



# Advice & Counsel

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## Metal Products & Machinery Rule

**Dear Advice & Counsel,  
My company's environmental manager has been very concerned about the Metal Products & Machinery (MP&M) regulations ever since you wrote an article about them. What is the current status?**

*Signed, Popping Tums™*

Dear "Popping,"  
I just obtained a "pre-release" copy of the proposed regulations, and there appears to be good reason to worry. Phase I of the regulations has been signed and will probably have been published (the schedule for publication is in early May) by the time this article appears.

EPA is basing the Phase I regulation on best practicable control technology currently available (BPT). It also has decided to make BCT (best conventional pollution control technology), BAT (best available technology economically achievable) and NSPS (new source performance standards) all equivalent to BPT.

### What Is BPT?

*Best Practicable Control Technology Currently Available (BPT): Section 304(b)(1) of the Act*—BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the category or subcategory for control of pollutants.

In establishing BPT effluent limitations guidelines, EPA considers the total cost of achieving effluent reductions in relation to the effluent reduction benefits, the age of equipment and facilities involved, the processes employed, process changes required, engineering aspects of the control technologies, non-water quality environmental effects (including energy requirements) and other factors as the EPA Administrator deems appropriate [section

304(b)(1)(B) of the Act]. The Agency considers the category- or subcategory-wide cost of applying the technology in relation to the effluent reduction benefits. Where existing performance is uniformly inadequate, BPT may be transferred from a different subcategory or category.

The technology basis for BPT is end-of-pipe treatment using chemical precipitation and sedimentation (commonly referred to as lime and settle technology), used in conjunction with flow reduction and pollution prevention techniques.

EPA has also included the following as a basis for BPT limits:

- Oil-water separation through chemical emulsion breaking and either skimming or coalescing;
- Cyanide destruction through alkaline chlorination;
- Chemical reduction of hexavalent chromium;
- Chemical reduction of chelated metals;
- Contract hauling of organic solvent-bearing wastewaters.

The technology basis of BPT is to apply these preliminary treatment technologies when necessary, based on wastewater characteristics.

The following in-process pollution prevention and water conservation technologies were included as a basis for BPT:

- Flow reduction using flow restrictors, conductivity meters, and/or timed rinses, for all flowing rinses, plus countercurrent cascade rinsing for all flowing rinses;
- Flow reduction using bath maintenance for all other process water-discharging operations—centrifugation and 100-percent recycling of painting water curtains;
- Centrifugation and pasteurization to extend the life of water-soluble

machining coolants, reducing discharge volume by 80 percent;

- In-process metals recovery with ion exchange, followed by electrolytic recovery of the cation regenerants for selected electroplating rinses—includes first-stage drag-out rinsing with electrolytic metal recovery.

### Who Is Covered?

The MP&M Phase I category applies to industrial sites engaged in the manufacturing, maintaining or rebuilding of finished metal parts, products or machines. Phase I applies to process wastewater discharges from sites performing manufacturing, rebuilding or maintenance on a metal part, product or machine to be used in one of the following industrial sectors:

- Aerospace
- Aircraft
- Electronic equipment
- Hardware
- Mobile industrial equipment
- Ordnance
- Stationary industrial equipment

MP&M Phase II will be proposed and promulgated approximately three years after the MP&M Phase I schedule. EPA currently intends to cover the following eight industrial sectors in MP&M Phase II:

- Bus and truck
- Household equipment
- Instruments
- Motor vehicle
- Office machine
- Precious & nonprecious metals
- Railroad; ships & boats

Where MP&M regulations overlap existing discharge regulations, EPA proposes that MP&M regulations take precedence.

**NOTE:** *The proposed regulations do not apply to job shop electroplaters or independent printed wiring*

*board manufacturers covered under 40 CFR parts 413 or 433. Metal finishers that are not job shops and are currently covered under 40 CFR part 433 are to be covered under Phase I if they fall into the above Phase I industrial categories.*

### Are There Any Exemptions?

If a facility would be regulated under the proposed Phase I, but discharges less than 4,000 gal of regulated process water per day, it is exempted from Phase I MP&M regulation. EPA estimates that about 8,500 facilities will qualify for the exemption and 2,276 will not.

### What Are the Proposed Discharge Limits?

The accompanying table provides the proposed discharge limits. Of note (and immediate concern) is the proposal to regulate aluminum and iron in discharges, and that the concentrations are extremely low (limit of detection for cyanide).

**Proposed Effluent  
Concentration Limitations (mg/L)**

Parameter	1-day max	30-day avg
Aluminum (T)	1.4	1.0
Cadmium (T)	0.7	0.3
Chromium (T)	0.3	0.2
Copper (T)	1.3	0.6
Iron (T)	2.4	1.3
Nickel (T)	1.1	0.5
Zinc (T)	0.8	0.4
Cyanide (T)	0.03	0.02
Oil & grease	35	17
TSS	73	36

**pH within 6–9 at all times**

### How Did EPA Determine Those Numbers?

EPA visited sites of various sizes, with wastewater flows ranging from less than 200 gal/day to more than 1,000,000 gal/day. Detailed information was collected from the sites visited, such as unit operations performed and the types of metals processed through these operations; purpose of the unit operation and any wastewater associated with it; and in-process source-reduction and water conservation practices, as well as whether these source-reduction practices caused any cross-media problems.

Also collected during site visits was information on the end-of-pipe treatment technologies and—if the facility was a candidate for sampling—the logistics of collecting samples. All nonconfidential information collected during these visits is included in the public record.

The Agency conducted wastewater sampling at 27 sites between 1986 and 1993. EPA sampled at least two sites in each of the seven MP&M Phase I sectors, as well as several sites in Phase II sectors. EPA also sampled wastewater at one job shop electroplating site, in order to characterize surface treatment operations and end-of-pipe treatment systems that were comparable to MP&M unit operation and treatment systems. EPA selected sites for sampling if, for example, the site:

- Performed MP&M unit operations not sampled at other sites;
- Processed metals through MP&M unit operations for which the metal/unit operation combination had not been sampled at other sites;
- Performed in-process source reduction recycling, or end-of-pipe treatment technologies that were considered for technology option development;
- Performed unit operations in a sector in which samples had not previously been collected.

The Agency sampled sites with wastewater flows ranging from <200

gal/day to >600,000 gal/day. During sampling, samples of both raw (untreated) and treated wastewater were collected, frequently across individual unit treatment operations, to characterize the performance of the entire treatment system. In addition, EPA gathered flow data corresponding to each sample, and design and operating parameters for source reduction, recycling and treatment technologies. Also collected were samples of unit operations to determine pollutant loadings at the unit operation level, as well as flow and production data corresponding to each sample. All data collected during the sampling episodes are included in the sampling reports, which are in the rulemaking record.

### What Is the Proposed Schedule for Compliance?

The proposed regulations contain a compliance requirement of three years from the publication date of the final regulations.

### What Can We Do About This?

The NAMF/AESF/MFSA Government Advisory Committee will comment on these regulations. The committee has only 90 days from the date of publication to prepare its comments. You can help by supporting the effort with data, information concerning the impact of these regulations on your company, and/or funds donated to the AESF Government Relations Fund. □

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