

ENVIRONMENTAL PROTECTION AGENCY

[WH-FRL 1724-2]

40 CFR Part 413**Effluent Guidelines and Standards; Electroplating Point Source Category Pretreatment Standards for Existing Sources****AGENCY:** Environmental Protection Agency.**ACTION:** Final Rule; amendments.

SUMMARY: On July 3, 1980, the Environmental Protection Agency published proposed amendments to and requested comments on a final rule (45 FR 45322 et seq.) which limits the concentration or mass of certain pollutants which may be introduced into publicly owned treatment works by operations in the Electroplating Point Source Category. These regulations were first promulgated in the Federal Register on September 7, 1979, and subsequently corrected by notices in the Federal Register dated October 1, 1979, March 25, 1980, and August 19, 1980.

After promulgation, petitions to review the final rule were filed by the National Association of Metal Finishers and the Institute of Interconnecting and Packaging Electronic Circuits in the Court of Appeals. On March 7, 1980, EPA entered into a Settlement Agreement with the petitioners in an effort to resolve the issues without further litigation. The Agreement provided that EPA would publish proposed amendments arising out of the settlement. It further provided that if the final amendments did not differ significantly from those proposed, the petitioners would dismiss their petitions for review.

The Agency has decided, after reviewing comments by industry and other interested parties, to promulgate the proposed rule of July 3, 1980 as the final rule without significant changes.

DATES: Effective Date: The regulations shall become effective March 16, 1981.

Compliance Date: The compliance date for non-integrated facilities shall be May 12, 1983. For integrated facilities, the compliance date shall be three years from the effective date of the combined wastestream formula, 40 CFR § 403.6(e).

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SUPPLEMENTARY INFORMATION: On September 7, 1979, EPA published final

regulations establishing categorical pretreatment standards covering all firms performing operations in the Electroplating Point Source Category that introduce effluent into publicly owned treatment works (POTWs). These operations include electroplating, anodizing, conversion coating, electroless plating, chemical etching and milling, and the manufacture of printed circuit boards. The plants covered by these regulations are found throughout the United States but are concentrated in heavily industrialized areas.

These standards contain specific numerical limitations based on an evaluation of available technologies in each industrial subcategory. The specific numerical limitations are determined separately for each subcategory, and are imposed on pollutants which may interfere with, pass through, or otherwise be incompatible with a publicly owned treatment works (POTW). For plants with a daily flow of 38,000 liters (10,000 gallons) per day or more, the pretreatment standards specifically limit indirect discharges of cyanide and the following metals: lead, cadmium, copper, nickel, chromium, zinc, and silver. Additionally, these regulations limit total metal discharge which is defined as the sum of the individual concentrations of copper, nickel, chromium and zinc. For plants with a daily process wastewater flow of less than 38,000 liters (10,000 gallons), these standards limit only lead, cadmium, and cyanide in order to limit the closure rate in the industry.

A. Background

Petitions to review the electroplating pretreatment standards published September 7, 1979, were filed in the Court of Appeals by the National Association of Metal Finishers (NAMF), the Institute for Interconnecting and Packaging Electronic Circuits (IPEC), and Ford Motor Company (Ford). NAMF and IPEC signed a settlement agreement with EPA that required EPA to propose certain amendments and to propose certain language to be included in the preamble to the electroplating regulation. The proposed amendments were published on July 3, 1980 (45 FR 45322). The agreement also provided that EPA would extend the compliance deadline if promulgation were substantially delayed beyond June 1, 1980, and that NAMF and IPEC would not challenge the regulations if the final regulations and preamble "do not differ significantly from the proposed regulations and preamble." The proposed amendments have been promulgated as the final rule without

significant change, and are discussed in section B below. The preamble discussion has been altered to give the Agency needed flexibility, but EPA believes that the practical effect of this preamble discussion is the same as that contemplated in the Settlement Agreement, and, therefore, is not a significant change. See section B below.

Ford did not sign the NAMF Settlement Agreement. In the Ford lawsuit, a joint motion by Ford and EPA was granted for an extension of the briefing schedule until § 403.6(e), the combined wastestream formula of the general pretreatment regulations, was promulgated. As part of the joint motion, EPA agreed to amend § 413.01 of the electroplating regulations to provide that they would not be effective as to integrated facilities until promulgation of the combined wastestream formula. This amendment was published on March 25, 1980 (45 FR 19245). EPA also agreed that the three year compliance period would run anew with respect to Ford's integrated facilities from the effective date of § 403.6(e). As discussed in section B below, portions of the amendment of § 413.01 have been retained in the final amendments, and the compliance date for integrated facilities has been set at 3 years from the effective date of § 403.6(e).

B. Changes resulting from today's amendments

Most of the amendments to the electroplating regulations arose from the NAMF Settlement Agreement. The preamble discussion of these amendments is preceded by the words "(Settlement Agreement)". Some amendments were required by the Ford Joint Motion and some were included for consistency or clarification. The changes are discussed in detail below.

1. Cyanide Standards. (Settlement Agreement). EPA has revised the applicable daily maximum limitation for total cyanide (CN,T) from .8 to 1.9 mg/l in subparts A, B, D, E, F, G, and H. This change is meant to allow for the special problems of cyanide removal for those who use significant quantities of both cyanide and steel in their plating operations. In such cases iron often enters the plating solution in dragout from the rinse following pickling and prior to plating. Steps can be taken to reduce iron contaminants in the plating solutions through better control of dragout from pre-plating rinsing and use of nonferrous tanks and anode baskets. However, in many cases the formation of iron complexes in the plating solution cannot be altogether eliminated. In these cases the iron and cyanide combine to form a stable iron complex which is not

destroyed, as is free cyanide, by alkaline chlorination treatment. Thus, there is a fundamental difference between platers treating free cyanide and iron cyanide complexes.

EPA took this problem into account in its regulation by including those who use significant quantities of steel and cyanide in the data used to establish the daily maximum limitation for cyanide. However, the Agency now believes that unless the total cyanide number is raised many platers who utilize significant amounts of cyanide and steel will not be able to achieve the standards through the use of best practicable technology. (The Agency also considered establishing a separate subcategory for these platers but decided that approach was impractical; the amounts of steel and cyanide used often fluctuate and there is no objectively quantifiable point at which complex cyanides become a special problem).

