Chapter NR 260

ELECTROPLATING

Note: Chapter NR 260 as it existed on October 31, 1986 was repealed and a new chapter NR 260 was created effective November 1, 1986.

NR 260.01 Purpose. The purpose of this chapter is to establish pretreatment standards and effluent limitations for existing sources in the electroplating industry which introduce pollutants into publicly owned treatment works.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

NR 260.02 Applicability. c1d The provisions of this chapter are applicable to existing sources which discharge pollutants into publicly owned treatment works resulting from operations in the following process subcategories as defined in s. NR 260.03 c3d:

cad Electroplating of common metals.

cbd Electroplating of precious metals.

ccd Electroplating of specialty metals.

Note: This process subcategory is reserved.

cdd Anodizing.

ced Coating cchromating, phosphating and coloringd.

cfd Chemical etching and milling.

cgd Electroless plating.

chd Printed circuit board manufacture.

c2d The provisions of this chapter are not applicable to the following:

cad Operations similar to electroplating which are specifically regulated by other categorical standards.

Note: These other applicable categorical standards include: aluminum forming, battery manufacturing, coil coating, copper forming, electrical and electronic components, iron and steel manufacturing, metal molding and casting cfoundriesd, nonferrous metals forming, nonferrous metals manufacturing, plastic molding and forming, porcelain enameling.

cbd Metallic platemaking and gravure cylinder preparation conducted for use in the printing and publishing industry.

ccd Industrial users subject to pretreatment standards for new sources cPSNSd, which are regulated under ch. NR 261.

cdd Industrial users subject to best practicable technology currently available cBPTd, best available technology economically achievable cBATd, and new source performance standards cNSPSd, which are regulated under ch. NR 261.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

NR 260.03 Definitions. The following definitions are applicable to terms used in this chapter. Definitions of other terms and meanings of abbreviations are set forth in chs. NR 205 and 211, and the Development Document for Existing Source Pretreatment Standards for the Electroplating Point Source Category, EPA 440{1-79{003, August 1979.

Note: Copies of this document are available for inspection at the office of the department of natural resources, 101 S. Webster, Madison; the secretary of state[s office, and the office of the legislative reference bureau, and may be obtained for personal use from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20460.

c1d XCyanide, AY means cyanide amenable to alkaline chlorination as determined by ch. NR 219.

c2d XCaptive facilityY means a facility which owns more than 50% cannual area basisd of the materials undergoing electroplating.

c3d XElectroplating process wastewaterY means wastewater generated in the operations defined below and listed in s. NR 260.02 c1d.

cad XElectroplating of common metalsY means any step in a process in which a ferrous or nonferrous basis metal is electroplated with copper, nickel, chromium, zinc, tin, cadmium, iron, aluminum, or a combination thereof and which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickling, stripping, and coloring.

cbd XElectroplating of precious metalsY means any step in a process in which a ferrous or nonferrous basis metal is electroplated with gold, silver, iridium, palladium, platinum, rhodium, ruthenium or combination thereof and which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickling, stripping, and coloring.

ccd XElectroplating of specialty metalsY means any step in which a ferrous or nonferrous basis metal is electroplated with a metal not used in par. cad or cbd which is followed by a rinse.

cdd XAnodizingY means any step in the production of a protective oxide film on a ferrous or nonferrous metal which passes an electric current through a bath where the metal is suspended and is followed by a rinse; this includes the related operations of cleaning and coloring.

ced XCoatingY means the processes of chromating, phosphating, or immersion plating of ferrous or nonferrous materials in which a basis material surface is acted upon by a process solution which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickling and sealing.

cfd XChemical etching and millingY means any step in the process of etching or milling of ferrous or nonferrous material in which metal is chemically or electrochemically removed from the work piece and is followed by a rinse; this includes the related metal cleaning operations which precede chemical etching or milling.

cgd XElectroless platingY means any step in a process in which a metallic layer is deposited on a metallic or nonmetallic basis material and which is followed by a rinse; this includes the related operations of alkaline cleaning, acid pickling and stripping.

chd XPrinted circuit manufacturingY means any step in the process of converting an insulating substrate to a finished printed circuit board in which the board is immersed in an aqueous process bath which is followed by a rinse.

