4-09-98

FACT SHEET

PROPOSED AIR TOXICS REGULATION FOR PRIMARY COPPER SMELTERS

TODAY'S ACTION

- The Environmental Protection Agency (EPA) is today issuing a proposed regulation to reduce emissions of toxic air pollutants from primary copper smelters. Air toxics are those pollutants known or suspected to cause cancer or other serious health effects.

- Primary copper smelting is the industry which refines copper concentrate from mined ore to anode grade copper, using pyrometallic processes. Smelting includes the handling and blending of ore concentrate; the drying of copper concentrate; the smelting of concentrate to matte grade copper; the conversion of matte grade copper to blister grade copper; the refining of blister grade copper to anode grade copper; and the pouring of copper anodes.

- Seven primary copper smelters are currently operating in the United States. Six of these seven smelters use conventional smelter technology which includes batch converter furnaces for the conversion of matte grade copper to blister grade copper. The seventh smelter uses a continuous flash furnace for converting matter copper to blister copper. This rule does not apply to smelters that use a continuous flash furnace.

- EPA developed today's proposal through participation with representatives from the affected industry and representatives of the States of Arizona, New Mexico, Texas and Utah.

WHAT ARE THE HEALTH AND ENVIRONMENTAL BENEFITS?

- EPA's proposed regulation would reduce emissions of eleven toxic air pollutants, compounds containing antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium. These metal compounds are contained in the copper concentrate that is the raw material for the smelter operations. These metal compounds can potentially be emitted from the smelter operation in several ways. Metal compounds can be emitted as fugitive dust from the handling of ore concentrate prior to the smelting operation. Metals can be emitted from all of the pyrometallic smelting operations as high temperature vapors and particulate matter. Metals compounds are also emitted as vapors and particulate matter from the transfer of high temperature molten copper containing material between the various smelting processes in open ladles. Arsenic and lead compounds are found as the highest concentrations of toxic metal compounds in copper ore concentrate and emissions from the smelter operations

- Chronic inhalation exposure to arsenic compounds is associated with lung cancer and irritation of the skin and mucus membranes. Chronic oral exposure has resulted in gastrointestinal effects, anemia, peripheral nerve damage, skin lesions, and liver or kidney damage and is linked to skin, bladder, liver, and lung cancer. Chronic exposure to lead compounds can result in adverse effects on the blood, central nervous system, blood pressure, kidneys, and vitamin D metabolism. Children are particularly sensitive to lead exposure, resulting in reduced growth.

- EPA's proposed rule would reduce emissions of toxic metal compounds from 190 metric tons per year to 155 metric tons per year, an 18 percent reduction. This represents approximately 6 metric tons per year of arsenic and 22 metric tons per year of lead.

- In reducing emissions of toxic metal compounds and in turn associated exposure levels, EPA's proposed action would also reduce occupational exposures.

- This action is consistent with the Pollution Prevention Act of 1990. The toxic metal compounds emitted during copper smelting occur naturally in the copper ore deposits. No pretreatment processes are available to remove or reduce the toxic metal compound content. Pollution prevention is limited to application of air emission controls that reduce the release of toxics to the atmosphere.

BACKGROUND

- Under the Clean Air Act Amendments of 1990, EPA is required to regulate emissions of 188 listed toxic air pollutants. (Note that this list originally referenced 189 pollutants, but EPA has subsequently removed the chemical caprolactam from the list.) On July 16, 1992, EPA published a list of industrial source categories that emit one or more of these air toxics. For listed categories of "major" sources (those that emit 10 tons/year or more of a listed pollutant or 25 tons/year or more of a combination of pollutants), the Clean Air Act requires EPA to develop standards that require the application of stringent air pollution reduction measures known as maximum achievable control technology (MACT).

- The EPA's published list of industry groups (known as "source categories") to be regulated includes major sources that smelt copper concentrate to anode copper using conventional batch converter technology.

