Title 40—Protection of Environment
CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY
SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS
[40 FR 656-6]
PART 421—NONFERROUS METALS MANUFACTURING POINT SOURCE CATEGORY
PRETREATMENT STANDARDS FOR EXISTING SOURCES
Interim Rulemaking, Secondary Aluminum Smelting and Secondary Copper Subcategories

Notice is hereby given that pretreatment standards for existing sources set forth in interim final form below are promulgated by the Environmental Protection Agency (40 CFR Part 421). On April 8, 1974, EPA promulgated a regulation adding Part 421 to Chapter I of the Code of Federal Regulations (39 CFR 12822) and on February 19, 1975 (39 FR 656). That regulation set forth in detail below as the pretreatment standards for existing sources within the subcategories set forth in paragraphs (a), (b), and (c) of 39 CFR 128.133. The amounts of pollutants which would impede the operation of a publicly owned treatment works are set forth in sections 128.133 and 128.131 that provided in 40 CFR 128.131. Additionally, local pretreatment requirements may apply pursuant to section 301 or 304 of the Act.

The general pretreatment regulation (40 CFR Part 128) described above and its application to effluent limitations and standards as sometimes caused confusion. In order to correct any lack of clarity of these regulations, EPA is proposing certain amendments to this regulation to set forth in detail below as the pretreatment standards for that subcategory. This mechanism will eliminate any possible confusion as to the materials which are affected or controlled by the pretreatment standard for each subcategory.

A supplemental technical study was made to determine the levels of pretreatment necessary to control emissions. This study and technical rationale for the establishment of pretreatment standards and guidelines applicable to each subcategory are set forth in detail below as the pretreatment standards for that subcategory.

1. Legal Authority. Section 307(b) of the Act requires the establishment of pretreatment standards pursuant to regulations set forth in detail below as the pretreatment standards for that subcategory. This mechanism will eliminate any possible confusion as to the materials which are affected or controlled by the pretreatment standard for each subcategory.

A supplemental technical study was made to determine the levels of pretreatment necessary to control emissions. This study and technical rationale for the establishment of pretreatment standards and guidelines applicable to each subcategory are set forth in detail below as the pretreatment standards for that subcategory.
should be submitted in triplicate to the Environmental Protection Agency, 401 M St., S.W., Washington, D.C. 20460. Attention: Distribution Office, WTH-402. Comments on all aspects of the regulation are solicited. In the event comments are in the nature of criticism, any summary of data which are available, or which may be relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available. It should indicate why such data suggest amendment or modification of the regulation. In the event comments address the approach taken by the Agency in establishing pretreatment standards, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of section 307(b) of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2202 (EPA Library), Water- side Mall, 401 M Street, S.W., Washing- ton, D.C. 20460. A copy of the technical studies and economic study referred to above, including the necessary mate- rials will be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received on or before February 14, 1977 will be considered. Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concern- ing public review procedures published on August 6, 1976 (38 FR 21202).

In consideration of the foregoing, 40 CFR Part 2 is hereby amended as set forth below.


ROUSSELL E. TRAIN, Administrator.

Part 421 is amended by adding Appen- dix A and B at the end thereof to read as follows:

APPENDIX A—TECHNICAL LIMITATIONS AND BASIS FOR REGULATIONS

This Appendix summarizes the basis of in- terim final pretreatment standards for exist- ing sources.

(1) General methodology. The pretreatment standards set forth herein were develop- ed after a study of the wastewater characteristic source category was first studied for the pur- pose of determining whether separate standards are appropriate for different segments within the source category. This analysis included a determination of whether differences in raw material used, product produced, manu- facturing process employed, age, size, waste water constituents and other factors require development of separate standards for differ- ent segments of the source point category. The raw material used, or the source category segment were then identified. This included an analysis of the source, flow and volume of waste water. Comments on the purposes employed, the sources of waste and waste waters in the operation and the constituents of all waste water. The compatibility of each raw waste characteristic with municipal treatment works was then considered. The constituents of the waste waters which should be subject to effluent limitations were identified.

The control and treatment technologies which are feasible for each category were identified. This included an identification of each dis- chargeable nonferrous metal and other effluent limitation category (Subpart B) of the nonferrous metals manufacturing point source cate- gory (Subpart F) of the nonferrous metals manufacturing point source cate- gory (Subpart G).