To establish a more appropriate daily maximum limit for cyanide, the Agency reviewed its data base to locate representative plants which use significant quantities of both iron and cyanide. The median of the total cyanide effluent for these plants was 0.38 mg per liter, with a daily maximum variability factor of 5.0. This results in the maximum daily limitation of 1.9 mg per liter. The equivalent daily maximums are expressed as mass based limits, 39 milligrams per square meter per operation (mg/op-m²).

2. Four Day Average Standards (Settlement Agreement). Pursuant to the Settlement Agreement, EPA has established daily maximum and 4-day average value limits. The change from 30 day average limits to 4 day average limits does not constitute a relaxation in the level of control technology required.

It is well established Agency policy to issue industrial effluent limitations with both daily maximum and 30 day averages (monthly averages). The 30 day average limits are used in part as a guide for designing the treatment system to remove pollutants to required levels. The 4 day average limits promulgated today are part of the comprehensive NAMF Settlement Agreement. However, it is unlikely the Agency will vary from its customary 30 day average approach in future pretreatment standards for this or other categories.

The frequency of self-monitoring is independent of whether or not the long term average limit is expressed as a 4 day average or a 30 day average. The minimum frequency of self-monitoring required of an industrial user will be established by a section in each categorical pretreatment standard. The

self-monitoring section for electroplating will be proposed in the near future. The proposed self-monitoring section will also discuss how the self-monitoring data will be compared to the 4 day average standards to determine compliance.

3. Revocation of Monitoring Requirements (Settlement Agreement). EPA has revoked the electroplating compliance monitoring requirements previously contained in § 413.03 of the regulations. New monitoring requirements will be proposed shortly. They will be included in the electroplating standards, not in the general pretreatment regulations as the proposed amendments had indicated.

4. Upsets. EPA has revoked former § 413.04 on upsets. Upsets are now governed by § 403.16 of the General Pretreatment Regulations. Accordingly, a special provision in the Electroplating pretreatment standards was deemed unnecessary.

5. Definition of Integrated Facility. On March 25, 1980 (45 FR 19245), the Agency published a correction to § 413.01 which had the effect of removing "integrated facilities" from regulation by the electroplating standards until the effective date of the combined wastestream formula, 40 CFR § 403.6(e). The correction also defined the term integrated facility as a facility "that performs electroplating as only one of several operations necessary for manufacture of a product at a single physical location and has significant quantities of process wastewater from non-electroplating manufacturing operations. In addition, to qualify as an 'integrated facility' one or more plant electroplating process wastewater lines must be combined prior to or at the point of treatment (or proposed treatment) with one or more plant sewers carrying process wastewater from non-electroplating manufacturing operations." In today's amendments, this definition has been moved from § 413.01 to § 413.02(h) with the general definitions.

6. Standards for Integrated Facilities. In place of the upset provision, EPA has added a new section § 413.04 on standards for integrated facilities. This section recognizes that § 403.6(e) of the General Pretreatment Regulations governs limitations on wastestreams that are combined prior to treatment. Section 403.6(e) would apply if an electroplating stream were combined with other regulated or unregulated wastestreams prior to treatment. The new § 413.04 also requires that 30-day average standards, rather than 4-day average standards, be used in calculating an alternative pretreatment

standard for the combined wastestream if one of the non-electroplating streams is regulated by a 30-day average standard. In addition, if two electroplating streams regulated under different subcategories of this regulation are combined, the 4 day standards may be used to calculate the combined wastestream standard unless an additional wastestream subject to 30 day standards is combined.

The new § 413.04 includes a table which gives the 30 day average standards for the appropriate one day maximum and 4 day average standards. The 30 day average standard must be used in computing the pretreatment standard for the combined wastestream when one or more of the non-electroplating wastestreams is regulated by a 30 day average standard. This table was computed from the equation describing the statistical variability of the standards published in former § 413.03 on September 7, 1979. After proper derivation to solve for the 30 day average limit, the equation is as follows:

$$L_{30} = \frac{L_4 - 0.334 (L_1)}{0.666}$$

Where:

- L_{30} = standard not to be exceeded by the average of 30 consecutive days
- L_4 = standard not to be exceeded by the average of 4 consecutive days
- L_1 = Maximum for any one day

The purpose of this requirement is merely to establish consistency in the use of the combined wastestream formula.

Since the 30 day standards were previously published and the combined wastestream formula was carefully considered in the promulgation of the General Pretreatment Regulations, the Agency has promulgated this section in final form.

7. Revocation of BPT Limitations for Direct Dischargers. As part of these revisions, EPA has removed §§ 413.12, 413.22, 413.42, 413.52, and 413.62. These sections, containing best practicable technology (BPT) limitations for five electroplating subcategories for direct dischargers, were suspended indefinitely on December 3, 1976 (41 FR 53018). These regulations were suspended because EPA was then in the process of gathering and examining additional data. However, because the Agency expects to promulgate proposed BPT limitations in the next round of rulemaking, EPA has decided to revoke

these previously suspended standards. The next round of rulemaking will include electroplating in a broader category called Metal Finishing. (See discussion below.)

The sections removed today had previously been offered as guidance to permit writers in setting limitations on individual direct dischargers. Permit writers should now refer to the BPT-analog pretreatment standards amended today for guidance.

8. *Relationship Between These Proposed Standards and Best Available Technology Pretreatment Standards* (Settlement Agreement). This regulation requires categorical pretreatment standards satisfying the requirement in the NRDC consent decree that standards analogous to best practicable control technology (BPT) be developed for existing sources in the electroplating point source category. (Paragraph 13, 8 ERC 2120, 2128 (June 8, 1976).)

The Agency is in the process of developing pretreatment standards analogous to the best available technology economically achievable (BAT) for electroplating. These standards are expected to be promulgated in 1981, and will be called "Metal Finishing" regulations. They will include the processes regulated by the electroplating standards and many other metal finishing processes. The metal finishing regulations will also contain BAT and BPT for direct dischargers, new source performance standards, and pretreatment standards for new sources.

Consistent with Agency policy, any future BAT-analog pretreatment standards will be based on treatment technology compatible with the model technology upon which these standards were based. These new regulations should not render obsolete the technology designed to meet the BPT analog regulations. At the same time, BAT-analog standards may require the installation of additional pretreatment technology.

EPA is sensitive to the fact that the job shop metal finishing segment may be vulnerable to adverse economic impacts as a result of pretreatment regulations. In the preamble to the September 7, 1979, standards, EPA estimated that 587 metal finishing job shops, employing 9,653 workers, may close as a result of these regulations.

