

Chapter NR 274

NONFERROUS METALS MANUFACTURING

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**NR 274.01 Purpose.** The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of process wastes from the nonferrous metals manufacturing category of point sources and subcategories thereof.

Note: The authority for promulgation of this chapter is set forth in ch. NR 205.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.02 Applicability.** The effluent limitations, standards of performance, pretreatment standards, and other provisions in this chapter are applicable to pollutants or pollutant properties in discharges of process waste resulting from manufacture of the following subcategories.

(1) **BAUXITE REFINING.** This subcategory covers the process of converting bauxite ore containing alumina monohydrate or trihydrate to alumina by the Bayer process or the combination process.

(2) **PRIMARY ALUMINUM SMELTING.** This subcategory covers the process of converting alumina to aluminum by the Hall-Heroult process.

(3) **SECONDARY ALUMINUM SMELTING.** This subcategory covers the processes of:

(a) Secondary aluminum smelting where aluminum fluoride or chlorine is used in the magnesium removed process; and

(b) Producing metallic aluminum alloys by the recovery, processing, and remelting of aluminum scrap.

(4) **PRIMARY COPPER SMELTING.** This subcategory covers the process of primary smelting and onsite refining of copper. It does not include recovery of copper from ore by hydrometallurgical methods.

(5) **PRIMARY COPPER REFINING.** This subcategory covers the process of primary refining of copper on a site other than with primary smelting of copper.

(6) **SECONDARY COPPER.** This subcategory covers the reprocessing of new and used copper scrap and residues to produce copper and copper alloys.

(7) **PRIMARY LEAD.** This subcategory covers the process of lead productions at primary lead smelters and refineries. It does not include primary lead refineries not located onsite with a primary lead smelter.

(8) **PRIMARY ZINC.** This subcategory covers the process of producing primary zinc by either electrolytic or pyrolytic means.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.03 Definitions.** The following definitions are applicable to terms used in this chapter. Definitions of other terms and meanings of abbreviations are set forth in ch. NR 205.

- (1) "Product" means as appropriate;
  - (a) Alumina produced from bauxite,
  - (b) Hot aluminum metal produced in primary or secondary refining,
  - (c) Electrolytically refined copper in subcategory (5),
  - (d) Lead bullion in subcategory (6), and
  - (e) Copper or zinc metal.
- (2) "Net evaporation" means that the evaporation rate exceeds the precipitation rate during a one year period.
- (3) "Net precipitation" means that the precipitation rate exceeds the evaporation rate during a one year period.
- (4) "Pond water surface area" means the water area at the average operating level for the month but not less than one third of the water area at maximum capacity.
- (5) "Within the impoundment" means:
  - (a) For impoundments constructed prior to January 27, 1975, and those constructed for facilities in subcategory (1); within the water surface area at maximum capacity plus that portion, not to exceed 30% of such water surface area, of the surface area of the inside and outside slopes of the impoundment dam and extending to any immediately adjacent seepage ditch from which rain water is returned to the impoundment, and
  - (b) For new impoundments; other than constructed for facilities in subcategory (1); the water surface area at maximum capacity.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.04 Compliance with effluent limitations and standards.** Discharge of pollutants from facilities subject to the provisions of this chapter may not exceed, as appropriate:

- (1) By July 1, 1977 effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available;
- (2) By July 1, 1983 effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable;
- (3) Pretreatment standards for discharges to publicly owned treatment works;

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(4) Standards of performance for new sources.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76; r. and recr. Register, August, 1983, No. 332, eff. 9-1-83.

**NR 274.05 Modification of effluent limitations.** (1) Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available may be modified in accordance with this section.

(2) An individual discharger or other interested person may submit evidence to the department that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the effluent limitations. On the basis of such evidence or other available information the department will make a written determination that such factors are or are not fundamentally different from that facility compared to those specified in the appropriate one of the Development Documents listed in sub. (3) below. If such fundamentally different factors are found to exist, the department shall establish for the discharge effluent limitations in the WPDES permit either more or less stringent than the limitations in this chapter, to the extent dictated by such fundamentally different factors. Such limitations must be approved by EPA which may approve, disapprove, or specify other limitations.