WHO WOULD BE AFFECTED BY EPA'S PROPOSED RULE?

- EPA is proposing standards for both existing and new primary copper smelters. Currently there are seven primary coppers smelters operating in the United States. Of these seven, six smelters use batch converters and are potentially subject to this rule. Based on preliminary information from the State of New Mexico, only four of the six smelters may be “major” sources for metallic compound hazardous air pollutants (a major source is a

facility that emits 10 tons/year of one pollutant, or 25 tons/years of a combination of pollutants). Therefore there is the potential that only four facilities will be subject to this proposed rule. However, since this determination has not been made at this time, EPA has conservatively assumed in estimating the impacts of this rule, that all six of the batch converter smelters will be regulated.

- The proposed regulation applies to primary copper smelters that use conventional batch copper converters. The proposed standard does not apply to primary copper smelter using flash copper converters. Additionally, the rule does not apply to facilities that EPA determines are not major sources.

- Existing plants would be given up to two years from the effective date of the final rule to comply with the rule. If necessary, the owner or operator may request that EPA (or the applicable regulatory authority in a State with an approved permit program) grant one additional year if necessary to install controls.

- EPA has determined that none of the operating smelters are small businesses.

WHAT DO THE PROPOSED STANDARDS REQUIRE AND HOW DO THEY PROVIDE FLEXIBILITY FOR INDUSTRY?

- EPA's proposed regulation establishes limitations for metallic hazardous air pollutant emissions from both point sources and fugitive sources at primary copper smelters and offers flexibility to the industry by providing cost-effective options for both emissions control and monitoring. Standards are proposed for both existing and new primary copper smelters.

- The proposed regulation applies to primary copper smelters that use conventional batch copper converters, which is defined as Pierce-Smith converters, Hoboken converters or a similar design that produces blister copper in discrete batches. The proposed standard does not apply to primary copper smelters using flash copper converters

- A detailed description of the proposed standard is presented in the attached Addendum .

HOW MUCH WOULD EPA'S PROPOSED REGULATION COST?

- All of the six effected smelters have extensive capture and control equipment in place. One facility is in the process of installing a baghouse on the matte and slag tapping capture system. EPA does not expect that any of the six facilities will require major modifications to the in-place systems to meet this proposed rule. Two or three smelters will have to improve the performance of these existing systems by better operating and maintenance practices.

- In total, EPA estimates the capital cost of the proposal for all affected facilities to be about $6.2 million (approximately $1 million per facility).

- EPA estimates the total annual costs of the proposal for all affected facilities to be about $2.2 million per year (approximately $367,000 per facility).

- EPA estimates an additional cost of $1.5 million per year for emission tests and monitoring.

- EPA estimates the increase in cost of production of commercial grade copper to be well below one percent for the industry as a whole as well as for the individual smelters. EPA does not expect the market price for commercial grade copper to increase and does not foresee any plant closures or employment losses.

FOR FURTHER INFORMATION

- Interested parties can download the rule from EPA's web site on the Internet under recent actions at the following address: (http://www.epa.gov/ttn/oarpg). For further information about the proposal, contact Mr. Eugene Crumpler of EPA's Office of Air Quality Planning and Standards at (919) 541-0881.

- The EPA's Office of Air and Radiation's (OAR's) homepage on the Internet contains a wide range of information on the air toxics program and many other air pollution programs and issues. The OAR's home page address is: (http://www.epa.gov/oar/).

ADDENDUM TO FACT SHEET FOR PROPOSED REGULATIONS FOR PRIMARY COPPER SMELTERS

DETAILED DESCRIPTION OF THE PROPOSED REGULATION

- EPA is proposing standards for both existing and new primary copper smelters. EPA's proposed regulation establishes limitations for metallic hazardous air pollutant emissions from both point sources and fugitive sources at primary copper smelters. This proposed rule also offers flexibility to the industry by providing cost-effective options for both emissions control and monitoring.