As part of the NAMF settlement agreement, EPA stated in the July 3, 1980 proposed preamble that in light of the potentially severe economic impact of these regulations on the job shop segment of the industry, it would not "impose more stringent pretreatment standards for the job shop metal finishing segment in the next several

years." It is still the Agency's view that it is unlikely that EPA will impose standards on job shops or printed circuit board manufacturers based on more advanced technology than that forming the basis for today's pretreatment standards. However, as work continues on the metal finishing regulations, if the Agency finds that the data base or methodology used in setting metal finishing limitations results in different standards than in electroplating, even though the limitations are based on the same technology as was used in electroplating, the Agency may have to reconcile the electroplating standards with the metal finishing standards. In addition, as part of the BAT analysis, EPA will consider the discharge of toxic organics by the industry. Preliminary investigations indicate that toxic organics may be controlled through best management practices with little economic impact on the industry. In considering any regulation of toxic organics, careful attention will be given to the economic impact on the industry.

9. *Compliance Deadlines* (Settlement Agreement). In accordance with the NAMF Settlement Agreement, EPA has extended the compliance date for non-integrated facilities subject to these standards to May 12, 1983. The extension is due to the delay beyond June 1, 1980 for promulgation of these final amendments.

EPA has extended the compliance date for integrated facilities to three years from the effective date of § 403.6(e) of the General Pretreatment Regulations. EPA agreed to this extension because the Agency believed that the combined wastestream formula, § 403.6(e), would have to be promulgated in final form before integrated facilities would understand their compliance obligations under the electroplating standards.

10. *Variations, Reporting Requirements, and Categorical Determinations*. For non-integrated facilities, reporting requirements and categorical determination requests under the General Pretreatment Regulations were triggered by the September 7, 1979 promulgation of the electroplating standards. Facilities that filed timely baseline monitoring reports as required by § 403.12 may revise their reports in light of the change in the cyanide limitation in today's amendments. Such revision is not mandatory.

For integrated facilities, reporting requirements and categorical determination requests are triggered by the effective date of the recent amendments to the General Pretreatment Regulations.

For both integrated and non-integrated facilities, the time for requesting variances for fundamentally different factors is triggered by the effective date of final amendments to § 403.13 of the General Pretreatment Regulations. Industrial Users will have 180 days from the effective date of amended § 403.13 (or, alternatively, 30 days from the Agency's decision on a categorical determination pursuant to § 403.6) to request an FDF variance under the provisions of § 403.13.

C. Executive Order 12044

Under Executive Order 12044 EPA is required to judge whether a regulation is "significant" and therefore subject to the procedural requirements of the Order or whether it may follow other specialized development procedures. On June 26, 1980, the Administrator reviewed these amendments and determined that they are a specialized regulation not subject to the procedural requirements of Executive Order 12044. For a complete discussion of the Administrator's initial determination regarding the electroplating regulations see 44 FR 52592 (Sept. 7, 1979).

D. Summary of Public Participation

Following the promulgation of the electroplating regulations several actions were brought in the United States Court of Appeals for the Third Circuit challenging various aspects of these regulations. Among these are *National Association of Metal Finishers v. EPA*, No. 75-2256 and *the Institute for Interconnecting and Packaging Electronic Circuits v. EPA*, No. 79-2443.

On March 7, 1980, EPA entered into an agreement with the above petitioners which seeks to settle the issues raised in the litigation. Under terms of the Settlement Agreement, the petitioners stipulated that if the final regulations do not differ significantly from the proposed regulations, the petitioners will dismiss their challenge to the electroplating pretreatment regulation.

On July 3, 1980, EPA published the proposed modifications arising out of the Settlement Agreement, and requested public comment. After considering these comments, EPA has decided to publish the proposed modifications, without significant change, as the final rule.

Comments on the proposed modifications were received from several industry trade associations, individual industries, and public sewerage agencies.

The major comments and Agency responses are as follows:

(1) *Comment*: The amendment makes no allowance for delay in attaining

compliance past June 1, 1980, per the EPA/NAMF Settlement Agreement.

Response: Under the Settlement Agreement, the compliance date is to be extended by the period of time between June 1, 1980, and the actual date the amended rules are promulgated. The Agency has extended the compliance date of these regulations accordingly.

(2) *Comment:* The 1.9 mg/l standard for total cyanide is impossible to meet on a daily basis by job shops doing barrel plating on ferrous metal with cyanide plating baths. Iron cyanide and other cyanide complexes are not amenable to breakdown by oxidation methods. Therefore, the total cyanide standard should be eliminated from pretreatment standards.

Response: The amended standard of 1.9 mg/l was developed after reconsidering the problems of iron cyanide complexes (see background discussion above). Studies conducted by EPA indicate that alkaline chlorination technology will reduce total cyanide to 1.9 mg/l where iron cyanide complexes are present. In addition, other cyanide destruction technologies may be applied with equal success, although they are not the technological basis for these regulations. For example, the addition of ferrous sulfate to the precipitation-clarification system has been found to reduce total cyanide to less than 0.4 mg/l.

(3) *Comment:* Pretreatment regulations require indirect dischargers to install equipment to treat wastewater where the POTW is capable of treating it, thus rendering pretreatment an unnecessary expense.

Response: See the Responses to Comments 11 and 13 below.

(4) *Comment:* The less than 10,000 gal/day variance causes severe economic disparity, since it allows the under 10,000 gal/day discharger to escape the economic burden of installing and operating treatment facilities.

Response: This comment was addressed in the final pretreatment standards promulgated September 7, 1979 (44 FR 52603).

(5) *Comment:* The proposed revision of the CN_T from 0.8 to 1.9 mg/l in subparts A, B, D, E, F, G, and H is a more realistic approach for those platers who utilize significant amounts of steel and cyanide. From data obtained in the field by our company, we find that in such plants a maximum of 1.9 mg/l CN_T is easily attained by good plant operation. Further mixing of process streams and the associated dissociation and dilution effects also indicate that the 1.0 mg/l four-day average value is a more attainable limit.

Response: As discussed previously, EPA's data indicates that platers that use significant amounts of steel and cyanide can attain the revised cyanide limitation. However, with respect to the reference to dilution and mixing effects, the General Pretreatment Regulations prohibit dilution as a substitute for treatment. (See 40 CFR 403.6(d).) Moreover, "mixing of process streams" may subject the industrial user to the requirements of the combined waste stream formula. (See 40 CFR 403.6(e).)

