

Chapter NR 280

PLASTICS AND SYNTHETICS

NR 280.01	Purpose.
NR 280.02	Applicability.
NR 280.03	Definitions.
NR 280.04	Compliance with effluent limitations and standards.
NR 280.06	Application of effluent limitations and standards.

NR 280.10	Effluent limitations, best practicable treatment.
NR 280.11	Effluent limitations, best available treatment.
NR 280.12	Standards of performance.
NR 280.13	Pretreatment standards.

NR 280.01 Purpose. The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of process wastes from the synthetic resin 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 280.02 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 the manufacture and associated processing of plastics and synthetics in the following subcategories:

c1d Polyvinyl chloride produced from vinyl chloride by:

- cad Suspension polymerization,
- cbd Emulsion polymerization, and
- ccd Bulk polymerization;

c2d Polyvinyl acetate produced by polymerization of vinyl acetate;

c3d Polystyrene produced from styrene by:

- cad The suspension polymerization process, and
- cbd The bulk polymerization process;

c4d Polypropylene produced by the polymerization of propylene;

c5d Polyethylene produced from ethylene by:

cad The polymerization process to produce low density polyethylene,

cbd The solvent process to produce high density polyethylene, and

ccd The polyform process to produce high density polyethylene;

c6d Cellophane produced by processing wood pulp;

c7d Rayon produced by processing wood pulp;

c8d ABS and SAN resins which are respectively acrylonitrile-butadiene-styrene and styrene-acrylonitrile resins produced by the polymerization reactions of acrylonitrile, butadiene and styrene;

c9d Polyester materials produced by the polymerization reaction of dihydric alcohol and terephthalic acid or dimethyl terephthalate to make:

- cad Polyester resin by batch processing,
- cbd Polyester fiber by batch processing,
- ccd Polyester resin and fiber by continuous processing, and
- cdd Polyester resin and fiber by batch processing;

c10d Nylon 66 materials produced by the polymerization reaction of hexamethylenediamine and adipic acid to make:

- cad Nylon 66 resin,

cbd Nylon 66 fiber, and

ccd Nylon 66 resin and fiber;

c11d Nylon 6 materials produced by the polymerization reaction of caprolactam to make:

cad Nylon 6 resin,

cbd Nylon 6 fiber, and

ccd Nylon 6 resin and fiber;

c12d Cellulose acetate materials produced by processing wood pulp with acetic acid and acetic anhydride to make:

cad Cellulose acetate resin,

cbd Cellulose acetate fiber, and

ccd Cellulose acetate resin and fiber; and

c13d Acrylic resin and fiber produced by the polymerization reaction of acrylonitrile and the copolymerization of acrylonitrile and vinylidene chloride and { or vinyl chloride. cThis subcategory is suspended until further notice.d

c14d Ethylene vinyl acetate copolymers produced by the reaction of vinyl acetate and ethylene;

c15d Polytetrafluoroethylene produced as granular and fine powder grades, including manufacture of monomer from precursor chlorodifluoromethane;

c16d Polypropylene fiber produced from polypropylene;

c17d Alkyds and unsaturated polyester resins;

c18d Cellulose nitrate produced by the reaction of fibrous cellulose and a mixture of sulfuric and nitric acids;

c19d Polyamide cNylon 6{12d;

c20d Polyester resins cthermoplasticd produced as saturated polyester resins based on poly cethylene terphthalated and poly cbutylene terephthalated; and

c21d Silicone;

cad Fluids,

cbd Greases, emulsions, rubber, and resins, and

ccd Coupling agents.

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

NR 280.03 Definitions. Definitions of terms and meanings of abbreviations are set forth in ch. NR 205.

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

NR 280.04 Compliance with effluent limitations and standards. Discharge of pollutants from facilities subject to the provisions of this chapter may not exceed, as appropriate:

c1d By July 1, 1977 effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available;

c2d By July 1, 1983 effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable;

c3d Pretreatment standards for discharges to publicly owned treatment works;

c4d 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 280.06 Application of effluent limitations and standards. **c1d** 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:

cad They may be modified in accordance with subch. IV of ch. NR 220,

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

ccd 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.

c2d The production basis for the application of the limitations and standards set forth in this chapter shall be the daily average of annual production in each subcategory subject to the provisions of this chapter.

c3d For a facility manufacturing silicones the total discharge limitations shall be determined:

cad For facilities manufacturing fluids only from the limitations for subcategory c21d cad in the appropriate of table 1, 2, or 3;

cbd For facilities manufacturing greases, emulsions, rubbers, and resins in addition to fluids from the sum of the limitations for subcategories c21d cad and c21d cbd in table 1;

ccd For facilities manufacturing coupling agents in addition to the products of par. cbd from the sum of the limitations for subcategories c21dcad, c21dcbd, and c21dccd in table 1; and

cdd For facilities manufacturing greases, emulsions, rubbers, resins, and coupling agents in addition to fluids from the sum of the limitations for subcategories c21dcad and c21dcbd in the appropriate of table 2 or table 3.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76; correction in c1d cad made under s. 13.92 c4d cbd 7, Stats., Register April 2018 No. 748.