(3) Applicable Development Documents for segments of the nonferrous metals manufacturing category are:

(a) Bauxite refining, EPA 440/1-74-019e, published March, 1974,

(b) Primary Aluminum Smelting, EPA 440/1-74-019d, published March, 1974,

(c) Secondary Aluminum Smelting, EPA 440/1-74-019c, published March, 1974,

(d) Primary Copper Smelting, EPA 440/1-75-032b, published February, 1975,

(e) Secondary Copper, EPA 440/1-75-032c, published February, 1975,

(f) Lead, EPA 440/1-75-032a, published February, 1975, and

(g) Zinc, EPA 440/1-75-032, published February, 1975.

(4) Copies of these Development Documents are available for inspection at the office of the department of natural resources, the secretary of state's office, and the office of the revisor of statutes and may be obtained for personal use from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20460.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.06 Application of effluent limitations and standards.** (1) The effluent limitations and standards set forth in this chapter shall be used in accordance with this section to establish the quantity or quality of pollutants or pollutant properties which may be discharged by a point source subject to the provisions of this chapter, except as:

(a) They may be modified in accordance with s. NR 274.05,

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(b) They may be superseded by more stringent limitations and standards necessary to achieve water quality standards or meet other legal requirements, or

(c) They may be supplemented or superseded by standards or prohibitions for toxic pollutants or by additional limitations for other pollutants required to achieve water quality.

(2) The production basis for application of the limitations and standards set forth in this chapter shall be the daily average of a maximum month in each subcategory subject to the provisions of this chapter.

(3) The effluent limitations and standards set forth in this chapter for subcategories (3) (a) and (3) (b), as defined in s. NR 274.02 (3), are applicable respectively to fume scrubbing wastewaters and wet residue milling and metal cooling wastewaters.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.07 Discharges from impoundments.** (1) A process wastewater impoundment which is designed, constructed and operated so as to contain the precipitation from the 10 year, 24 hour rainfall event for the area in which such impoundment is located may discharge that volume of process wastewater which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to such rainfall event when it occurs.

(2) A process wastewater impoundment which is designed, constructed and operated so as to contain the precipitation from the 25 year, 24 hour rainfall event for the area in which such impoundment is located may discharge that volume of process wastewater which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to such rainfall event when it occurs.

(3) During any calendar month, there may be discharged from a process wastewater impoundment a volume of process wastewater equal to the difference between the precipitation for that month which falls within the impoundment and the evaporation for that month from the pond water surface area. Such discharges except for subcategory (1) shall have a pH within the range of 6.0-9.0 and concentrations of pollutants not to exceed for the appropriate subcategory those in table 2 or the quantities of pollutants set forth in table 3 for point sources located in areas of net precipitation.

(4) The 10 year and 25 year, 24 hour rainfall events for the impoundment location shall be as set forth in s. NR 205.05.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.10 Effluent limitations, best practicable treatment.** The following effluent limitations for specific subcategories identified in s. NR 274.02 establish, except as provided in s. NR 274.05, the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility subject to the provisions of this chapter after application to process wastes of the best practicable control technology currently available.

(1) For subcategory (1) there shall be no discharge except in accordance with s. NR 274.07 (3).

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(2) For subcategories (4), (5), (6), and (7) there shall be no discharge except in accordance with s. NR 274.07 (1) and (3).

(3) For subcategories (2) and (8), the pH of discharges shall be within the range of 6.0-9.0 and the limitations for other pollutants are set forth in table 1.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.11 Effluent limitations, best available treatment.** The following effluent limitations for all or specific subcategories identified in s. NR 274.02 establish the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility subject to the provisions of this chapter after application to process wastes of the best available technology economically achievable.

(1) For subcategory (1) there shall be no discharge except in accordance with s. NR 274.07 (3).

(2) For subcategories (2) and (8) the pH of discharges shall be within the range of 6.0-9.0 and the limitations for other pollutants are set forth in table 4.