(6) *Comment:* Values for the maximum daily and four-day average are far more realistic than previous limits. However, although the four day limits are higher than the 30 day average they replace, they do not represent a relaxation of the standards since they are based upon the same formula from which the 30-day average values were calculated.

Response: The 4-day average numbers were not intended to be a relaxation of the prior 30 day average standards. The Agency is requiring 4-day averages as a result of the NAMF Settlement Agreement. For further discussion of this provision, see the discussion of 4 day average standards above.

(7) *Comment:* The proposed amendments remain silent regarding the disposition of small electroplaters discharging much less than 10,000 gal/day. EPA should reconsider the imposition of a practicable low end cut-off level, below which indirect dischargers would be exempt from categorical pretreatment standards.

Response: The regulations promulgated on September 7, 1979, provide that 10,000 gal/day is the flow cutoff distinguishing large and small indirect dischargers. With respect to facilities discharging much less than 10,000 gal/day, the Agency believes that the present regulations are achievable and necessary.

(8) *Comment:* Since the Settlement Agreement was signed, NAMF has continued to review the Agency's data base and methodology. NAMF continues to believe that the metal finishing regulations, even as proposed to be amended, are not economically achievable, that compliance is not feasible using the technology specified by EPA, and that the regulations are far more stringent than necessary to protect the environment.

Response: The Agency has adequately addressed in the September 7, 1979 regulations the economic impacts of the electroplating category regulations. (See 44 FR 52592-95.) There is also adequate technical support for the recommended treatment technologies. (See 44 FR 52596-601; Development Document for Existing Source Pretreatment Standards

for the Electroplating Point Source Category.) The relaxation of total cyanide limitations contained in today's amendments provides a realistic standard that can be achieved by platers who use significant amounts of steel and cyanide.

(9) *Comment:* The cyanide limits are based on faulty data, an improper methodology and do not represent limits achievable for plating of steel in cyanide solutions.

Response: As discussed above, the cyanide limits have been revised to a level that is achievable for electroplaters subject to this regulation. For the Agency's methodology, see 44 FR 52607.

(10) *Comment:* The methodology employed by EPA is flawed and results in overly stringent limits. EPA has not used the raw data directly to calculate pretreatment limits. Instead, EPA has employed an elaborate statistical methodology to predict the concentrations that should be achieved by exemplary plants. In the previous sections we have shown that the raw data does not correspond with EPA's calculated limits—that is, a number of exemplary plants violate EPA's standards.

Response: A detailed summary of the methodology employed for setting pretreatment regulations is presented in Section XII of the Supplementary Information material preceding the September 7, 1979 rules and regulations. The Agency has found that the statistical approach utilized is the best method for taking into account the many variables that must be considered when setting pretreatment standards.

The data base used in developing these standards is not restricted to exemplary plant data. Data on 123 plants were collected but not all plants were used in the statistical analyses. Screening criteria applied to the data from 123 plants determined that only data from 67 plants were usable. The screening criteria excluded plants that were improperly designed or clearly improperly operated. Such plants do not represent the performance of best practicable technology and should not be considered in setting pretreatment standards. Also, plants with advanced treatment systems such as the Lancey treatment system were excluded from the data base. Removal from the data base resulted from excessively high TSS values, improper pH in the clarifier, and low pollutant values in the raw waste load. Certain other plants have subsequently been eliminated as a result of information provided by participants.

(11) *Comment:* The Clean Water Act, as envisioned by Congress, was "designed to ensure clean water." If a

POTW is meeting its NPDES permit limitations, then the water is sufficiently clean to obviate the need for Industrial Users to comply with pretreatment standards.

Response: A similar comment was addressed in the final regulations published September 7, 1979, 44 FR 52590, 52602. It is correct that Congress intended to clean up the Nation's waters through the Clean Water Act. However, Congress did not take the approach advocated by this commenter, *i.e.*, exemption of Industrial Users from pretreatment standards if the POTW does not violate its NPDES permit limitations. Instead, Congress enacted Section 307(b) requiring EPA to establish pretreatment standards for pollutants which pass through, interfere, or are otherwise incompatible with the POTW. Thus, Congress established limits at the individual Industrial User rather than at the POTW.

Moreover, pretreatment standards are based on the best available technology economically achievable; they are not based on effluent quality. (See sections 301(b)(2)(A)(ii) & 307; 3 A Legislative History of the Clean Water Act at 271.) To argue that the effluent quality achieved by a POTW satisfying its permit is adequate to obviate the need for pretreatment standards is to argue that pretreatment standards should be based on effluent quality rather than best available technology. This is not what Congress intended.

(12) *Comment:* Congress intended pretreatment standards to apply only to "the most significant pretreatment problems." (Legis. Hist. I at 800.)

Response: EPA is writing pretreatment standards for the industries most likely to contribute toxic pollutants: Indeed, the discharge of wastewater from electroplaters is one of "the most significant pretreatment problems." Electroplaters use large amounts of toxic heavy metals in the plating process as well as chelating agents such as cyanide to promote smooth plating of certain metals. Electroplating is one of the 34 categories listed in the *NRDC v. Costle* Consent Decree, 8 ERC 1220, as modified at 12 ERC 1833 (March 9, 1979).

Indeed, the Agency estimated in the preamble to the final regulation that compliance with the pretreatment standards for electroplating could eliminate 140 million pounds per year of toxic pollutants from entering the water or concentrating in POTW sludge. 44 FR 52591. The next largest contributor of toxic pollutants is the iron and steel industry at 11 million pounds per year. See also Responses to Comments at 44 FR at 52606.

(13) *Comment:* Congress intended that the combination of pretreatment and treatment by the POTW achieve at least the level of treatment which would be required of a direct discharger.

