Chapter NR 230

INORGANIC CHEMICAL MANUFACTURING

NR 230.01 Purpose. The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of process wastes from the inorganic chemical 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, August, 1976, No. 248, eff. 9-1-76.

NR 230.02 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 inorganic chemicals listed in table 1.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76.

NR 230.03 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) "CN,A" means those cyanides amenable to chlorination, as determined by the analytical methods specified in ch. NR 219.

(2) "Cr +6" means hexavalent chromium.

(3) "Cr T" means total chromium.

(4) "Iron" means the total iron present in process waste effluent.

(5) "Lead" means the total lead present in process waste effluent.

(6) "Mercury" means the total mercury present in process waste effluent.

(7) "Product" means the inorganic chemical identified in table 1 except that for hydrogen peroxide it means the 100% solution.

(8) "Chrome pigments" means chrome yellow, chrome orange, chrome green, zinc yellow, and iron blue.

(9) "Zinc A" means that limitations for this parameter are applicable only to discharges from facilities producing zinc yellow.

(10) "Contaminated non-process wastewater" means any water which, during manufacturing or processing, comes into incidental con-

tact with any raw material, intermediate product, finished product, by-product or waste product by means of (1) rainfall runoff; (2) accidental spills; (3) accidental leaks caused by the failure of process equipment, which are repaired within the shortest reasonable time not to exceed 24 hours after discovery; and (4) discharges from safety showers and related personal safety equipment: Provided, that all reasonable measures have been taken to prevent, reduce and control such contact to the maximum extent feasible; and to mitigate the effects of such contact once it has occurred.

(11) Entries in the columns of table 1 of this chapter have the following meanings.

(a) "I" means the limitations for incompatible pollutants set forth in accordance with column I shall apply.

(b) "III" means the limitations for incompatible pollutants set forth in accordance with column III shall apply.

(c) "N" means there shall be no discharge to surface waters.

(d) "NB" means there shall be no discharge to surface waters except that residual brine and depleted liquor may be returned to the body of water from which the brine solution was originally withdrawn.

(e) "NL" means there are no limitations for incompatible pollutants.

(f) "Nx" means there shall be no discharge to surface waters resulting from the manufacture of this product other than that allowed for other products or processes in the same facility.

(g) "Nx1" means there shall be no discharge to surface waters except in accordance with s. NR 230.07 (1) and (3).

(h) "Nx2" means there shall be no discharge to surface waters except in accordance with s. NR 230.07 (2).

(i) "T2" means that applicable limitations are set forth in table 2.

(j) "T3" means that applicable limitations are set forth in table 3.

(k) "T4" means that applicable limitations are set forth in table 4.

(l) "T5" means that applicable limitations are set forth in table 5.

(m) "T6" means that applicable limitations are set forth in table 6.

(n) "T7" means that applicable limitations are set forth in table 7.

(o) "T8" means that applicable limitations are set forth in table 8.

(p) "T9" means that applicable limitations are set forth in table 9.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76.

NR 230.04 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;

(4) Standards of performance for new sources.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; r. and recr. Register, August, 1983, No. 332, eff. 9-1-83.

NR 230.05 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 for that facility compared to those specified in the applicable sections of the EPA development documents identified 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) The EPA development documents for effluent limitations guidelines and new source performance standards, identified by segment title, by EPA document number, and by publication date, applicable in accordance with sub. (2) above are:

Major Inorganic Products, EPA 440/1-74-007a, March 1974
Significant Inorganic Products, EPA 440/1-75-037, May 1975

(4) Copies of the development documents identified in sub. (3) above 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, August, 1976, No. 248, eff. 9-1-76.

NR 230.06 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 230.05,

(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 for a maximum month for the facility in each subcategory subject to the provisions of this chapter.

(3) The provisions of this chapter are not applicable to discharges from plants manufacturing sulfuric acid by burning sulfides or recovering sulfuric acid from waste streams of other processes such as oil refining or metalurgical operations.

(4) The provisions of this chapter are not applicable to discharges from plants producing titanium dioxide using processes in which beneficiation of raw ilmenite ore and chlorination are inseparably combined in the same process step.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76.

NR 230.07 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 either 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. Such process wastewater discharges shall have a pH within the range of 6.0 to 9.0, concentrations of suspended solids not exceeding a 30 day average of 25 mg/1 or a daily maximum of 50 mg/1, and, in the case of process wastewaters from the manufacture of hydrofluoric acid, fluoride concentrations not exceeding 15 mg/1 and 30 mg/1 respectively.

(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, August, 1976, No. 248, eff. 9-1-76.

