the public comments received after publication of the preliminary draft list and the EPA responses to these comments.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air pollution Hazardous air pollutants Source category Major sources Maximum achievable control technology	Hazardous air pollutants	

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