(j) Categorization. For the purpose of es- tablishing pretreatment standards, secondary aluminum and secondary copper were each considered to be a single subcategory. Factors such as type of product, raw waste load, type of manufacturing process, and treatability of wastewaters were considered in these determina- tions. In general, the largest contribut- ing factors were the manufacturing oper- ations and the treatability of the wastewaters thereafter.

Although pretreatment standards have been previously proposed for the bauxite re- cording plant, tailings, mixing, primary copper, primary lead and primary zinc sub- categories, these subcategories were not in- cluded in these analyses very far. In general, if any, of the plants in these industries are known to discharge to municipal treatment works.

(i) Waste characteristics. (a) Secondary aluminum. Wastewater pollutants from secondary aluminum smelting include COD, total suspended solids, COD, total, suspended solids, COD, aluminum, zinc, copper, cadmium, chloride, ammonia, and oil and grease.

(b) Secondary copper. The known signifi- cant wastewater pollutants from secondary copper smelting are COD, suspended solids, total, suspended solids, COD, copper, lead, zinc, cad- mium, chloride, ammonia, and oil and grease.

(ii) Origins of wastewater pollutants. (a) Secondary aluminum. Wastewater pollutants from secondary aluminum smelting are generated as a result of: (1) Mixing and remel- ling, which includes the direct contact of water on molten or semi-molten aluminum, and(2) cooling of molten aluminum into ingots. Wastewaters from this operation contain oil and grease, COD, suspended solids, small con- centrations of metals including aluminum and are slightly acid. The parameter which is considered for the pretreatment standards is oil and grease with other parameters being rejected because they were removable by relatively inexpensive technologies or they are present at relatively low levels.

Wastewaters from demagging are generated by the removal of magnetic material from copper, aluminum with chlorine or aluminum fluo- ride and are derived from the scrubber which treats the furnace off-gas. The wastewaters contain large amounts of chloride and lesser amounts of aluminum, suspended solids, copper, and fluoride and are generally very acidic. Chloride was not selected as a pollu- tant parameter because it is not removable by relatively inexpensive technologies. Add- itionally, copper, zinc and cadmium were not selected as pollutants parameters for this subcategory because significant concentra- tions of these constituents were not found frequently enough to warrant limitations. Plant data suggest that zinc and cadmium may be occasionally present at significant levels. Cadmium is an extremely toxic mate- rial which is nonbeneficial and nonessential. In suspended and accumulated in various body tissues and is found to cause varying concen- trations throughout all areas where people live. Increased industrial production and use of this material during the past two decades has been accompanied by incidences of acute and chronic disease. Therefore, cadmium is known to upset WOTW oper- ation at concentrations of 1 mg/l and above and was found to be present in the five plants in the aluminum industry which were tested. Copper, also an indirect and direct discharger. The highest concentration was found at the plant which also had the highest concen- tration of zinc. Secondary copper smelting plants taken at this plant showed cadmium concentrations greater than 1.0 mg/l, none of the other plants exhibited concentrations of this magnitude in their individual samples. Dissolved zinc is generally not susceptible to treatment by biological treatment processes at WOTW. In slug doses, and particularly in the presence of copper, dissolved zinc can interfere with or seriously disrupt the opera- tion of POTW using biological processes by reducing overall removal efficiencies, largely due to the toxicity of the metal to biological organisms. The average total zinc concentrations found at the plants were 38.7, 12.0, 5.38, 2.38 and 0.052 mg/l.

Although these levels are somewhat ele- vated over the maximum concentrations and zinc concentrations greater than 10, and one plant was just marginally over that concen- tration. Additionally, although the methods of the total metal analysis is the deleterious affection very far. If any, of the plants in these industries are known to discharge to municipal treatment works.

(ii) Waste characteristics. (a) Secondary aluminum. Wastewater pollutants from secondary aluminum smelting include COD, total suspended solids, COD, aluminum, zinc, copper, cadmium, chloride, ammonia, and oil and grease.

(b) Secondary copper. The known signifi- cant wastewater pollutants from secondary copper smelting are COD, suspended solids, total, suspended solids, COD, copper, lead, zinc, cad- mium, chloride, ammonia, and oil and grease.