Response: This statement is correct and supports the approach taken by EPA in setting pretreatment standards for electroplaters. Two major themes run through the legislative history of pretreatment standards under the Clean Water Act: First, indirect dischargers must be subject to pretreatment standards equivalent to effluent limitations imposed on direct dischargers and second, despite the desire for parity between direct and indirect dischargers, indirect dischargers should not be required to install or perform treatment that would be redundant with the treatment performed by the POTW. To meet these two goals, EPA promulgates pretreatment standards analogous to its direct discharger standards. Pretreatment standards promulgated at the same time as "best available technology" (BAT) direct discharge limits are analogous to BAT. Pretreatment standards, like the electroplating standards which were proposed at the same time as standards for direct dischargers based on the best practicable control technology currently available (BPT), are analogous to BPT. EPA has also, however, established a procedure for achieving Congress' solution to the problem of redundant treatment: removal allowances. Section 403.7 of the General Pretreatment Regulation sets forth in detail the steps that the POTW and Industrial User must comply with in order to obtain a removal allowance. The removal allowance may be given by a POTW upon demonstration to the State or EPA that it is consistently removing the regulated pollutant. If such a demonstration is made, then the POTW may reduce the national categorical pretreatment standards applicable to its industrial users by an appropriate amount. However, the statute provides that these removal allowances are available at the option of the POTW. "[P]retreatment requirements * * * may be revised" by the POTW (§ 307(b)), and may not be given if the POTW's discharge violates "that effluent limitation or standard which would be applicable to such toxic pollutant" if discharged by a direct discharger, or if the discharge from the POTW prevents "sludge use or disposal by such works in accordance with section 405" of the Act. The Agency has fulfilled the delicate balancing required of it by Congress by establishing technology-based pretreatment standards and establishing

the mechanism for obtaining removal allowances. By this means, the combination of pretreatment by the Industrial User and treatment by the POTW is at least equal to the level of treatment which would be required of a direct discharger.

(14) *Comment:* The electroplating pretreatment standards bear no relationship to treatment levels "shown to be adequate." The commenter argues that if the local POTW sets limitations for its Industrial Users, and those limitations are less stringent than those imposed by EPA, then EPA's limits must be too stringent.

Response: This comment is based on the false premise that pretreatment standards established by local government should form the basis for setting national categorical pretreatment standards. (See discussion of this issue at 44 FR 52602.) However, Congress requires EPA to establish technology-based standards that are equivalent to those established for direct dischargers. Accordingly, whether or not EPA's standards are reasonable does not depend upon a comparison of national pretreatment standards with local standards, but, instead, on an examination of the methodology used in establishing the standards.

(15) *Comment:* POTW's should be required to give removal allowances to Industrial Users, especially since some municipalities may not voluntarily seek removal allowances. Some municipalities say that it is too difficult to meet EPA's requirements for giving removal allowances, and, therefore they do not intend to apply for them.

Response: Two points should be made in response to this comment: First, EPA has revised the removal allowance procedures in amendments to the General Pretreatment Regulation to provide greater flexibility in obtaining removal allowances.

Second, removal allowances were intended to be given on a local basis. In discussing the removal allowance provision, then-Senator Muskie stated: "Where a local compliance program is approved, EPA and the permitting States may approve case-by-case modifications of the national pretreatment standards—or local credits—for documented pollutant removals attained by a publicly-owned treatment works. To receive a local credit, there must be a demonstration that the pollutant is degraded or treated; credits will not be given for dilution . . . National standards will not permit local credits for pollutants which are bioaccumulative or persistent toxics. Tying local credits to local compliance programs not only provides an incentive

for local participation, but more importantly, it provides assurance that the removal levels which justified the local credits will be maintained by a publicly-owned treatment works committed to operating a sound pretreatment program." (3 Legis. Hist. at 461-62; Senate Debate.) It is apparent from this discussion by the principal architect of the Clean Water Act that removal allowances were not intended to be required of every POTW, and, in fact, were to be limited to those POTWs that could demonstrate removal and were committed to operating a sound pretreatment program.

(16) *Comment:* The electroplating standards should contain a provision discussing removal allowances.

Response: The procedures for removal allowances are contained in Section 403.7 of the General Pretreatment Regulations. Those procedures apply to these standards.

(17) *Comment:* An analysis pursuant to Executive Order 12044 should have been done for electroplating. EPA's argument that the *NRDC v. Costle* Consent Decree imposed deadlines on the issuance of electroplating pretreatment standards is inaccurate.

Response: A full explanation of EPA's responsibilities under Executive Order 12044 was given in the September 7, 1979 publication of these final regulations. (See 44 FR 52592-95.) The *NRDC v. Costle* Consent Decree provided that EPA would promulgate pretreatment standards for the electroplating point source category by May 15, 1977. (See 8 ERC 2120, 2128.)

(18) *Comment:* Pretreatment results in no significant increment in pollution control.

Response: This comment was addressed in the preamble to the final regulations, published on September 7, 1979, 44 FR 52590, 52597-52601. See also *Fate of Priority Pollutants in Publicly Owned Treatment Works, Interim Report*, EPA 440/1-80/301 (October 1980); General Pretreatment Regulation, 40 CFR Part 403.

(19) *Comment:* The electroplating standards will have a severe economic impact on small electroplaters.

Response: This comment was considered and addressed in the final regulations published on September 7, 1979, 44 FR 52590, 52592-96, 52602, 52611-17.

(20) *Comment:* EPA overestimated the life of a treatment system, thus causing long-term treatment costs to be underestimated. EPA estimated a 20 year life for a treatment system, whereas NAMF believes that an 8-12 year life is more realistic.

Response: EPA's economic analysis is a short-run analysis based on amortization of investment over five years. Therefore, the estimate on the life of a treatment system is a moot point, for the analysis only considers the short-run time frame. The actual life of a treatment system beyond five years is not relevant to the analysis.

(21) *Comment:* There was no additional data collection for EPA's 1979 report to supplement the data in the 1977 report. Thus, the report is essentially the same.

Response: There was additional technical data collection following EPA's 1977 report. However, this technical data was not well-matched with the economic data. Therefore, it was not incorporated into the 1979 report. For this report the 1977 data was updated where possible by means of indices and inflators in order to reflect 1979 conditions.

(22) *Comment:* Operating and maintenance costs (O&M) as a percentage of capital costs are higher than the 12% that EPA originally projected. As supporting evidence, NAMF refers to a study done by EPA's research laboratory in Cincinnati.

Response: Although EPA has previously addressed this issue, the apparent discrepancy between the original EPA figures and the Cincinnati study has not been covered. However, this is easily answered. The Cincinnati study was not an empirically based analysis; rather it was simply a "mock-up" which used a different basis for the calculation of O&M as a percentage of capital costs. Therefore, procedures on data usage, data manipulation and consequently, results, would differ. For example, one obvious difference between the studies is that the Cincinnati study calculated depreciation of treatment equipment as a component of O&M, whereas EPA's original study did not. A simple difference in assumptions such as this one will cause O&M costs in the Cincinnati study to increase as a percentage of capital, relative to the same variable in EPA's study.