NR 230.10 Effluent limitations, best practicable treatment. (1) The effluent limitations for specific subcategories set forth in column I of table 1 establish, except as provided in ss. NR 230.05 and 230.06, the quantity or quality of pollutants or pollutant properties which may be discharged by a facility subject to the provisions of this chapter after application to process wastes of the best practicable control technology currently available.

(2) The entries in column I of table 1 shall have the meanings set forth in s. NR 230.03 (11).

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76.

NR 230.11 Effluent limitations, best available treatment. The effluent limitations for specific subcategories set forth in column II of table 1 establish, except in accordance with s. NR 230.06, the quantity or quality of pollutants or pollutant properties which may be discharged by a facility subject to the provisions of this chapter after application to process wastes of the best available technology economically achievable.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; r. (2), Register, July, 1977, No. 259, eff. 8-1-77.

NR 230.12 Standards of performance. The effluent limitations set forth in column III of table 1 establish, except in accordance with s. NR 230.06, the quantity or quality of pollutants or pollutant properties which may be discharged by a facility which is a new source subject to the provisions of this chapter.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; r. (2), Register, July, 1977, No. 259, eff. 8-1-77.

NR 230.13 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, August, 1976, No. 248, eff. 9-1-76; r. and recr. Register, August, 1983, No. 332, eff. 9-1-83.

Table 1

EFFLUENT LIMITATIONS AND STANDARDS

PRODUCT SUBCATEGORY	COLUMNS I	II	III
Aluminum chloride	N	N	N
Aluminum fluoride (reserved)			
Aluminum sulfate	Nx1	Nx2	Nx2
Ammonium chloride, from NH_3 + Cl gas	N		
Ammonium chloride, recovery (1)	T2		
Ammonium hydroxide (reserved)			
Barium carbonate (reserved)			
Borax, by ore mining and by Trona process	NB		
Boric acid, from ore mined borax	T2		
Boric acid, from Trona process borax	NB		
Bromine, brine mining and Trona process	NB		
Calcium carbide, in uncovered furnaces	N	N	N
Calcium carbonate, milk of lime process	T2		
Calcium carbonate, recovery (1)	T2		
Calcium chloride, brine extraction process	T2	N	N
Calcium hydroxide, lime slaking process	N		
Calcium oxide and hydroxide	Nx1	Nx2	Nx2
Carbon dioxide (reserved)			
Carbon monoxide (2), by reforming process	T2		
Chlorine (3), diaphragm cell	T2		T4
Chlorine (3), Mercury cell	T2		T4
Chrome pigments (reserved)			
Chromic acid (4)	Nx		
Copper sulfate, from pure materials	T2		
Copper sulfate, from impure materials	T3		
Cuprous oxide (reserved)			
Ferric chloride, from pickle liquor	N		
Ferrous sulfate (reserved)			
Fluorine, by liquid HF electrolysis	N		
Hydrochloric acid (reserved)			

Hydrofluoric acid (reserved)			
Hydrogen, as refinery by-product	Nx		
Hydrogen cyanide, by-product (5) (reserved)			
Hydrogen cyanide, by Andrussow process (reserved)			
Hydrogen peroxide, electrolytic	T2		
Hydrogen peroxide, by oxidation (6)	T2		
Iodine	N		
Lead monoxide	N		
Lithium carbonate, Trona process	NB		
Lithium carbonate, from spudomeme ore	T2		
Manganese sulfate (reserved)			
Nickel sulfate, from pure raw materials	N		
Nickel sulfate, from impure raw materials	T2		
Nitric acid, up to 68 percent (reserved)			
Nitric acid, strong (reserved)			
Oxygen and nitrogen, by air liquification	T2		
Potassium, metal	N	N	N
Potassium chloride, by Trona and mining	NB		
Potassium dichromate	N	N	N
Potassium iodide	T3		
Potassium permanganate (reserved)			
Potassium sulfate	Nx1	Nx2	Nx2
Silver nitrate	T2		
Sodium, metal, Downs cell (reserved)			
Sodium bicarbonate	N	N	N
Sodium bisulfite (reserved)			
Sodium carbonate (reserved)			
Sodium chloride, brine mining process	T2	N	N
Sodium chloride, solar evaporation	NB	NB	NB
Sodium dichromate and by-product sulfate	T2		T4
Sodium fluoride (7)	N		
Sodium hydrosulfide (reserved)			
Sodium hydrosulfite (reserved)			
Sodium silicate (reserved)			
Sodium silicofluoride (reserved)			
Sodium sulfite (8)	T2	Nx2	N
Sodium thiosulfate (reserved)			
Stannic oxide (9)	N		
Sulfur dioxide (reserved)			
Sulfuric acid (10) (reserved)			
Titanium dioxide, sulfate process (reserved)			
Titanium dioxide, chloride process (reserved)			
Zinc oxide (reserved)			
Zinc sulfate	N		