(iii) Origins of wastewater pollutants. (a) Secondary aluminum. Wastewater pollutants from secondary aluminum smelting are generated as a result of: (1) Mixing and remel- ling, which includes the direct contact of water on molten or semi-molten aluminum, and(2) cooling of molten aluminum into ingots. Wastewaters from this operation contain oil and grease, COD, suspended solids, small con-
(b) Secondary copper. In the secondary copper industry, waste water is generated principally from four operations: cooling of molten unalloyed or alloyed copper, slag generation, sulfuric acid scrubbing, and electrorefining. A fifth operation, slag milling and classification, generates waste water during some secondary copper smelters, but this operation is not found at any of the sites which introduce polutants to POTW. Each of these streams is an integral part of the total waste stream, even though each operation may not be performed at every plant. Water is consumed in these operations by evaporation and/or by removal of sludges.

Waste waters from each of these operations contain certain metals at relatively high levels, usually copper, cadmium, zinc, and lead. Oil and grease used as lubricants in furnaces, equipment, and machinery also appear. Each of these parameters, particularly copper, cadmium, zinc, and lead, were found to pose a threat to the operation of POTW, to pass through POTW, or to plants grown on soil treated with sludge from POTW. The pH of the wastewater was found to depend upon the type of operation producing the stream. Some operations such as the cooling of molten copper produce acidic streams, while others such as slag generation and sulfuric acid scrubbing produce neutral to basic streams, and others have pH levels such that the effluent can be neutralized by evaporation alone. In addition, the presence of organic matter in these streams limits the effectiveness of biological treatment. The best practicable pretreatment technology as known is the generation of ammonia, followed by lime neutralization to a pH between 8 and 10 and settling of the waste stream to remove solids. It is emphasized that in-plant measures to recycle and reuse process waste to minimize discharge to municipal treatment works are included as part of the recommended pretreatment technology.

Solid waste control must be considered. The best practicable pretreatment technology as known today, require disposal of the pollutants removed from waste waters in the form of solid wastes, sludges, or sludge-requirement discharges. These are nonhazardous substances requiring only minimal custodial care. However, some constituents may fall into those categories of hazardous or harmful constituents, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are to be disposed of must be selected so as to prevent horizontal and vertical migration of these contaminants to the environment. Under current federal and state geologic conditions may not reasonably ensure the disposal to such facilities. Where appropriate, the location of solid hazardous materials disposal sites should be recorded in the appropriate office of legal jurisdiction.

(c) Cost estimates for control of waste water pollutants. Cost information was obtained directly from industry, engineering firms, equipment suppliers, government sources, and other available publications. Costs are based on actual industry installations or engineering estimates for projected facilities as supplied by contributing companies. In the absence of such information, cost estimates have been developed from either plant-supplied or general cost estimates for similar waste treatment installations at plants making similar products or general cost estimates for treatment technology.

(d) Energy requirements and nonwater quality environmental impacts. The major nonwater quality consideration which may be associated with the recommended pretreatment technology is the generation of metals-bearing solid wastes from pH adjustment and settling facilities. In some cases these wastes can be reprocessed to recover metals values, but in most cases these wastes will be landfilled. Other nonwater quality aspects, including energy, noise, and air pollution, will not be perceptibly affected with one exception. In secondary aluminum plants where considerable milling is performed, use of the recommended pretreatment technology of ammonia stripping may cause some air quality deterioration in the immediate area. However, because of the small quantities treated and removed, this is expected to be insignificant. Equipment associated with in-process or end-of-process control systems would have minimal impact on the non-water quality aspects.

(e) Economic impact analysis. This section evaluates the economic and environmental impacts of the pretreatment standards for the secondary copper and aluminum subcategory of nonferrous metals manufacturing point source category.

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The impact of these regulations is expected to be small for the secondary aluminum industry. No price increase is projected as the secondary aluminum subcategory is a small portion of the total aluminum market. No production curtailment or plant closures are projected for the secondary aluminum subcategory since the imposition of the pretreatment standards has a negligible effect on the profitability of aluminum plants. Based on this analysis the effects on employment, industry growth and international trade are expected to be minimal.

The impact of these regulations is expected to be small for the secondary copper industry. No price increase is projected as the economic impact of the internal costs of compliance, including capital charges (interest costs plus depreciation), is negligible. Thus an inflationary impact statement is not necessary.

The Agency has considered the economic impact of the internal and external costs of the effluent limitations guidelines. Internal costs include the cost of compliance and annual cost, where annual cost is composed of operating costs, maintenance costs and depreciation. External costs deal with the assessment of the economic impact of the internal costs to the public, such as increased water and fuel charges, plant closures, resultant unemployment, plant efficiency, and community and regional impacts, international trade, and industry growth.

