

# Press Release Fact Sheet

## Steel Pickling

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### Proposed Air Toxics Regulation for Steel Pickling Plants

#### Today's Action

- The Environmental Protection Agency (EPA) is today issuing a proposed regulation to reduce emissions of toxic air pollutants from sources in steel pickling plants. Air toxics are those pollutants known or suspected to cause cancer or other serious health effects.
- Pickling is a process in which an acid solution is used to remove oxide scale from steel strip, rod, wire, tubing, and discreet shapes using an acid solution. Oxide scale forms on the surface of the steel when steel cools from a molten state. The steel pickling plants that would be subject to the regulation use a solution of hydrochloric acid to remove the oxide scale.
- EPA developed today's proposal through participation with industry representatives, state and local agencies through STAPPA/ALAPCO (State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials), and the EPA's Office of Small and Disadvantaged Business Utilization.

#### What Are the Health and Environmental Benefits?

- EPA's proposed regulation would reduce emissions of two toxic air pollutants, hydrochloric acid and chlorine. Hydrochloric acid is emitted from processing tanks used in continuous and batch pickling lines, acid regeneration processes, and storage tanks containing virgin or regenerated acid. Chlorine is emitted from acid regeneration processes.
- Chronic exposure to hydrochloric acid has been reported to cause gastritis, chronic bronchitis, dermatitis, and photosensitization. Acute exposure to high levels of chlorine in humans may result in chest pain, vomiting, toxic pneumonitis, pulmonary edema, and death. At lower levels, chlorine is a potent irritant to the eyes, the upper respiratory tract, and lungs.
- EPA's proposed rule would reduce emissions of hydrochloric acid by approximately 9,200 tons/year, an emission reduction of 90 percent. The proposed rule would also reduce emissions of chlorine by approximately 21 tons/year, an emission reduction of 54 percent.
- In reducing ambient air levels of hydrochloric acid and chlorine and associated exposure levels, EPA's proposed action would also reduce occupational exposures as well as corrosive effects on surrounding structures and objects (such as monuments and statues).
- Additionally, the proposed rule would further improve air quality by reducing particulate matter emissions. The emission control technology that would be installed to reduce emissions of air toxics is the same technology that is currently utilized to control particulate matter emissions.
- Today's action demonstrates EPA's commitment to making pollution prevention an integral part of its regulatory process. Hydrochloric acid emissions can be reduced through the use of available technology without generating any additional waste. Spent pickle liquor is a by-product of the pickling process that can be eliminated through the

acid regeneration process. The proposed regulation is designed to allow continued operation of regeneration plants while achieving emissions reductions.

## 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 pickle steel using the hydrochloric acid process.

## Who Would Be Affected By EPA's Proposed Rule?

- Approximately 100 pickling plants currently operate in 20 states. Ten facilities operate acid regeneration plants and eight of these facilities are collocated with pickling plants. Many plants are part of integrated iron and steel manufacturing facilities or mills that produce electric furnace steel from scrap.
- All plants performing steel pickling with hydrochloric acid or hydrochloric acid regeneration that are major sources or are part of a facility that is a major source would be subject to the regulation. EPA estimates that about 80 pickling plants and all 10 acid regeneration plants are "major" sources.
- The regulation would not apply to any plant that uses a pickling acid other than hydrochloric acid or a mixture containing less than 50 percent hydrochloric acid.
- EPA assessed the impact of the proposed rule on small businesses. Only four companies in the industry are known to employ fewer than 100 people. Some of these businesses already comply, or appear to have the equipment in place that would allow them to comply, with today's action, and EPA projects that others will not be subject to the regulation.
- 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.

## What Do the Proposed Standards Require?

- EPA's proposed regulation establishes limitations for hydrochloric acid and chlorine emissions and offers flexibility to the industry by providing cost-effective options for both emissions control and monitoring.
- *Hydrochloric Acid Emissions*  
Control of hydrochloric acid emissions from pickling lines and acid regeneration units can be accomplished through use of standard air pollution control devices ( i.e. wet scrubbers) that are commonly utilized by the industry.
- *Chlorine Emissions*  
Control of chlorine emissions from acid regeneration units can be accomplished economically through the control of process operating conditions, without the use of control devices. Operation at the correct temperature and with a minimum of excess air reduces chlorine formation. The normal operation of the plant controls these conditions, and requires no additional capital or annual cost.

- *Pickling Lines*  
The owner or operator would have the choice of limiting hydrochloric acid emissions either by utilizing an air pollution control device that effectively collects emissions or by limiting emissions from the process or control device offgas to a low concentration. Facilities could satisfy monitoring requirements either by monitoring the performance of their control devices and performing annual emissions testing or by using continuous emission monitoring systems (CEMSs).
- *Acid Regeneration Units*  
The owner or operator would limit both hydrochloric acid and chlorine emissions by monitoring the maximum concentration of these chemicals in the process or control device offgas. Hydrochloric acid emissions would be controlled by using a combination of an efficient acid recovery unit (absorber) and an air pollution control device. Chlorine emissions would be controlled by operating the acid regeneration unit under conditions that minimize chlorine formation. Monitoring for hydrochloric acid would be accomplished either by monitoring the performance of the control device and performing annual emissions testing or by using CEMSs. Monitoring for chlorine would be accomplished by monitoring the operating parameters of the acid regeneration units and performing annual emissions testing.
- *Acid Storage Tanks*  
Today's action requires all openings on tanks used to store virgin or regenerated acid to be covered and sealed, with emissions routed from the tank vent to a control device. Also, this action requires the control of emissions released during tank loading and unloading.

## How Much Would EPA's Proposed Regulation Cost?

- Most of the facilities would be required to reduce emissions, but a majority already have in place air pollution control devices that, after equipment modifications or changes in operating or maintenance practices, could possibly help facilities comply with today's action. A minority of facilities are projected to require new controls.
- In total, EPA estimates the capital cost of the proposal for all affected facilities to be about \$20 million (approximately \$200,000 per facility).
- EPA estimates the total annual costs of the proposal for all affected facilities to be about \$7.1 million per year (approximately \$71,000 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 the steel products to be well below one percent for the industry as a whole as well as the portion of the industry that would be required to incur control costs. EPA expects market price increases for pickled steel to be negligible and foresees no plant closures or significant employment losses.

## For Further Information

- Interested parties can download the rule from EPA's web site on the Internet under recently signed rules at the following address: (<http://www.epa.gov/ttn/oarpg/rules.html>). For further information about the proposal, contact James Maysilles of the EPA's Office of Air Quality Planning and Standards at 919-541-3265.
- EPA's Office of Air and Radiation's homepage on the Internet contains a wide range of information on the air toxics program, as well as many other air pollution programs and issues. The Office of Air and Radiation's home page address is: (<http://www.epa.gov/oar/>).