Footnotes:

(1) from Solvay process wastes
(2) and by-product hydrogen
(3) and sodium or potassium hydroxide
(4) in facilities manufacturing sodium dichromate
(5) of acrylonitrile manufacture
(6) of alkyl hydroanthroquinone
(7) by the anhydrous neutralization process and the silicofluoride process
(8) by reacting sulfur dioxide with sodium carbonate
(9) by the reaction of tin with air or oxygen
(10) in single or double absorption plants

Table 2

BPT EFFLUENT LIMITATIONS

Product Subcategory	SS Ave	SS Max	Other Parameters Ave	Other Parameters Max	
Aluminum fluoride	0.34	0.68	0.17	0.34	Aluminum
			0.34	0.68	Fluoride
Ammonium chloride			4.4	8.8	Ammonia (as N)
Boric acid	0.07	0.14	0.0014	0.0028	Arsenic
Calcium carbonate (a)	0.28	0.56			
(b)	0.58	1.16			
Calcium chloride	0.0082	0.016			
Carbon monoxide	0.06	0.12	0.25	0.50	COD
Chlorine, diaphragm cell	0.32	0.64	0.0025	0.05	Lead
Mercury cell	0.32	0.64	0.00014	0.00028	Mercury
Copper sulfate (pure m)			0.0002	0.0006	Copper
Hydrogen peroxide					
electrolytic	0.0025	0.005	0.0002	0.0004	CN, A
oxidation	0.4	0.8	0.22	0.44	TOC
Lithium carbonate	0.9	2.7			
Nickel sulfate	0.032	0.096	0.002	0.004	Nickel
Oxygen and nitrogen			0.001	0.002	Oil & grease
Silver nitrate	0.02	0.06	0.003	0.009	Silver
Sodium, metal	0.23	0.46			
Sodium carbonate	0.17	0.34			
Soldium chloride (brine)	0.17	0.34			
Sodium dichromate	0.22	0.44	0.0005	0.001	Cr +6
			0.0044	0.0088	Cr T
Sodium silicate	0.005	0.01			
Sodium silicofluoride	0.3	0.6	0.25	0.50	Fluoride
Sodium sulfite	0.016	0.032	1.7	3.4	COD
Titanium dioxide					
chloride process	2.3	4.6	0.36	0.72	Iron
sulfate process	10.5	21.0	0.84	1.7	Iron

Note: For the above subcategories, the pH of all discharges shall be within the range of 6.0-9.0
Limitations of this table are in lbs/1,000 lbs or kg/1,000 kg of product.

Table 3

BPT EFFLUENT LIMITATIONS

Parameter	Chrome Pigments Ave	Chrome Pigments Max	Copper Sulfate (by recovery) Ave	Copper Sulfate (by recovery) Max	Hydrogen Cyanide Andrussow Ave	Hydrogen Cyanide Andrussow Max	Potassium Iodide Ave	Potassium Iodide Max
Suspended solids	1.7	5.1	0.23	0.69	1.2	2.4	0.03	0.09
Ammonia (as N)					0.18	0.36		
Barium							0.003	0.009
BOD_5					1.8	3.6		
Chromium, +6	0.0034	0.010						
Chromium T	0.034	0.010						
Copper			0.001	0.003				
Cyanide,A	0.0034	0.010			0.0025	0.005		
Cyanide,T	0.034	0.10			0.025	0.05		
Iron	0.27	0.72					0.005	0.015
Lead	0.14	0.42						
Nickel			0.002	0.006				
Selenium			0.0005	0.0015				
Sulfide							0.005	0.015
Zinc A	0.27	0.72						

Note: For the above subcategories the pH of all discharges shall be within the range of 6.0-9.0.
Limitations of this table are in lbs/1,000 lbs or kg/1,000 kg of product.

Table 4

STANDARDS OF PERFORMANCE

Product Subcategory	Suspended Solids Ave	Suspended Solids Max	Other Parameters Ave	Other Parameters Max	
Chlorine, diaphragm cell	0.32	0.64	0.00007	0.00014	Mercury
Chlorine, mercury cell	0.32	0.64	0.00004	0.00008	Lead
Solimn Dichromate	0.15	0.30	0.0005	0.001	Cr +6
			0.0044	0.088	Cr T

Note: For the above subcategories the pH of all discharges shall be within the range of 6.0-9.0.

Limitations of this table are in lbs/100 lbs or kg/1000 kg of product.