(23) *Comment:* These regulations are based on faulty data. One of the plants relied on by EPA submitted false data and recently pleaded guilty to falsification of reporting data. We request that EPA revise its calculations to eliminate the use of Plant No. 1108 in the data base for both treated effluent and variability factors. We also request reconsideration of these proposed amendments.

Response: EPA has analyzed the data submitted by Plant No. 1108 and has concluded that it is unnecessary to

revise the treated effluent and variability factors. Plant No. 1108 is identical to Plant No. 14 in EPA's data base. The Agency has performed calculations excluding Plant Nos. 1108 and 14 from the data base to determine whether removal of these data would affect the final pretreatment standards. Our calculations, which have been included in the administrative record, indicate that there is no significant change in the pretreatment standards resulting from the removal of these data. Accordingly, EPA has determined not to eliminate these data from the data base nor to reconsider these amendments.

E. Effect of Reprinting Entire Text of Part 413.

Today's amendments revise part, but not all, of the existing 40 CFR Part 413 published on September 7, 1979. In the regulatory section of this notice, however, EPA has reprinted the entire Part 413 as it is revised by these amendments. Those portions of the September 7, 1979 regulations that are not substantively amended in today's Federal Register are only subject to judicial review in those petitions for review that were filed within 90 days of the issuance of the September 7, 1979 regulations.

Dated: January 13, 1981.

Douglas M. Costle,
Administrator.

40 CFR Part 413 is revised by amending §§ 413.01, 413.02, 413.14, 413.24, 413.44, 413.54, 413.64, 413.74, 413.84, by removing §§ 413.03, 413.04, 413.05, 413.12, 413.22, 413.42, 413.52, 413.62, and part of § 413.01, and by adding § 413.02(h) and a new section 413.04. The revised Part 413 reads as follows:

PART 413—ELECTROPLATING POINT SOURCE CATEGORY

General Provisions

Sec.	
413.01	Applicability.
413.02	General definitions.
413.03	[Reserved]
413.04	Integrated facilities.
413.05	[Reserved]

Subpart A—Electroplating of Common Metals Subcategory

413.10	Applicability: Description of the electroplating of common metals subcategory.
413.11	Specialized definitions.
413.12	[Reserved]
413.14	Pretreatment standards for existing sources.

Subpart B—Electroplating of Precious Metals Subcategory

- 413.20 Applicability: Description of the electroplating of precious metals subcategory.
- 413.21 Specialized definitions.
- 413.22 [Reserved]
- 413.24 Pretreatment standards for existing sources.

Subpart C—Electroplating of Specialty Metals Subcategory [Reserved]

Subpart D—Anodizing Subcategory

- 413.40 Applicability: Description of the anodizing subcategory.
- 413.41 Specialized definitions.
- 413.42 [Reserved]
- 413.44 Pretreatment standards for existing sources.

Subpart E—Coatings Subcategory

- 413.50 Applicability: Description of the coatings subcategory.
- 413.51 Specialized definitions.
- 413.52 [Reserved]
- 413.54 Pretreatment standards for existing sources.

Subpart F—Chemical Etching and Milling Subcategory

- 413.60 Applicability: Description of the chemical etching and milling subcategory.
- 413.61 Specialized definitions.
- 413.62 [Reserved]
- 413.64 Pretreatment standards for existing sources.

Subpart G—Electroless Plating Subcategory

- 413.70 Applicability: Description of the electroless plating subcategory.
- 413.71 Specialized definitions.
- 413.74 Pretreatment standards for existing sources.

Subpart H—Printed Circuit Board Subcategory

- 413.80 Applicability: Description of the printed circuit board subcategory.
- 413.81 Specialized definitions.
- 413.84 Pretreatment standards for existing sources.

Authority: Secs. 301, 304(g), 307, 308, 309, 402, 405, 501(a) of the Clean Water Act, as amended [33 U.S.C. §§ 1311, 1314(g), 1317, 1318, 1319, 1322, 1325, and 1341(a)].

General Provisions

§ 413.01 Applicability.

(a) This Part shall apply to electroplating operations in which metal is electroplated on any basis material and to related metal finishing operations as set forth in the various subparts, whether such operations are conducted in conjunction with electroplating, independently or part of some other operation. The compliance deadline for integrated facilities shall be 3 years from the effective date of 40 CFR 403.6(e). The compliance deadline for non-integrated facilities shall be May 12, 1983.

(b) Operations similar to electroplating which are specifically excepted from coverage of this Part include: (1) Electrowinning and electrorefining conducted as a part of nonferrous metal smelting and refining (40 CFR 421); (2) Metal surface preparation and conversion coating conducted as a part of coil coating (40 CFR 465); (3) Metal surface preparation and immersion plating or electroless plating conducted as a part of porcelain enameling (40 CFR 466); and (4) electrodeposition of active electrode materials, electroimpregnation, and electroforming conducted as a part of battery manufacturing (40 CFR 461).

(c) Metallic platemaking and gravure cylinder preparation conducted within printing and publishing facilities, and continuous strip electroplating conducted within iron and steel manufacturing facilities which introduce pollutants into a publicly owned treatment works are exempted from the pretreatment standards for existing sources set forth in this Part.

§ 413.02 General definitions.

In addition to the definitions set forth in 40 CFR 401 and the chemical analysis methods set forth in 40 CFR 136, both of which are incorporated herein by reference, the following definitions apply to this Part:

(a) The term "CN,A" shall mean cyanide amenable to chlorination as defined by 40 CFR 136.

(b) The term "CN,T" shall mean cyanide, total.

(c) The term "Cr,VI" shall mean hexavalent chromium.

(d) The term "electroplating process wastewater" shall mean process wastewater generated in operations which are subject to regulation under any of subparts A through H of this Part.

(e) The term "total metal" is defined as the sum of the concentration or mass of Copper (Cu), Nickel (Ni), Chromium (Cr) (total) and Zinc (Zn).

(f) The term "strong chelating agents" is defined as all compounds which, by virtue of their chemical structure and amount present, form soluble metal complexes which are not removed by subsequent metals control techniques such as pH adjustment followed by clarification or filtration.