c4d XIntegrated facilityY means a facility where manufacturing of a product at a single physical location includes electroplating as only one of several operations and produces significant quantities of process wastewater from nonelectroplating manufacturing operations and in which one or more plant electroplating process wastewater lines are combined prior to or at the point

of treatment cor proposed treatmentd with one or more plant sewers carrying nonelectroplating process wastewater.

c5d XNew sourceY means any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after August 31, 1982.

c6d XStrong chelating agentsY means compounds which form soluble metal complexes which are not removed by subsequent metals control techniques such as pH adjustment followed by clarification or filtration.

c7d XTTOY means total toxic organics, which is the sum of all quantifiable values greater than 0.01 milligrams per liter c10 micrograms per literd of the toxic organics listed in s. NR 215.03 c1d to c5d.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86; correction in c7d made under s. 13.92 c4d cbd 7., Stats., Register February 2021 No. 782.

Subchapter I — Direct Discharges

NR 260.10 Applicability. All facilities which generate wastewater from any of the processes listed in s. NR 260.02 c1d discharging directly to waters of the state are subject to the provisions of ch. NR 261.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

Subchapter II — Indirect Discharges

NR 260.20 Applicability. All indirect discharges of wastewater generated from any of the processes listed in s. NR 260.02 c1d except those subject to pretreatment standards for new sources included under ch. NR 261, are subject to the provisions of this subchapter. All captive facilities are regulated under ch. NR 261, as of February 15, 1986, and the provisions of this chapter no longer apply.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

NR 260.21 Compliance dates. Industrial users subject to the provisions of this subchapter shall meet the following compliance dates:

c1d By April 27, 1984, for all facilities which are not integrated facilities and are subject to pretreatment standards for existing sources.

c2d By June 30, 1984, for all integrated facilities subject to pretreatment standards for existing sources.

c3d By July 15, 1986, for all industrial users subject to TTO limitations.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

NR 260.22 Discharge standards. c1d Any existing source which introduces pollutants into a publicly owned treatment works shall comply with ch. NR 211 and achieve the following pretreatment standards for existing sources cPSESd. The subcategories referred to in Tables 1 through 4 are those process subcategories listed in s. NR 260.02 c1d.

cad No industrial user introducing wastewater pollutants into a publicly owned treatment works under the provisions of this chapter may 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.

cbd For facilities discharging less than 38,000 liters c10,000 gal.d per calendar day of electroplating process wastewater the following limitations shall apply:

Table 1
Facilities discharging less than 38,000 liters per day PSES limitations cmg{ld
All subcategories

Pollutant or pollutant property[1]	1 day max.	4 day avg.[2]	30 day avg.[3]
Cyanide, A cCN, Ad	5.0	2.7	1.5
Lead cPbd	0.6	0.4	0.3
Cadmium cCdd	1.2	0.7	.5
Total Toxic Organics cTTOd	4.57		

[1] All metals shall be determined in ZZtotalY form.
[2] Average of daily values for 4 consecutive monitoring days.
[3] Limitations for integrated facilities using the combined wastestream formula as set forth in s. NR 211.12.

ccd Except as provided in pars. cdd and ced, for facilities discharging 38,000 liters c10,000 gal.d or more per calendar day of electroplating process wastewater the following limitations shall apply:

Table 2
Facilities discharging 38,000 liters or more per day PSES limitations cmg{ld
All subcategories

Pollutant or pollutant property[1]	1 day max.	4 day avg.[2]	30 day avg.[3]
Silver cAgd[4]	1.2	0.7	.5
Cyanide cCNd	1.9	1.0	.55
Copper cCud	4.5	2.7	1.8
Nickel cNid	4.1	2.6	1.8
Chromium cCrd	7.0	4.0	2.5
Zinc cZnd	4.2	2.6	1.8
Lead cPbd	0.6	0.4	0.3
Cadmium cCdd	1.2	0.7	.5
Total Metals[5]	10.5	6.8	5.0
Total Toxic Organics cTTOd	2.13		

[1] All metals and cyanide shall be determined in ZZtotalY form.
[2] Average of daily values for 4 consecutive monitoring days.
[3] Limitations for integrated facilities using the combined wastestream formula as set forth in s. NR 211.12.
[4] Applicable to subcategory cbd only - Electroplating of precious metals.
[5] Total Metals equals the sum of the concentrations of copper, nickel, chromium and zinc.

