Chapter NR 283

PLASTICS MOLDING AND FORMING

Subchapter I - General Provisions

NR 283.01 Purpose. The purpose of this chapter is to establish effluent limitations and standards of performance for discharges of process wastes from the plastics molding and forming category of point sources and its subcategories.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.015 Applicability. (1) This chapter applies to any plastics molding and forming process that discharges or may discharge pollutants to waters of the state or that introduces pollutants into a publicly owned treatment works. Plastics molding and forming processes include processes that blend, mold, form, or otherwise process plastic materials into intermediate or final plastic products. They include but are not limited to extrusion, molding, coating and laminating, thermoforming, calendering, casting, foaming, cleaning, and finishing.

(2) Plastics molding and forming processes used by plastics resin manufacturers to process crude intermediate plastic material for shipment off-site are excluded from this chapter and are subject to chs. NR 235 and 280. Plastics molding and forming processes used by plastic resin manufacturers to process crude intermediate plastic materials, which are further processed on-site into intermediate or final plastic products in molding and forming processes, are subject to this chapter.

(3) Processes that coat a plastic material onto a substrate are subject to the requirements of this chapter. Although these processes may fall within the definition of electroplating and metal finishing as defined in chs. NR 260 and 261, they are excluded from the requirements of chs. NR 260 and 261.

(4) Coating of plastic material onto a formed metal substrate is subject to this chapter and is not covered by the specific metal forming guidelines in chs. NR 253, 257 and 273. However, the plastics molding and forming effluent limitations and standards in this chapter apply only to the coating process; the metal forming operations are subject to the specific metal forming regulation.

(5) Research and development laboratories that produce plastic products using a plastics molding and forming process are subject to this chapter if the plastics molding and forming process discharges process water. The mass of plastic product produced in the plastics molding and forming process is not considered when determining the applicability of this chapter to plastics molding and forming processes at research and development laboratories.

(6) Chemical and thermal reticulation processes for polyurethane foam are not subject to this chapter. Water used in those processes is not considered to be process water as defined in this chapter. However, processes used to further mold or form the reticulated foam are subject to this chapter if they discharge process water.

(7) Processes used to regenerate cellulose and to produce a product from the regenerated cellulose are not subject to this chapter. Processes that mold or form cellulose derivatives are subject to this chapter if they discharge process water.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.02 General definitions. In addition to the definitions set forth in ch. NR 205 and s. NR 211.03, the following definitions apply to this chapter:

(1) "Average process water usage flow rate" means the volume of process water used per year by a plastics molding and forming process divided by the number of days per year the process operates, expressed in liters per day. The average process water usage flow rate for a plant with more than one wastewater source in a subcategory is the sum of the average process water usage flow rates for each source in that subcategory.

(2) "Cleaning water" means process water used to clean the surface of an intermediate or final plastic product or to clean the surfaces of equipment used in plastics molding and forming that contact an intermediate or final plastic product. It includes water used in both the detergent wash and rinse cycles of a cleaning process.

(3) "Contact cooling and heating water" means process water that contacts the raw material or plastic product for the purpose of heat transfer during the plastics molding and forming process.

(4) "Crude intermediate plastic material" means plastic material formulated in an on-site polymerization process.

(5) "Existing source" means any point source, except a new source as defined in sub. (9), from which pollutants may be discharged either directly into the waters of the state or into a POTW.

(6) "Finishing water" means process water used to remove waste plastic material generated during a finishing process or to lubricate a plastic product during a finishing process. It includes but is not limited to water used to machine or to assemble intermediate or final plastic products.

(7) "Mass of pollutant that can be discharged" means the pollutant mass calculated by multiplying the pollutant concentration times the average process water usage flow rate.

(8) "NSPS" means new source performance standards.

(9) "New source", as defined for NSPS and PSNS, means any point source from which pollutants may be discharged either directly into the waters of the state or into a POTW, the construction of which commenced after February 15, 1984.

(10) "PSES" means pretreatment standards for existing sources.

(11) "PSNS" means pretreatment standards for new sources.

(12) "Plastic material" means a synthetic organic polymer, including but not limited to a thermoset polymer, a thermoplastic polymer, or a combination of a natural polymer and a thermoset or thermoplastic polymer, that is solid in its final form and was shaped by flow. The material can be either a homogeneous polymer or a polymer combined with fillers, plasticizers, pigments, stabilizers, or other additives.

(13) "Plastics molding and forming" means a manufacturing process in which plastic materials are blended, molded, formed, or otherwise processed into intermediate or final products.

(14) "Process water" means any raw, service, recycled, or reused water that contacts the plastic product or contacts shaping equipment surfaces, including but not limited to molds and mandrels, that come in contact with the plastic product.

(15) "Volume of process water used per year" means the volume of process water that flows through a plastics molding and forming process over a period of one year.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.03 Monitoring and reporting requirements. Compliance with the maximum monthly average effluent limitations and pretreatment standards listed in the tables for each regulated process is required regardless of the number of samples analyzed and averaged. The maximum monthly average effluent limitations and pretreatment standards listed in the tables for each regulated process shall be the basis for monthly average discharge limits in direct discharge permits and for pretreatment standards.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

Subchapter II - Contact Cooling and Heating Water Subcategory

NR 283.10 Applicability; description of the contact cooling and heating water subcategory. This subchapter applies to the discharge of pollutants from processes in the contact cooling and heating water subcategory to waters of the state and the introduction of pollutants into POTWs. The contact cooling and heating water subcategory is limited to processes where process water contacts the raw material or plastic product for the purpose of heat transfer during plastics molding and forming.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.11 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. (1) Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BPT, which are calculated by multiplying the average process water usage flow rate for the contact cooling and heating water processes at a point source times the following pollutant concentrations:

Table 1
Contact Cooling and Heating Water

Concentration used to calculate effluent limitations	
Pollutant or pollutant property	Maximum for any 1 day (mg/l)
BOD_5	26
Oil and grease	29
TSS	19
pH	([1])

[1]Within the range of 6.0 to 9.0 at all times.