(g) The term "control authority" is defined as the POTW if it has an approved pretreatment program; in the absence of such a program, the NPDES State if it has an approved pretreatment program or EPA if the State does not have an approved program.

(h) The term "integrated facility" is defined as a facility that performs electroplating as only one of several

operations necessary for manufacture of a product at a single physical location and has significant quantities of process wastewater from non-electroplating manufacturing operations. In addition, to qualify as an "integrated facility" one or more plant electroplating process wastewater lines must be combined prior to or at the point of treatment (or proposed treatment) with one or more plant sewers carrying process wastewater from non-electroplating manufacturing operations.

§ 413.03 [Reserved.]

§ 413.04 Standards for integrated facilities.

Pretreatment standards for integrated facilities shall be computed as required by § 403.6(e) of EPA's General Pretreatment Regulations. In cases where electroplating process wastewaters are combined with regulated wastewaters which have 30 days average standards, the corresponding 30 day average standard for the electroplating wastewaters must be used. The 30 day average shall be determined for pollutants in the relevant subcategory from the corresponding daily and 4 day average values listed in the table below.

If the maximum for any 1 day is	And the 4 day average is	Then the 30 day average is
0.6	0.4	0.3
1.2	.7	.5
1.9	1	.8
4.1	2.6	1.8
4.2	2.6	1.8
4.5	2.7	1.8
5.0	2.7	1.5
7.0	4	2.5
10.5	6.8	5
20.0	13.4	10
23	16	12
47	29	20
53	36	27
74	39	21
107	65	45
169	89	49
160	100	70
164	102	70
176	105	70
273	156	93
365	229	160
374	232	160
401	241	160
410	267	185
623	257	223
935	609	445

§ 413.05 [Reserved]

Subpart A—Electroplating of Common Metals Subcategory

§ 413.10 Applicability: Description of the electroplating of common metals subcategory.

The provisions of this subpart apply to dischargers of pollutants in process

wastewaters resulting from the process in which a ferrous or nonferrous basis material is electroplated with copper, nickel, chromium, zinc, tin, lead, cadmium, iron, aluminum, or any combination thereof.

§ 413.11 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq m" ["sq ft"] shall mean the area plated expressed in square meters [square feet].

(b) The term "operation" shall mean any step in the electroplating process in which a metal is electrodeposited on a basis material and which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickle, stripping, and coloring when each operation is followed by a rinse.

§ 413.12 [Reserved]

§ 413.14 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 40 CFR 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieved compliance with these standards.

(b) For a source discharging less than 38,000 liters (10,000 gal.) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart A.—Common Metals Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	.6	.4
Cd.....	1.2	.7

(c) For plants discharging 38,000 liters (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart A.—Common Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	19	1.0
Cu.....	4.5	2.7

Subpart A.—Common Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)—Continued

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	.6	.4
Cd.....	1.2	.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may be applied in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart A.—Common Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-Operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	74	39
Cd.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart A.—Common Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Pb.....	.6	.4
Cd.....	1.2	.7

Subpart A.—Common Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)—Continued

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
TSS.....	20.0	13.4
pH.....	1	3

¹Within the range 7.5 to 10.0.

Subpart B.—Electroplating of Precious Metals Subcategory

§ 413.20 Applicability: Description of the electroplating of precious metals subcategory.

The provisions of this subpart apply to discharges of process wastewaters resulting from the process in which a ferrous or nonferrous basis material is plated with gold, silver, iridium, palladium, platinum, rhodium, ruthenium, or any combination of these.

§ 413.21 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq m" ("sq ft") shall mean the area plated expressed in square meters [square feet].

(b) The term "operation" shall mean any step in the electroplating process in which a metal is electrodeposited on a basis material and which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickle, stripping, and coloring when each operation is followed by a rinse.

§ 413.22 [Reserved]

§ 413.24 Pretreatment standards for existing sources.

Except as provided in 40 CFR § 403.7 and § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No user introducing wastewater pollutants into a publicly owned treatment works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart B.—Precious Metals Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	.6	.4
Cd.....	1.2	.7

(c) For plants discharging 38,000 liters (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart B.—Precious Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
Ag.....	1.2	0.7
CN, T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	.6	.4
Cd.....	1.2	.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart B.—Precious Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-Operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
Ag.....	47	29
CN, T.....	74	39
Cu.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal

achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart B.—Precious Metals Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Pb.....	.6	.4
Cd.....	1.2	.7
TSS.....	20.0	13.4
pH.....	1	1

¹Within the range 7.5 to 10.0.

Subpart C—Electroplating of Speciality Metals Subcategory [Reserved]

Subpart D—Anodizing Subcategory

§ 413.40 Applicability: Description of the anodizing subcategory.

The provisions of this subpart apply to discharges of process wastewater resulting from the anodizing of ferrous or nonferrous materials.

§ 413.41 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq m" ("sq ft") shall mean the area plated expressed in square meters (square feet).

(b) The term "operation" shall mean any step in the anodizing process in which a metal is cleaned, anodized, or colored when each such step is followed by a rinse.

§ 413.42 [Reserved]

§ 413.44 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No user introducing wastewater pollutants into a publicly owned treatment works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal) per calendar day of electroplating process

wastewater the following limitations shall apply:

Subpart D.—Anodizing Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	0.6	0.4
Cd.....	1.2	0.7

(c) For plants discharging 38,000 liters (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart D.—Anodizing Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	0.6	0.4
Cd.....	1.2	0.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart D.—Anodizing Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	74	39
Cu.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority.

These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart D.—Anodizing Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN,T.....	1.9	1.0
Pb.....	0.6	0.4
Cd.....	1.2	0.7
TSS.....	20.0	13.4
pH.....	(¹)	(¹)

¹ Within the range 7.5 to 10.00

Subpart E—Coatings Subcategory

§ 413.50 Applicability: Description of the coatings subcategory.

The provisions of this subpart apply to discharges resulting from the chromating, phosphating or immersion plating on ferrous or nonferrous materials.

§ 413.51 Specialized definitions.

For the purpose of this subpart;

(a) The term "sq m" ("sq ft") shall mean the area processed expressed in square meters (square feet).

(b) The term "operation" shall mean any step in the coating process in which a basis material surface is acted upon by a process solution and which is followed by a rinse; plus the related operations of alkaline cleaning, acid pickle, and sealing, when each operation is followed by a rinse.