cdd The following optional mass based limitations are equivalent to and may apply in place of those outlined in Table 2 if there has been a prior agreement between the facility and the publicly owned treatment works receiving such regulated wastes:

Table 3
Optional Mass Limits
Facilities discharging 38,000 liters or more per day PSES limitations cmg{sq m - operation[1]d

	Subcategories cad to cgd			Subcategory chd		
Pollutant or pollutant property[2]	1 day max.	4 day avg[3]	30 day avg.[4]	1day max.	4 day avg.[3]	30 day avg.[4]
Silver cAgd[5]	47	29	20			
Cyanide cCNd	74	39	21	169	89	49
Copper cCud	176	105	70	401	241	160
Nickel cNid	160	100	70	365	229	160
Chromium cCrd	273	156	96	623	357	223
Zinc cZnd	164	102	70	374	232	160
Lead cPbd	23	16	13	53	36	27

Pollutant or pollutant property[2]	1 day max.	4 day avg.[3]	30 day avg.[4]	1day max.	4 day avg.[3]	30 day avg.[4]
Cadmium cCdd	47	29	20	107	65	45
Total Metals[6]	410	267	195	935	609	445
Total Toxic Organics cTTOd[7]	2.13			2.13		

[1]The area plated or acted upon by the processes described in ss. NR 260.02 c1d and 260.03 c3d which are expressed in square meters.
[2]All metals and cyanide shall be determined in ZZtotalY form.
[3]Average of daily values for 4 consecutive monitoring days.
[4]Limitations for integrated facilities using the combined wastestream formula as set forth in s. NR 211.12.
[5]Applicable to subcategory cbd only - Electroplating of precious metals.
[6]Total Metals equals the sum of the masses of copper, nickel, chromium and zinc.
[7]TTO shall be measured by mg{l.

ced In the absence of strong chelating agents, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide cor hydroxided, the following control program may be elected by the industrial user, with the approval of the control authority, in place of the limitations in Table 2. These optional pollutant limitations are not eligible for allowance for removal achieved by the publicly owned treatment works.

Table 4
Optional Control Program Limits[1]
Facilities discharging 38,000 liters or more per day PSES limitations cmg{ld
All subcategories

Pollutant or pollutant property[2]	1 day max.	4 day avg.[3]	30 day avg.[4]
Cyanide cCNd	1.9	1.0	.55
Lead cPbd	0.6	0.4	0.3
Cadmium cCdd	1.2	0.7	.5
Total Suspended Solids cTSSd	20.0	13.4	10.0
pH[5]	7.5 - 10.0	7.5 - 10.0	
Total Toxic Organics cTTOd	2.13		

[1]Optional pollutants agreed upon by facility and control authority.
[2]All metals and cyanide shall be determined in ZZtotalY form.
[3]Average of daily values for 4 consecutive monitoring days.
[4]Limitations for integrated facilities using the combined wastestream formula as set forth in s. NR 211.12.
[5]pH shall be measured in standard units.

c2d Where electroplating process wastewaters are combined with regulated wastewaters which have 30-day average standards, the corresponding 30-day average standard for the electroplating wastewaters shall be used. The 30-day average for pollutants may be found in Tables 1 through 4.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.

NR 260.23 Total toxic organics monitoring requirements. c1d In place of monitoring for TTO, the control authority may allow industrial users of publicly owned treatment works to make the following certification to replace the periodic reports required by s. NR 211.15:

XBased on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics cTTOd, I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing the last discharge monitoring report. I further certify that this facility is implementing the toxic organic plan submitted to the control authority.Y

c2d Industrial users of publicly owned treatment works shall submit a toxic organic management plan when requesting that monitoring not be required. The plan shall specify the toxic organic compounds used; the method of disposal used instead of dumping, such as reclamation, contract hauling, or incineration; and procedures for assuring that toxic organics do not routinely spill or leak into the wastewater.

c3d An existing source submitting a certification in lieu of monitoring pursuant to subs. c1d and c2d shall implement the toxic organic management plan approved by the control authority.

c4d If monitoring is necessary to measure compliance with the TTO standard, the industrial user need analyze only for those pollutants reasonably expected to be present.

History: Cr. Register, October, 1986, No. 370, eff. 11-1-86.