APPENDIX B—SYNOPSIS OF PUBLIC PARTICIPATION

Prior to this publication, copies of the draft documents were sent to industry trade groups, environmental interest groups, Federal agencies, state, local, and territorial pollution control agencies, EPA Division Headquarters in Washington, D.C., at which interested parties were invited to express their views publicly. Public comments were also solicited when pretreatment standards were proposed in the Federal Register on April 8, 1974 and February 27, 1976.

The following responded with comments:

ESWWIA; U.S. Department of Commerce; State of Ohio Environmental Protection Agency; Aluminum Recycling Association; Vulcan Materials Company; Aluminum Company of America; Reynolds Metals Company; Kaiser Aluminum and Chemical Corporation; and Olin Brus Company.

As can be seen above, total national annualized costs of compliance for both of the pretreatment standards are well below $100 million. Thus, the cost of production is less than 6 percent of the selling price. Energy consumption will be increased by a nominal amount. Finally, the projected increase in demand or decrease in supply for any of the above materials is minimal. Thus an inflationary impact statement is not necessary.

The Agency has considered the economic impact of the internal and external costs of the effluent limitations guidelines. Internal costs include the cost of compliance and annual cost, where annual cost is composed of operating costs, maintenance costs and depreciation. External costs deal with the assessment of the economic impact of the internal costs to the public, such as increased water and fuel charges, plant closures, resultant unemployment, plant efficiency, and community and regional impacts, international trade, and industry growth.
on page 46940 of the Federal Register, EPA amended the applicability of the secondary aluminum smelting subcategory in settlement of a lawsuit with Reynolds Metals Company. It reads: "The provisions of this subpart are applicable to discharges of brine-containing wastewaters where aluminum fluoride or chlorine is used in the magnesium removal process and to wet residue milling and remelting of aluminum scrap to produce metallic aluminum alloy."

Shaping and fabricating operations are not included within this scope.

Another commenter suggested that the 30 day pretreatment standards for copper and cadmium in the secondary copper subcategory should be relaxed, asserting that the draft pretreatment standards reflected the best operation of pH adjustment and settling technology and concluding that no treatment system can reasonably be expected to average its optimum performance.

Additional data on the performance of pH adjustment and settling operations was collected and evaluated and other pertinent information was reviewed. On the basis of this information, it was concluded that the 30 day pretreatment standard for copper was overly stringent. Available data indicates that a 30 day limit of 0.50 mg/l is routinely attainable for copper (rather than the 0.25 mg/l limit contained in the draft document).

This review also indicated that the draft limit for cadmium was not stringent enough. 0.1 mg/l is achieved at Plants R and V, and data from the primary copper smelting industry and from the electropalting industry revealed that many plants routinely achieve concentrations of 0.1 mg/l or less of cadmium with pH adjustment and settling treatment. One well-operated electropalting plant routinely achieves 0.2 mg/l with this technology, and this limit was selected as a thirty day average, with the daily maximum set at 0.4 mg/l to allow for fluctuations. The standards promulgated herein reflect these changes.

§ 421.30 [Amended]
1. Section 421.30 is amended by inserting the phrase "and to the introduction of pollutants into treatment works which are publicly owned" after the word "discharges".

2. Subpart C is amended by adding section 421.34 as follows:

§ 421.34 Pretreatment Standards for Existing Sources.

For the purpose of establishing pretreatment standards under section 307 of the Act for a source subject to the provisions of 40 CFR Part 128 which is an existing source within the secondary copper smelting subcategory, the provisions of 40 CFR Part 128 shall not apply. The pretreatment standards for existing sources within the secondary copper smelting subcategory are set forth below.

Pollutant (or pollutant property) introduced into a publicly owned treatment works shall interfere with the operation or performance of the works.

Specifically the following wastes shall not be introduced into the publicly owned treatment works:

1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works.

2. Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

3. Solid or viscous pollutants in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the publicly owned treatment works.

4. Pollutants at a flow rate and/or pollutant discharge rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.

5. Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

6. No pollutant (or pollutant property) introduced into a publicly owned treatment works shall interfere with the operation or performance of the works. Specifically the following wastes shall not be introduced into the publicly owned treatment works:

1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works.

2. Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

3. Solid or viscous pollutants in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the publicly owned treatment works.

4. Pollutants at a flow rate and/or pollutant discharge rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.

5. Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

6. No pollutant (or pollutant property) introduced into a publicly owned treatment works shall interfere with the operation or performance of the works.

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