

## MEMORANDUM

SUBJECT: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants

FROM: John S. Seitz, Director  
Office of Air Quality Planning and Standards (MD-10)

TO: Director, Office of Ecosystem Protection, Region I  
Director, Division of Environmental Planning and Protection, Region II  
Director, Air Protection Division, Region III  
Director, Air, Pesticides, and Toxics Management Division, Region IV  
Director, Air and Radiation Division, Region V  
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Director, Air, RCRA, and Toxics Division, Region VII  
Director, Air and Radiation Program, Region VIII  
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The purpose of this memorandum is to provide guidance to clarify how to apply the major source threshold for hazardous air pollutants (HAPs) as defined in Section 112(b) of the Clean Air Act Amendments of 1990 that are listed as compounds (e.g., antimony compounds), salts and esters (e.g., 2,4-D), and/or as “plurals” (e.g., xylenes).<sup>1</sup> Over the past several years a number of questions have been raised by Regions, program offices, and State and Local air pollution control agencies concerning the proper interpretation of the major source threshold for some HAPs such as xylene. Xylene is listed separately along with three xylene isomers on the HAP list which has led to uncertainty as to how to determine whether a source’s emissions exceed the major source threshold. When issues have arisen where a facility emits or has the potential to emit more than one chemical or substance in an aggregate group of HAPs, it has not been clear for the purposes of applicability determinations whether the 10 tons per year threshold applies to each chemical or substance separately, or to the entire aggregate group of HAPs. This memorandum clarifies that the 10 tons per year threshold applies to the entire

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<sup>1</sup> Collectively referred to in this memorandum as aggregate groups of HAPs.

aggregate group of HAPs. We are also clarifying how we are defining several other aggregate groups of HAPs, such as dibenzofurans, for determining major source thresholds.

While we intend to proceed under the guidance set out in this memorandum, final action will only occur when it is applied in a specific case. At that time, and only in that context, judicial review of EPA's interpretation would be available.

## ORGANIC HAP COMPOUNDS

As stated above, the major source threshold for the aggregate groups of HAPs in Table 1 is 10 tons per year of any combination of the HAPs included in the listing, considered in aggregate. In most cases, EPA measurement techniques are available to measure the individual compounds which comprise the organic aggregate HAPs. For example, Facility A (below) measured their HAPs using a volatile organic sampling train. While none of the individual HAP compounds exceed 10 tons per year, the aggregate polycyclic organic matter (POM) emission rate is 13 tons per year. Facility A would be considered a major source of HAPs because it emits or has the potential to emit more than 10 tons per year of HAP within a single aggregate group of HAPs.

### Facility A

Benzo(a)pyrene emissions	6 tons per year
Chrysene emissions	3 tons per year
Fluoranthene emissions	4 tons per year

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 Total 13 tons per year of Polycyclic Organic Matter emissions

There have been issues regarding the determination of major source status for sources that emit POM and which separately listed HAPs are considered POM. EPA published guidance, entitled "Locating and Estimating Air Emissions From Sources of Polycyclic Organic Matter" in September 1999, that discusses what kinds of POM (they are, for the most part, products of incomplete combustion) can be measured and are likely to be emitted. The following compounds are the POM listed in the guidance:

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

However, there are also other compounds, besides those listed above, in the section 112(b) HAP list that are considered POM. These other POM (including those listed directly below) meet the criteria listed in footnote 4 of section 112(b), concerning “organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100E C.”

Further, many of the additional POM, listed below, can be measured using Method 8270C.

2-Acetylaminofluorene	Chlorobenzilate
Carbaryl	DDE
Dibenzofuran	3,3-Dichlorobenzidine
3,3'-Dimethylbenzidine	Quinoline
3,3-Dimethoxybenzidine	4,4-Methylene bis(2 Chloroaniline)
4-Aminobiphenyl	Methylene Diphenyl Diisocyanate
Benzidine	4-Nitrobiphenyl
Biphenyl	2,3,7,8-Tetrachlorodibenzo-p-dioxin
Dibenzofurans	

Both of the groups listed above are POM and all compounds meeting the definition in footnote 4 are to be considered in aggregate when determining major source applicability.