(3) For subcategories (4), (5), (6), and (7) there shall be no discharge except in accordance with s. NR 274.07(2) and (3).

(4) For subcategories (3) (a) and (3) (b) there shall be no discharge.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 274.12 Standards of performance.** The following effluent limitations for specific subcategories identified in s. NR 274.02 establish the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility which is a new source subject to the provisions of this chapter.

(1) For subcategory (1) there shall be no discharge except in accordance with s. NR 274.07 (3).

(2) For subcategory (2) discharges shall be within the pH range of 6.0 to 9.0, the 30-day average limitations for suspended solids and fluoride shall be respectively .05 and .025 lbs/1000 lbs. or kg/1000 kg. of product, and the daily maximum limitations for suspended solids and fluoride shall be twice the 30-day average limitations.

(3) For subcategory (3) there shall be no discharge of process wastes to surface waters unless variation from this standard is determined to be necessary for facilities using chlorine for magnesium removal after consideration of the cost of achieving effluent reduction and any non-water quality environmental impact and energy requirements. Such variation shall not exceed the limitations of s. NR 274.10 (4) for subcategory (3a).

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76; r. (4) and (5), Register, July, 1977, No. 259, eff. 8-1-77.

**NR 274.13 Pretreatment standards.** The pretreatment standards for discharges to publicly owned treatment works from sources subject to the provisions of this chapter shall be as set forth in ch. NR 211.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76; am. Register, July, 1977, No. 259, eff. 8-1-77; r. and rec. Register, August, 1983, No. 332, eff. 9-1-83.

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Table 1  
BPT Effluent Limitations

Subcategory Parameter	(2)	(3a)	(3b)	(8)
Suspended Solids	1.5	175	1.5	0.21
Aluminum			1.0	
Ammonia (as N)			0.01	
Arsenic				0.0008
Cadmium				0.004
Copper			0.003	
Fluoride	1.0		0.4	
Selenium				0.04
Zinc				0.04
COD		6.5	1.0	

Note: The table sets forth 30-day average limitations in lbs/1000 lbs. or kg/1000 kg. of magnesium recovered for subcategory (3) (a) and of product for subcategory (3) (b) and no daily maximum limitations are applicable. For the other subcategories, the table sets forth 30-day average limitations in lbs/1000 lbs. or kg/1000 kg. of product and daily maximum limitations are two times the 30-day average limitations.

Table 2  
Effluent Limitations for Discharges from Impoundments (1)

Subcategory Parameter	(4)	(5)	(6)	(7)
Suspended Solids	25	25	25	25
Arsenic	10	10		
Cadmium	0.5			0.5
Copper	0.25	0.25	0.25	
Lead	0.5			0.5
Oil and Grease		10	10	
Selenium	5	5		
Zinc	5	5	5	5

Note: (1) 30-day average limitations are set forth in this table in mg/l. Daily maximum limitations are twice the daily average.

Table 3  
Effluent Limitations for Discharges from  
Impoundments in Areas of Net Precipitation(1)

Subcategory Parameter	(5)	(7)
Suspended Solids	0.05	0.021
Arsenic	0.02	
Cadmium		0.0004
Copper	0.0005	
Lead		0.0004
Oil and Grease	0.02	
Selenium	0.01	
Zinc	0.01	0.004

Note(1): Effluent limitations are set forth for 30-day average in lbs/1000 lbs. or kg/1000 kg. of product. Daily maximum limitations are twice the limits shown.

(2) Limitations for subcategory (5) for best available technology and standards of performance for new sources are 1/10 of the values in the table.

Table 4  
BAT Effluent Limitations

Subcategory Parameter	(2)	(8)
Suspended Solids	0.1	0.14
Fluoride	0.05	
Arsenic		0.00054
Cadmium		0.0027
Selenium		0.027
Zinc		0.027

Note: 30-day average limitations in lbs/1000 lbs. or kg/1000 kg. of product are set forth in this table. Daily maximum limitations are twice the values shown.