CR 87-17

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Carroll D. Besadny
Secretary

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File Ref:

STATE OF WISCONSIN)
)
DEPARTMENT OF NATURAL RESOURCES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Bruce B. Braun, Deputy Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. WW-8-87 was duly approved and adopted by this Department on May 28, 1987. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building ~~in~~ the City of Madison, this 31st day of August, 1987.

Bruce B. Braun, Deputy Secretary

(SEAL)

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ORDER OF THE STATE OF WISCONSIN
NATURAL RESOURCES BOARD
CREATING RULES

IN THE MATTER of creating ch. NR 283 of the Wisconsin Administrative Code pertaining to effluent limitations for the plastics molding and forming industry.

WW-8-87

Analysis Prepared by Department of Natural Resources

The rules are promulgated under the authority of ss. 147.035, 147.04, 147.06, 147.07(2) and 227.11(2)(a), Stats., and interpret ss. 147.01, 147.035, 147.04, 147.06 and 147.07(2), Stats.

The federal water pollution control act amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical and biological integrity of the Nation's waters" (section 101(a)). To implement the act, the U.S. environmental protection agency issued effluent limitations, pretreatment standards, and new source performance standards for industrial wastewater discharge. The clean water act of 1977 expanded on the federal program of pollution control by setting different types of effluent limitations, "best practicable technology" (BPT), "best available technology" (BAT), "best conventional technology" (BCT), "new source performance standards" (NSPS), "pretreatment standards for existing sources" (PSES), and "pretreatment standards for new sources" (PSNS). The clean water act stressed control of toxic pollutants, including 65 "priority" pollutants and classes of pollutants in 21 major industries.

The Wisconsin department of natural resources instituted the Wisconsin pollutant discharge elimination system in 1976. This system included regulation of effluent discharges in various industries. The Wisconsin department of natural resources is promulgating ch. NR 283, Wis. Adm. Code, to regulate the plastics molding and forming industry. The provisions of this chapter are based on the U.S. environmental protection agency regulations in 40 C.F.R. Part 463.

The purpose of this rule is to specify effluent limitations for BPT, BAT, BCT and NSPS for the direct discharge of waste to waters of the state. The rule reserves sections for pretreatment standards regulating the introduction of pollutants to publicly owned treatment works. The effect of the creation of ch. NR 283, Wis. Adm. Code, will be to adopt standards and limitations for industrial wastewater discharge in the plastics molding and forming industry. The code provisions will reflect changes made by the U.S. environmental protection agency under the authority of ss. 301, 304, 306, 307, 308 and 501 of the clean water act.

Plastics molding and forming is a manufacturing process in which plastic materials are blended, molded, formed, or otherwise processed into intermediate or final products. For the purpose of this rule, the plastics molding and forming point source category is divided into three subcategories according to manufacturing processes: (1) contact cooling and heating water subcategory; (2) cleaning water subcategory; and (3) finishing water subcategory.

Process water is used in plastics molding and forming processes to cool or heat the plastic products; to clean the surfaces of both the plastic products and the equipment used to produce those products; and to finish products. The most important pollutants or pollutant parameters generated in plastics molding and forming wastewater are: (1) conventional pollutants - biochemical oxygen demand (BOD5), oil and grease (O & G), total suspended solids (TSS), and pH; and (2) nonconventional pollutants - total organic carbon (TOC), chemical oxygen demand (COD), and total phenols. The priority toxic pollutants found in plastics molding and forming wastewater are: bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, dimethyl phthalate, phenol, and zinc.

Plastics molding and forming plants may have processes that generate only one type of wastewater and thus fit within one subcategory. However, many plants have more than one plastics molding and forming process and those processes may be in different subcategories. In this instance, plants must comply with the effluent limitations and standards that apply to each process.

Only process water discharges are subject to this rule. Noncontact cooling water that does not contact either the plastic product or equipment surfaces that have contacted the plastic product is not process water and is not subject to this rule.