There has been some question whether this policy for aggregate HAPs should apply to cresols and xylenes. In addition to having these categories of HAPs listed in the HAP list of section 112(b), there are specific xylenes and cresols isomers also listed in section 112(b). Although the HAPs list contains specific xylene and cresol isomers, these isomers can be emitted as mixtures; thus, the need to aggregate cresols and xylenes. In any case, the isomer emissions are to be considered in aggregate when determining major source applicability.

There has also been some question regarding which glycol ethers should be considered in making a major source determination. Although Section 112(b)(1) of the Clean Air Act Amendments of 1990 contains a definition of glycol ethers (as a footnote at the end of the list), in January 1999, we proposed a new definition of glycol ethers (64 Federal Register 1780, January 12, 1999) for both Clean Air Act and Comprehensive Environmental, Response, Compensation, and Liability Act purposes on which we expect to take final action soon. In determining the major source status for glycol ether sources, we will use whatever legal definition is applicable at the time the determination is made.

Polychlorinated biphenyls (PCBs) are followed in the Section 112(b)(1) HAP list with “Aroclors.” Aroclors is a trade name for PCBs manufactured by Monsanto for transformers and are a specific subgroup of PCBs. We believe there are not now significant emissions of “Aroclors” PCBs, so we have not included them in Table 1. However, were “Aroclors” PCBs emissions high enough to require a major source determination, under this guidance they should be considered in the aggregate.

Although their total emissions nationwide are very low, the HAPs 2,3,7,8-Tetrachlorodibenzo-

p-dioxin and Dibenzofurans are included in the list of POM because they meet the criteria in footnote 4. Therefore, emissions of these compounds should be aggregated with other POM when determining aggregate emissions for POM.

## **INORGANIC HAP COMPOUNDS**

In many cases, there are no EPA measurement techniques that quantify the individual inorganic HAP compounds (e.g., arsenic trioxide or arsenic sulfate) which comprise inorganic aggregate HAPs (e.g., arsenic compounds). The emission measurements techniques available typically do not quantify the mass of other atoms contained in the compound (e.g., the mass of oxygen, chlorine, or sulfur). Since measurement techniques for metal HAPs report only the metal atom, emission rates computed using these measurements would be for only the metal component of the HAP. Because of these measurement limitations, EPA's policy to determine major source status is based on the measured metal HAP emissions or the potential to emit these metal HAPs alone. Since some metal HAPs are heavy compared to the other atoms, the additional mass contributed by the other atoms in the compound should be small. However, if a facility emitting inorganic HAP determines that their potential to emit is 50 percent or greater than the major source threshold, then it should determine the most likely HAP compounds being emitted and re-estimate potential emissions based on the total weight of the compounds in the aggregate HAP.

Lead compounds are a unique issue because elemental Lead is not regulated by section 112 provisions (see section 112(b)(7)) and, thus, elemental Lead emissions can't be used in determining aggregated emissions for Lead compounds. The measurement techniques available will not identify what portion of the total Lead emissions is comprised of elemental Lead. However, based on our understanding of Lead chemistry, we assume that for most industrial processes, most of the Lead is emitted as Lead compounds; specifically, Lead Oxides, Lead Chlorides, Lead Sulfites, and Lead Sulfates. In other words, if a facility emits Lead compounds, uses a measurement technique which only counts the mass of Lead to estimate actual or potential Lead compound emissions, and based on that mass the source is major, then the source is a major source. As such, it is not necessary to estimate and partition out elemental Lead when determining major source status.