NR 280.10 Effluent limitations, best practicable treatment. The following effluent limitations for all or specific

subcategories establish, except as provided in subch. IV of ch. NR 220, 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.

c1d The pH of all discharges shall be within the range of 6.0 to 9.0.

c2d The 30-day average and daily maximum limitations for BOD₅, suspended solids, COD and other parameters are set forth in table 1 in lbs{1,000 lbs or kg{1,000 of product.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76; correction in cintro.d made under s. 13.92 c4d cbd 7, Stats., Register April 2018 No. 748.

NR 280.11 Effluent limitations, best available treatment. The following effluent limitations for all or specific subcategories establish 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.

c1d The pH of all discharges shall be within the range of 6.0 to 9.0.

c2d The 30-day average and daily maximum limitations for BOD₅, suspended solids, COD and other parameters are set forth in table 2 lbs{1,000 lbs or kg{1,000 kg of product.

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

NR 280.12 Standards of performance. The following effluent limitations for all or specific subcategories when applied in accordance with s. NR 280.06 establish 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.

c1d The pH of all discharge shall be within the range of 6.0 to 9.0.

c2d The 30-day average and daily maximum limitations for BOD₅ suspended solids, COD and other parameters are set forth in table 3 in lbs{1,000 lbs or kg{1,000 kg of product.

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

NR 280.13 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; r. and recr. Register, August, 1983, No. 332, eff. 9-1-83.

Table 1
BPT EFFLUENT LIMITATIONS

Subcategory cAd	BOD		Susp. Solids		Other cBd		
	Ave.	Max.	Ave.	Max.	Ave.	Max.	
c1dcad	.36	.70	.99	1.8	—	—	
cbd	.13	.26	.36	.65	—	—	
ccd	.06	.12	.16	.29	—	—	
c2d	.20	.39	.55	1.0	—	—	
c3dcad	.22	.43	.61	1.1	.0023	.0046	Cr
cbd	.04	.08	.11	.20	—	—	
c4d	.42	.81	1.16	2.1	—	—	
c5dcad	.20	.39	.55	1.0	—	—	
cbd	.30	.58	.83	1.5	.0031	.0062	Cr
ccd	.052	.10	.14	.25	—	—	
c6d	8.7	17.8	16	29.1	—	—	
c7d	4.8	10.0	8.8	16.0	.534	.91	Zn
c8d	.63	1.3	1.16	2.10	.0044	.0088	Cr
c9dcad	.78	1.4	.52	.95	—	—	
cbd	.78	1.4	.52	.95	—	—	
ccd	.78	1.4	.52	.95	—	—	
cdd	1.56	2.8	1.04	1.9	—	—	
c10dcad	.66	1.2	.44	.80	—	—	
cbd	.58	1.1	.39	.70	—	—	
ccd	1.24	2.3	.83	1.5	—	—	
c11dcad	3.71	6.8	2.48	4.5	—	—	
cbd	1.90	3.5	1.27	2.3	—	—	
ccd	5.61	10.3	3.75	6.8	—	—	
c12dcad	4.13	7.5	2.75	5.0	—	—	
cbd	4.13	7.5	2.75	5.0	—	—	
ccd	8.26	15.0	5.5	10.0	—	—	
c13d reserved							
c14d	.20	.39	.55	1.0	—	—	
c15d	3.6	7.0	9.9	18.0	.6	1.2	F
c16d	.40	.78	1.1	2.0	.5	1.0	O
c17d	.33	.60	.22	.40	—	—	
c18d	14	26	9.4	17	—	—	
c19d	.66	1.2	.44	.80	—	—	
c20d	.78	1.4	.52	.95	—	—	
c21dcad	1.0	1.9	.69	1.52	.005	.01	Cu
cbd	13.2	24	8.8	16	.067	.13	Cu
ccd	8.2	15	5.4	10	.042	.084	Cu

Note cAd: As defined in s. NR 280.02.

Note cBd: Other parameters identified as Cr total chromium, Zn zinc, F fluoride, O oil and grease, and Cu copper.