- The proposed regulation applies to primary copper smelters that use conventional batch copper converters, which are defined as Pierce-Smith converters, Hoboken converters, or a similar design that produces blister copper in discrete batches. The proposed standard does not apply to primary copper smelters using flash copper converters.

- Copper Concentrate Dryers
  The off-gases exhausted from existing copper concentrate dryers must be controlled with a particulate matter (PM) control device that emits no more than 50 milligrams per dscm (0.022 gr/dscf) PM. New copper concentrate dryers must meet a limit not to exceed 23 milligrams/dscm (0.01 gr/dscf). The rule allows the owner or operator to use any type of PM control device that meets the applicable PM standard. EPA is also requiring bag leak detection systems on baghouses and continuous parameter monitoring on electrostatic precipitators and scrubbers.

- Smelting Vessel Standards
  The proposed standard for smelting vessels is the same for both existing and new sources. The off-gases from the smelting vessels must be discharged to a sulfuric acid production plant or other type of sulfur recovery process. The fugitive emissions from tapping matte and slag must be captured and controlled by a PM control device and exhaust no greater than 16 milligrams/dscm (0.007 gr/dscf) PM.

- Slag Cleaning Vessel Standards
  The proposed standard for slag cleaning vessels is the same for both existing and new sources. The off-gases are limited to no more than 46 milligrams/dscm (0.02 gr/dscf) PM unless the off-gases are routed to a sulfuric acid production process or other type of sulfur recovery process. The fugitive emissions from tapping matte and slag must be captured

and controlled by a PM control device and exhaust no greater than 16 milligrams/dscm (0.007 gr/dscf) PM.

- Copper Converter Standards

  The proposed rule would establish separate standards for new and existing copper converter operations:

  For existing copper converters, the rule requires the use of both "primary" and "secondary" hooding systems on Pierce-Smith type converter furnaces. The capture and control of these hooding systems must be optimized to reduce the visible emissions emitted from the converter building to no greater than 3% opacity during periods of converter blowing. For existing Hoboken converters, the side flue intake must be optimized to reduce the visible emissions emitted from the converter building to no greater than 3% opacity during periods of converter blowing. The determination of visible emissions opacity will be used during the compliance demonstration period to establish operating settings for the primary and secondary hooding systems

  For new conventional copper converters, the capture and control of fugitive emissions must be great enough to allow no visible emissions during any period of converter operation. The no visible emission limit will be used to optimized any capture and control system and to determine operating conditions for the systems(s). The rule provides flexibility by allowing the owner or operator to choose the capture system design which would achieve no visible emissions.

- Fugitive Dust Emissions

  For fugitive emissions from material handling and storage of ore concentrate, dust suppression methods such as use of binding agents and/or regular wetting with water can greatly reduce fugitives. Enclosing these operations in buildings or installing capture hoods with PM control devices at transfer points are effective techniques. The proposed rule requires each facility to develop a fugitive dust control plan that specifies which techniques will be use to effectively suppress dust emissions.

- Inspection and Monitoring Requirements

  Each capture and control system would be required to be inspected once per month and repairs made within 30 days. For each control device covered by this rule, the owner or operator would be required to prepare and operate according to a written control device operating procedures manual. The performance of baghouses would be monitored by continuous leak detection measuring devices and ESP's and scrubbers would be monitored by continuous opacity measuring devices.

- The proposed regulation offers the industry flexibility in several ways. First, particulate control standards are proposed as exit concentrations of particulate emissions. Thus the

industry can choose the type of control device that best suits their needs as long as the exit concentration meets the standard. Second, the visible emissions standard for the converter building allows an individual smelter the flexibility to meet this standard in any of several ways, including improving the collection of fugitive emissions in the building, enclosing and ventilating the building to prevent the exit of fugitive emissions, or installation of new converter technology that eliminates or greatly reduces the escape of fugitive emissions.