



Update on Heavy Metals Protocol under the Convention – United States of America

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Lead National Ambient Air Quality Standards (NAAQS)

- The Clean Air Act requires EPA to review the NAAQS and the relevant scientific information periodically to determine whether changes are warranted.
- Lead NAAQS¹
 - Established in 1978 at 1.5 micrograms per cubic meter in total suspended particles, as an average in a calendar quarter.
 - Revised in 2008 to be 0.15 micrograms per cubic meter in total suspended particles, as an average of three consecutive monthly averages.
 - Retained, without revision, in 2016 based on the current scientific information.
 - The NAAQS are currently undergoing another review and EPA expects to release an updated Integrated Science Assessment in 2024 and a decision for this review in 2026.

¹<https://www.epa.gov/lead-air-pollution/national-ambient-air-quality-standards-naaqs-lead-pb>



Lead Emissions from Aircraft Engines

- Lead emissions from piston-engine aircraft using leaded aviation gas is the largest category of lead emissions in the U.S. national emissions inventory (2020 NEI)
 - The majority of aircraft that operate on leaded aviation gasoline are piston-engine aircraft (typically small aircraft that carry 2-10 passengers). Jet aircraft used for commercial transport do not operate on fuel containing lead.
 - In October 2022, EPA issued a proposed determination that lead emissions from certain aircraft cause or contribute to lead air pollution which may endanger public health and welfare.²
 - If EPA issues a final determination that piston engine emissions cause/contribute to lead air pollution which may endanger public health or welfare, EPA would subsequently propose lead emissions standards for aircraft engines.
 - If EPA were to propose such standards, it would consult with FAA and engage in public rulemaking processes, including notice and public comment.
 - In parallel, the U.S. Federal Aviation Administration has initiated a public-private partnership working to Eliminate Aviation Gasoline Lead Emissions (EAGLE).³

²<https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-lead-emissions-aircraft>

³<https://www.faa.gov/about/initiatives/avgas>



Mercury and Air Toxics Standards (MATS) for Power Plants

- In February 2023, the EPA reaffirmed that it remains appropriate and necessary to regulate hazardous air pollutants from coal- and oil-fired power plants.
- In April 2023, the EPA proposed to strengthen emissions standards for power plants (MATS), to reflect recent developments in performance and control technologies¹.
- EPA is proposing to:
 - Further limit the emission of non-mercury metals (e.g., cadmium, cobalt, chromium, etc.) from existing coal-fired power plants by significantly reducing the emission standard for filterable particulate matter (PM) from 0.030 lb/MMBtu to 0.010 lb/MMBtu, while soliciting comment on an even more stringent standard of 0.006 lb/MMBtu or lower. Standards for PM serve as a surrogate for the non-mercury metals.
 - Tighten the emission limit for mercury for existing lignite-fired power plants by 70 percent, a level that is aligned with the mercury standard that other coal-fired power plants have been achieving under the current MATS.
- EPA projects that the proposed revisions will continue the downward trend in mercury emissions from U.S. power plants (29 tons in 2010, pre-MATS; 3 tons in 2021, post-MATS) by further reducing mercury by ~80 lbs, along with substantial reductions of other metals.

¹https://www.epa.gov/system/files/documents/2023-04/Fact%20Sheet_MATS%20RTR%20Proposed%20Rule.pdf



Mercury Cell Chlor-Alkali Production

- The mercury cell chlor-alkali industry in the U.S. consists of facilities that use mercury cells to manufacture product chlorine, product caustic, and by-product hydrogen via an electrolytic process.
- The use of mercury-cell has declined significantly in the U.S.
 - In 2000, there were 14 mercury-cell facilities.
 - In 2011 there were 4 facilities, and currently only 1 facility remains.
 - The other 13 facilities converted to a non-Hg process or closed.
- EPA completed a final rule^{1,2} in May 2022, which prohibits the use of the mercury-cell process after May 2025.
- The remaining mercury-cell facility will need to close or convert by that date, resulting in a further reduction of 125 pounds of mercury emissions per year.

¹ <https://www.epa.gov/system/files/documents/2022-05/Fact%20Sheet%20Mercury%20Cell%20RTR.pdf>

² <https://www.epa.gov/stationary-sources-air-pollution/mercury-cell-chloralkali-plants-national-emissions-standards>



Gold Mine Ore and Secondary Lead Smelters

Gold Mine Ore Processing and Production¹

- In 1999, EPA estimated 11.5 tons per year (tpy) of mercury emissions in U.S. from about 20 facilities, with the majority in the state of Nevada.
- Emissions were down to 2.5 tpy by 2007, largely achieved through Nevada state action.
- On February 17, 2011, EPA finalized a national rule that established mercury emissions limits for four types of processes.
- EPA estimated the rule would achieve 1,460 pounds/year reduction of mercury emissions, 77% reduction from 2007 levels.

Secondary Lead Smelters²

- On January 5, 2012, EPA established much tighter standards based on a rule that required:
 - All lead material processing must occur in full enclosures maintained at negative pressure with all air vented to particulate matter (PM) control devices to prevent process fugitive and fugitive dust emissions.
 - Facilities need to meet lower emissions limits for lead from all stacks/vents. (Lead is a surrogate for all PM hazardous air pollutant (HAP) metals, including arsenic and cadmium).
 - Implementation of work practices to minimize other sources of fugitive dusts such as loading and unloading and vehicle traffic.
- Rule achieved an estimated 14.6 tpy reduction of lead and 15.4 tpy reduction in total metals.

¹ <https://www.epa.gov/stationary-sources-air-pollution/gold-mine-ore-processing-and-production-national-emission>

² <https://www.epa.gov/stationary-sources-air-pollution/secondary-lead-smelting-national-emissions-standards-hazardous-air>



Primary Steel Production and Copper Smelters

Primary Steel Production¹

- On July 31, 2023, EPA proposed several new work practice standards and opacity limits to reduce fugitive emissions from furnace buildings and other operations at these facilities.
- If finalized, we estimate these new standards will achieve 113 tpy reduction of metals, including 8 tpy of lead.
- Public comments are due by September 14, 2023.
- Court-ordered deadline for the final rule is October 26, 2023.

Primary Copper Smelters²

- The original rule published in 2003 included PM limits to minimize metals (e.g., lead, arsenic) emissions from furnace stacks.
- On January 11, 2022, and July 25, 2023, EPA proposed new PM limits to reduce process fugitive and stack emissions of metals (mainly lead and arsenic) from furnaces and converters and a new facility-wide mercury limit.
- If finalized, EPA estimates these new standards will achieve 9 to 11 tpy reduction of HAP metals (mainly lead and arsenic).
- Public comments are due by September 22, 2023.
- Court-ordered deadline for the final rule is May 2, 2024.

¹ <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission>

² <https://www.epa.gov/stationary-sources-air-pollution/primary-copper-smelting-national-emissions-standards-hazardous-air>

Thank you!



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