Table 2
BAT EFFLUENT LIMITATIONS

Subcategory cAd	BOD		COD		Susp. Solids		Other cBd		
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.	
c1dcad	.28	.41	1.28	1.92	.19	.23	—	—	
cbd	.13	.20	.61	.92	.092	.11	—	—	
ccd	.06	.09	.28	.42	.042	.05	—	—	
c2d	.19	.29	.89	1.33	.14	.16	—	—	
c3dcad	.22	.33	1.03	1.55	.16	.18	.0023	.0046	Cr
cbd	.04	.06	.19	.29	.028	.033	—	—	
c4d	.32	.48	2.14	3.21	.23	.27	—	—	
c5dcad	.19	.29	1.65	2.48	.14	.16	—	—	
cbd	.30	.45	1.60	2.40	.21	.25	.0031	.0062	Cr
ccd	.052	.078	.28	.42	.037	.043	—	—	
c6d	5.1	7.9	43.9	68.3	3.19	3.75	—	—	
c7d	2.8	4.4	24.4	37.9	1.77	2.08	.105	.210	Zn
c8d	.45	.70	3.3	5.1	.28	.33	.0042	.0084	Cr
c9dcad	.44	.59	2.3	3.1	.13	.16	—	—	
cbd	.44	.59	2.3	3.1	.13	.16	—	—	
ccd	.34	.47	1.8	2.4	.11	.13	—	—	
cdd	.87	1.2	4.5	6.2	.27	.32	—	—	
c10dcad	.37	.50	1.9	2.6	.11	.13	—	—	
cbd	.32	.44	1.7	2.3	.10	.12	—	—	
ccd	.69	.94	3.6	4.9	.21	.25	—	—	
c11dcad	1.8	2.45	9.3	12.7	.55	.65	—	—	
cbd	.92	1.25	4.8	6.5	.28	.33	—	—	
ccd	2.7	3.7	14.1	19.2	.84	.98	—	—	
c12dcad	1.7	2.35	8.9	12.2	.53	.63	—	—	
cbd	1.7	2.35	8.9	12.2	.53	.63	—	—	
ccd	3.4	4.7	17.8	24.4	1.06	1.26	—	—	
c13dreserved									
c14d	.19	.29	1.65	2.48	.14	.16	—	—	
c15d	2.2	3.3	4.0	5.9	1.6	1.8	.6	1.2	F
c16d	.22	.33	.40	.59	.16	.18	.092	.18	O
c17d	.10	.14	.52	.74	.03	.04			
c18d	6.9	9.4	34	47	2.1	2.5			
c19d	.37	.50	1.9	2.6	.11	.13			
c20d	.44	.59	2.3	3.1	.14	.16			
c21dcad	.57	.74	3	4	.18	.21	.0026	.0052	Cu
cbd	6.4	8.8	33.4	45.5	2.0	2.3	.029	.058	Cu

Note cAd: As defined in s. NR 280.02.

Note cBd: Other parameters identified as Cr ctotal chromiumd, Zn czincd, F cfluoridesd, O coil and greased, and Cu ccopperd.

Table 3
STANDARDS OF PERFORMANCE EFFLUENT LIMITATIONS

Subcategory cAd	BOD		COD		Susp. Solids		Other cBd		
	Ave.	Max.	Ave.	Max.	Ave.	Max.		Max.	
c1dcad	.19	.37	.89	1.70	.13	.19	—	—	
cbd	.13	.26	.61	1.20	.092	.14	—	—	
ccd	.06	.12	.28	.54	.042	.06	—	—	
c2d	.18	.35	.84	1.6	.13	.19	—	—	
c3dcad	.22	.43	1.03	2.0	.16	.24	.0023	.0046	Cr
cbd	.04	.08	.19	.37	.028	.04	—	—	
c4d	.22	.43	1.47	2.9	.16	.24	—	—	
c5dcad	.18	.35	1.8	3.5	.13	.19	—	—	
cbd	.3	.58	1.6	3.1	.21	.31	.0031	.0062	Cr
ccd	.052	.10	.28	.54	.036	.05	—	—	
c6d	3.6	7.41	48	98	2.27	3.3	—	—	
c7d	2.0	4.17	47	97	1.28	.19	.075	.15	Zn
c8d	.43	.88	3.1	6.5	.27	.40	.0040	.0080	Cr
c9dcad	.44	.79	4.0	7.3	.13	.19	—	—	
cbd	.44	.79	4.0	7.3	.13	.19	—	—	
ccd	.25	.46	2.32	4.2	.078	.12	—	—	
cdd	.87	1.58	8.0	14.6	.27	.40	—	—	
c10dcad	.37	.67	2.6	4.8	.11	.16	—	—	
cbd	.32	.58	2.3	4.2	.10	.15	—	—	
ccd	.69	1.25	4.95	9.0	.21	.31	—	—	
c11dcad	1.51	2.75	15.7	28.6	.47	.69	—	—	
cbd	.78	1.42	8.1	14.7	.24	.35	—	—	
ccd	2.29	4.17	23.9	43.4	.71	1.10	—	—	
c12dcad	1.15	2.08	11	20	.35	.51	—	—	
cbd	1.15	2.08	11	20	.35	.51	—	—	
ccd	2.29	4.17	22	40	.71	1.1	—	—	
c13d cReservedd									
c14d	.18	.35	1.8	3.5	.13	.19	—	—	
c15d	.80	1.6			.57	.83	.67	1.3	F
c16d	.04	.08	.07	.14	.03	.04	.017	.033	O
c17d	.02	.03	.11	.20	.006	.008	—	—	
c18d	6	11	30	54	1.8	2.7	—	—	
c19d	.37	.67			.11	.17	—	—	
c20d	.44	.800	6.5	12	.14	.20	—	—	
c21dcad	.57	1.0	4.7	8.5	.18	.26	.0026	.0052	Cu
cbd	5.5	10	45	82	1.7	2.5	.025	.05	Cu

Note cAd: As defined in s. NR 280.02.

Note cBd: Other parameters identified as Cr ctotat chromiumd, Zn czined, F cfluoridesd, O coil and greased, and Cu ccopperd.