(2) The department shall obtain the average process water usage flow rate for the contact cooling and heating water processes from the permittee.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Based on EPA's determination that BPT provides adequate control of toxic pollutants in contact cooling and heating process wastewater, BAT guidelines are equivalent to BPT guidelines.

Note: BAT effluent limitations for bis(2-ethylhexyl) phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.13 New source performance standards. (1) Any new source subject to this subchapter shall achieve performance standards which are calculated by multiplying the average process water usage flow rate for the contact cooling and heating water processes at a new source times the pollutant concentrations indicated in Table 1.

(2) The department shall obtain the average process water usage flow rate for the new source contact cooling and heating water processes from the permittee.

Note: NSPS for bis(2-ethylhexyl) phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.14 Pretreatment standards for existing sources. Any existing source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

Note: PSES for bis(2-ethylhexyl) phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.15 Pretreatment standards for new sources. Any new source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

Note: PSNS for bis(2-ethylhexyl) phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.16 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology. (1) Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BCT which are calculated by multiply-

ing the average process water usage flow rate for the contact cooling and heating water processes at a point source times the pollutant concentrations indicated in Table 1.

(2) The department shall obtain the average process water usage flow rate for the contact cooling and heating water processes from the permittee.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

Subchapter III - Cleaning Water Subcategory

NR 283.20 Applicability; description of the cleaning water subcategory. This subchapter applies to the discharge of pollutants from processes in the cleaning water subcategory to waters of the state and the introduction of pollutants into POTWs. The cleaning water subcategory is limited to processes where process water contacts the surface of an intermediate or final plastic product, or the surfaces of shaping equipment used in plastics molding and forming, for the purpose of surface cleaning.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.21 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. (1) Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BPT, which is calculated by multiplying the average process water usage flow rate for the cleaning water processes at a point source times the following pollutant concentrations:

Table 2
Cleaning Water

Concentration used to calculate effluent limitations		
Pollutant or pollutant property	Maximum for any 1 day (mg/l)	Maximum for monthly average
BOD_5	49	22
Oil and grease	71	17
TSS	117	36
pH	([1])	([1])

[1] Within the range of 6.0 to 9.0 at all times.

(2) The department shall obtain the average process water usage flow rate for the cleaning water processes from the permittee.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Based on EPA's determination that BPT provides adequate control of toxic pollutants in cleaning process wastewater, BAT guidelines are equivalent to BPT guidelines.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.23 New source performance standards. (1) Any new source subject to this subchapter shall achieve performance standards calculated by multiplying the average process water usage flow rate for cleaning processes at a new source times the pollutant concentrations indicated in Table 2.

(2) The department shall obtain the average process water usage flow rate for the new source cleaning water processes from the permittee.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.24 Pretreatment standards for existing sources. Any existing source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.25 Pretreatment standards for new sources. Any new source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

Subchapter IV - Finishing Water Subcategory

NR 283.30 Applicability; description of the finishing water subcategory. This subchapter applies to the discharge of pollutants from processes in the finishing water subcategory to waters of the state and the introduction of pollutants into POTWs. The finishing water subcategory is limited to processes where process water contacts the plastic product for the purpose of removing waste plastic material or lubricating a plastic product during finishing.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.31 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. (1) Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BPT, which is calculated by multiplying the average process water usage flow rate for the finishing water processes at a point source times the following pollutant concentrations:

Table 3
Finishing Water

Concentration used to calculate effluent limitations		
Pollutant or pollutant property	Maximum for any 1 day (mg/l)	Maximum for monthly average (mg/l)
TSS	130	37
pH	([1])	([1])

[1] Within the range of 6.0 to 9.0 at all times.

(2) The department shall obtain the average process water usage flow rate for the finishing water processes from the permittee.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Based on EPA's determination that BPT provides adequate control of toxic pollutants in finishing process wastewater, BAT guidelines are equivalent to BPT guidelines.

Note: BAT effluent limitations for bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, and dimethyl phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.33 New source performance standards. (1) Any new source subject to this subchapter shall achieve performance standards which are calculated by multiplying the average process water usage flow rate for the finishing water processes at a new source times the pollutant concentrations indicated in Table 3.

(2) The department shall obtain the average process water usage flow rate for the new source finishing water processes from the permittee.

Note: NSPS for bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, and dimethyl phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.34 Pretreatment standards for existing sources. Any existing source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

Note: PSES for bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, and dimethyl phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.35 Pretreatment standards for new sources. Any new source subject to this subchapter that introduces pollutants into a POTW shall comply with ch. NR 211.

Note: PSNS for bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, and dimethyl phthalate are reserved.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.

NR 283.40 Cross-references. The federal citations in this chapter correspond to provisions of the Wisconsin administrative code and Wisconsin statutes. The federal citations may be cross-referenced in the following table:

Code of Federal Regulations	Corresponding State Code Section
40 CFR Part 463	ch. NR 283
40 CFR 125.30 to 125.32	s. NR 283.13 (3), Stats.

History: Cr. Register, October, 1987, No. 382, eff. 11-1-87.