## **RADIONUCLIDES**

There have been some questions about determining the major source threshold for sources of radionuclides. Section 112(a)(1) allows the Administrator to establish different criteria for determining what constitutes a major source of radionuclides since radionuclides emissions are not measured in units of tons. This, however, would not preclude a known radionuclide emitter that is collocated with other HAP-emitting activities at a plant site from being considered a major source due to the more common, weight-based threshold. The July 16, 1992, source category list notice did not include any sources of radionuclides because no source met the weight-based major source threshold, and the Agency had not defined different criteria. At the current time, there remain no listed major source categories of radionuclide emissions.

## **NATIONAL TOXICS INVENTORY**

The Emissions, Monitoring, and Analysis Division of EPA's Office of Air Quality Planning and Standards is currently working closely with State and Local Air Pollution Control Agencies (S/Ls) to compile a National Toxics Inventory (NTI) to support analyses required by the Clean Air Act (CAA) that depend on a high-quality, comprehensive HAP emissions inventory. The various CAA HAP data needs cover major, area, and mobile sources and include estimates of emissions at the national, regional, and county levels. The NTI also includes facility-specific and process-specific emission data suitable for use as input to computerized atmospheric dispersion models. The NTI is thus designed to provide a model-ready emissions inventory of all anthropogenic sources of HAPs to facilitate comprehensive dispersion and exposure modeling.

There have been some concerns raised as to whether the guidance set out in this memorandum may conflict with the goals of the NTI. Although the NTI instructions ask for compounds to be reported separately, the instructions also allow S/Ls to report just the metal mass, if that's all that they can do, provided they clearly indicate what they are reporting. Since the ultimate test for major source status is intended to be based on total actual mass of the metal compounds, the NTI goal of reporting actual mass is consistent. If you have any questions regarding the NTI, please contact Ms. Anne Pope at (919) 541-5373 or pope.anne@epa.gov.

## **IMPLEMENTATION**

Sources that are or were potentially subject to Part 63 National Emission Standard for Hazardous Air Pollutants (NESHAP), case-by-case MACT determinations under 40 CFR Part 63, Subpart B (section 112(g)), and/or the Title V Operating Permit provisions and that emit or have the potential to emit any of the HAPs discussed in this memorandum should ensure that their determination of major source status is consistent with this clarification.

In some cases, Title V operating permits have not been issued or do not contain terms and conditions for Part 63 NESHAPs for facilities emitting HAPs because the major source threshold for each of the HAPs listed in Table 1 below was not considered in aggregate. In cases where operating permits were not issued because the HAPs listed in Table 1 below were not considered in aggregate, the operating permit applications must be submitted to the permitting authority as soon as practicable, but no later than 12 months after determining that a source is subject to section 112 and/or Title V provisions. In other cases, Title V operating permits were issued without Part 63 NESHAP terms and conditions because the HAP emissions were not considered in the aggregate. All these cases should be addressed in the same way as a source that never received a Title V permit, but is subject to the part 70 provisions.

In conclusion, we are clarifying that in accordance with section 112(a) and (b), HAPs that are part of the aggregate groups of HAPs, either discussed above or in Table 1, should be aggregated within each such group for the purpose of determining major source status. If you have any questions or need additional information, please contact Tom Driscoll, of my staff, at (919) 541-5135.

Attachment

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**Table 1 Hazardous Air Pollutants Which May Contain More than One Unique Substance and Are to Be Considered in the Aggregate for Purposes of Determining Major Source Status**

Asbestos  
Cresols/Cresylic Acid (isomers and mixture)  
2,4-D, Salts and Esters  
Dibenzofurans  
4,6 Dinitro-o-cresol, and Salts  
Lindane (all isomers)  
Xylenes (isomers and mixture)  
Antimony Compounds  
Arsenic Compounds (inorganic including arsine)  
Beryllium Compounds  
Cadmium Compound  
Chromium Compounds  
Cobalt Compound  
Coke Oven Emissions  
Cyanide Compounds  
Glycol Ethers  
Lead Compounds  
Manganese Compounds  
Mercury Compound  
Fine Mineral Fibers  
Nickel Compounds  
Polycyclic Organic Matter  
Selenium Compounds  
Polychlorinated Biphenyls (Aroclors)