Processes that coat a plastic material onto a formed metal substrate are also subject to this rule. However, this rule applies to these processes only when the wastewater is discharged from the coating process and not when the wastewater is discharged from a prior metal forming operation.

The generation of wastewater by the solvent recovery operation in the solution or solvent casting process is excluded from this rule. The generation of wastewater during the reticulation of polyurethane foam is also excluded from this rule unless the reticulated foam is further processed by molding and forming.

Also excluded from this rule are plastics molding and forming processes used by plastic resin manufacturers to process crude intermediate plastic materials for shipment off-site, unless these plastic materials are further processed on-site into intermediate or final plastic products by molding and forming. Similarly, processes used to produce regenerated cellulose are not subject to this rule. However, this rule does apply to molding and forming processes that use cellulose derivatives.

Two federal documents form the basis for 40 C.F.R. Part 463 and this rule: (1) economic impact analysis of effluent limitations and standards for the plastics molding and forming industry (EPA 440/2-84-025, December 1984); and

(2) development document for effluent limitations guidelines and standards for the plastics molding and forming point source category (EPA 440/1-84/069, December 1984). Copies of these two documents are available for inspection at the central office of the Wisconsin department of natural resources, 101 south Webster street, Madison, and may be obtained for personal use from the national technical information service (NTIS), Springfield, Virginia 22161, (703) 487-4600.

Two additional federal sources relevant to 40 C.F.R. Part 463 and this rule may be obtained from the U.S. environmental protection agency: (1) sampling and analysis procedures for screening of industrial effluents for priority pollutants (EPA, April 1977); and (2) responses to public comments, proposed plastics molding and forming effluent limitations guidelines and standards (EPA, December 1984).

This rule uses the format and text of 40 C.F.R. Part 463 and is identical to the federal regulation for purposes of s. 227.14(1m)(a), Stats. Several changes have been made in the text of the federal regulation to make the rule useful to Wisconsin citizens, industry and regulating authorities. These changes are consistent with the current state regulatory framework and reflect as much as possible the conventions of state rule drafting.

As required by the administrative rules procedures manual, a purpose section has been added, and revisions have been made to the numbering system, citation formats and definition formats. Where possible, Wisconsin administrative code references were substituted in the text for references to the code of federal regulations. Citations in the text to the code of federal regulations may be cross-referenced to corresponding sections of the Wisconsin administrative code in the table which has been added at the end of the rule.

The authority section and subpart divisions in the federal regulation were deleted. The abbreviations "NSPS", "PSES", and "PSNS", and definitions for "new source" and "existing source" were added to the general definitions section in the state rule. The definitions for "average process water usage flow rate" and "volume of process water used per year" which appear in the specialized definitions sections of the federal regulation, 40 C.F.R. ss. 463.11, 463.21 and 463.31, were revised and added to the general definitions section of the state rule to avoid unnecessary duplication of text. These 3 specialized definitions sections were deleted and subsequent federal regulation sections were renumbered in the state rule in accordance with this change. Tables contained in 40 C.F.R. ss. 463.14, 463.17, 463.24 and 463.34 were deleted to avoid unnecessary duplication.

SECTION 1. Chapter NR 283 is created to read:

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.

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 plastics 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.

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.

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.

SUBCHAPTER II

CONTACT COOLING & 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.

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 C.F.R. ss. 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)
BOD5	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.

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.

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.

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.

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.

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 C.F.R. ss. 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 multiplying 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.

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.

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 C.F.R. ss. 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 (mg/l)
BOD5	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.

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.

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.

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.

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.

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.

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 C.F.R. ss. 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.

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.

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.

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.

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.

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 C.F.R. Part 463	ch. NR 283
40 C.F.R. ss. 125.30 to 125.32	s. NR 147.04(3), Stats.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on May 28, 1987.

The rules shall take effect as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin August 31, 1987

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By Carroll D. Besadny
Carroll D. Besadny, Secretary

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