§ 413.52 [Reserved]

§ 413.54 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No user introducing wastewater pollutants into a publicly owned treatment works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart E.—Coatings Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	0.6	0.4
Cd.....	1.2	0.7

(c) For plants discharging 38,000 liters (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart E.—Coatings Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN,T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	0.6	0.4
Cd.....	1.2	0.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart E.—Coatings Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	74	39
Cu.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing

treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart E.—Coatings Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Pb.....	0.6	0.4
Cd.....	1.2	0.7
TSS.....	20.0	13.4
pH.....	(¹)	(¹)

¹ Within the range 7.5 to 10.0

Subpart F—Chemical Etching and Milling Subcategory

§ 413.60 Applicability: Description of the chemical etching and milling subcategory.

The provisions of this subpart apply to discharges of process wastewaters resulting from the chemical milling or etching of ferrous or nonferrous materials.

§ 413.61 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq m" ("sq. ft.") shall mean the area exposed to process chemicals expressed in square meters (square feet).

(b) The term "operation" shall mean any step in the chemical milling or etching processes in which metal is chemically or electrochemically removed from the work piece and which is followed by a rinse; this includes related metal cleaning operations which preceded chemical milling or etching, when each operation is followed by a rinse.

§ 413.62 [Reserved]

§ 413.64 Pretreatment standards for existing sources.

Except as provided in 40 CFR § 403.7 and § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No User introducing wastewater pollutants into publicly owned treatment

works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal.) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart F.—Chemical Etching and Milling Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	0.6	0.4
Cd.....	1.2	0.7

(c) For plants discharging 38,000 liters (10,000 gal.) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart F.—Chemicals Etching and Milling Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	0.6	0.4
Cd.....	1.2	0.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart F.—Chemical Etching and Milling Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	74	39
Cu.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16

Subpart F.—Chemical Etching and Milling Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)—Continued

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart F.—Chemical Etching and Milling Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Pb.....	0.6	0.4
Cd.....	1.2	0.7
TSS.....	20.0	13.4
pH.....	(¹)	(¹)

¹ Within the range 7.5 to 10.0

Subpart G.—Electroless Plating Subcategory

§ 413.70 Applicability: Description of the electroless plating subcategory.

The provisions of this subpart apply to discharges resulting from the electroless plating of a metallic layer on a metallic or nonmetallic substrate.

§ 413.71 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq m" ("sq. ft.") shall mean the area plated expressed in square meters (square feet).

(b) The term "electroless plating" shall mean the deposition of conductive material from an autocatalytic plating solution without application of electrical current.

(c) The term "operation" shall mean any step in the electroless plating process in which a metal is deposited on a basis material and which is followed

by a rinse; this includes the related operations of alkaline cleaning, acid pickle, and stripping, when each operation is followed by a rinse.

§ 413.74 Pretreatment standards for existing sources.

Except as provided in 40 CFR § 403.7 and § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No User introducing wastewater pollutants into publicly owned treatment works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal.) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart G.—Electroless Plating Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	0.6	0.4
Cd.....	1.2	0.7

(c) For plants discharging 38,000 l (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart G.—Electroless Plating Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	0.6	0.4
Cd.....	1.2	0.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and

the publicly owned treatment works receiving such regulated wastes:

Subpart G.—Electroless Plating Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN,T.....	74	39
Cu.....	176	105
Ni.....	160	100
Cr.....	273	156
Zn.....	164	102
Pb.....	23	16
Cd.....	47	29
Total metals.....	410	267

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart G.—Electroless Plating Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN,T.....	1.9	1.0
Pb.....	0.6	0.4
Cd.....	1.2	0.7
TSS.....	20.0	13.4
pH.....	(¹)	(¹)

¹Within the range 7.5 to 10.00

Subpart H—Printed Circuit Board Subcategory

§ 413.80 Applicability: Description of the printed circuit board subcategory.

The provisions of this subpart apply to the manufacture of printed circuit boards, including all manufacturing operations required or used to convert an insulating substrate to a finished printed circuit board. The provisions set forth in other subparts of this category are not applicable to the manufacture of printed circuit boards.

§ 413.81 Specialized definitions.

For the purpose of this subpart:

(a) The term "sq ft" ("sq m") shall mean the area of the printed circuit board immersed in an aqueous process bath.

(b) The term "operation" shall mean any step in the printed circuit board manufacturing process in which the board is immersed in an aqueous process bath which is followed by a rinse.

§ 413.84 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

(a) No user introducing wastewater pollutants into a publicly owned treatment works under the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this standard.

(b) For a source discharging less than 38,000 liters (10,000 gal) per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart H.—Printed Circuit Board Facilities Discharging Less Than 38,000 Liters Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, A.....	5.0	2.7
Pb.....	0.6	0.4
Cd.....	1.2	0.7

(c) For plants discharging 38,000 liters (10,000 gal) or more per calendar day of electroplating process wastewater the following limitations shall apply:

Subpart H.—Printed Circuit Board Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Cu.....	4.5	2.7
Ni.....	4.1	2.6
Cr.....	7.0	4.0
Zn.....	4.2	2.6
Pb.....	0.6	0.4
Cd.....	1.2	0.7
Total metals.....	10.5	6.8

(d) Alternatively, the following mass-based standards are equivalent to and may apply in place of those limitations specified under paragraph (c) of this section upon prior agreement between a source subject to these standards and the publicly owned treatment works receiving such regulated wastes:

Subpart H.—Printed Circuit Board Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/sq m-operation)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	169	89
Cu.....	401	241
Ni.....	365	229
Cr.....	623	357
Zn.....	374	232
Pb.....	53	36
Cd.....	107	65
Total metals.....	935	609

(e) For wastewater sources regulated under paragraph (c) of this section, the following optional control program may be elected by the source introducing treated process wastewater into a publicly owned treatment works with the concurrence of the control authority. These optional pollutant parameters are not eligible for allowance for removal achieved by the publicly owned treatment works under 40 CFR 403.7. In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the following limitations shall apply:

Subpart H.—Printed Circuit Board Facilities Discharging 38,000 Liters or More Per Day PSES Limitations (mg/l)

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 4 consecutive monitoring days shall not exceed
CN, T.....	1.9	1.0
Pb.....	0.6	0.4
Cd.....	1.2	0.7
TSS.....	20.0	13.4
pH.....	(¹)	(¹)

¹Within the range 7.5 to 10.0

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