

## Chapter NR 296

## TEXTILE INDUSTRY

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**NR 296.01 Purpose.** The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of process wastes from the textile 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 296.02 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 in any of the following subcategories.

(1) **WOOL SCOURING.** This subcategory includes textile mills engaged in wool scouring, topmaking, and general cleaning of raw wool.

(2) **WOOL FINISHING.** This subcategory includes textile mills engaged in wool finishing including carbonizing, fulling, dyeing, bleaching, and rinsing, fireproofing and other such similar processes.

(3) **DRY PROCESSING.** This subcategory includes textile mills engaged in yarn manufacture, yarn texturizing, unfinished fabric manufacture, fabric coating, fabric laminating, tire cord and fabric dipping, carpet tufting and carpet backing. The manufacture of rubberized or rubber coated fabrics is specifically excluded from the provisions of this chapter.

(4) **WOVEN FABRIC FINISHING.** This subcategory includes textile mills engaged in any or all of the following unit operations: desizing, bleaching, mercerizing, dyeing, printing, resin treatment, waterproofing, flameproofing, soil repellancy application, and special finish application. The subcategory is further divided into the finishing of woven fabrics through:

(a) Simple or complex manufacturing operations employing a natural fiber, a synthetic fiber, or a natural and synthetic fiber blend,

(b) Simple manufacturing operations employing a synthetic fiber or complex manufacturing operations employing a natural fiber,

(c) Simple manufacturing operations employing a natural and synthetic fiber blend or complex manufacturing operations employing a synthetic fiber, and

(d) Complex manufacturing operation employing a natural and synthetic fiber blend.

(5) **KNIT FABRIC FINISHING.** This subcategory includes textile mills engaged in knit fabric finishing employing any or all of the following unit operations: bleaching, mercerizing, dyeing, printing, resin treatment, waterproofing, flameproofing, soil repellancy application and application of special finishes. The subcategory is further divided into the finishing of knit fabrics through:

(a) Simple or complex manufacturing operations employing a synthetic fiber or a natural and synthetic fiber blend,

(b) Simple manufacturing operations employing a natural and synthetic fiber blend or complex manufacturing operations employing a synthetic fiber, and

(c) Complex manufacturing operations employing a natural and synthetic fiber blend.

(6) **CARPET MILLS.** This subcategory includes textile mills which are carpet mills engaged in any or all of the following unit operations: bleaching, scouring, carbonizing, fulling, dyeing, printing, resin treatment, waterproofing, flameproofing, soil repellancy, looping, and backing with foamed and unfoamed latex and jute. Carpet backing without other carpet manufacturing operations is excluded from this subcategory and included in subcategory (3).

(7) **STOCK AND YARN DYEING AND FINISHING.** This subcategory includes textile mills engaged in stock and yarn dyeing and finishing using any or all of the following unit operations: cleaning, scouring, bleaching, mercerizing, dyeing and special finishing.

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

**NR 296.03 Definitions.** The following special 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) "Color" means the color as measured by the modified tristimulus method developed by the American Dye Manufacturers Institute (ADMI) and described in Appendix A of the development document incorporated by reference in s. NR 296.05.

(2) "Commission scouring" means the scouring of wool, 50% or more of which is owned by others, in mills that are 51% or more independent (i.e. having only a minority ownership by companies with grieger or integrated operations). The mills must process 20% or more of their commissioned production through batch, noncontinuous processing operations.

(3) "Commission finishing" means the finishing of textile materials, 50% or more of which are owned by others, in mills that are 51% or more independent (i.e. having only a minority ownership by companies with grieger or integrated operations). The mills must process 20% or more of their commissioned production through batch, noncontinuous processing operations with 50% or more of their commissioned orders processed in 5,000-yard or smaller lots.

(4) "Fiber" means dry wool and other fibers as received at the wool mill for processing into wool and blended products.

(5) "Product" means the final material produced or processed by the mill except that for the carpet mills subcategory it means the final carpet produced or processed including the primary backing but excluding the secondary backing.

(6) "Simple manufacturing operation" means those operations involving the unit processes of desizing, fiber preparation and dyeing except that for the carpet mills subcategory it means those operations involving fiber preparation and dyeing with or without carpet backing.

(7) "Complex manufacturing operation" means those operations involved in simple manufacturing operation plus any additional manufacturing operations such as printing, waterproofing or applying stain resistant or other functional fabric finishes except that for the carpet mills subcategory the additional operations are those such as printing or dyeing and printing.

(8) "Wool" means dry wool as it is received by the wool scouring mill.

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

**NR 296.04 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, June, 1976, No. 246, 7-1-76; r. and recr. Register, August, 1983, No. 332, eff. 9-1-83.

**NR 296.05 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 Textile Mills Development Document, EPA 44/1-74-022-a. 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) Copies of this Development Document, "Textile Mills," EPA 44/1-74-022a published January, 1974, are available for inspection at the office of the department of natural resources, the secretary of state's office, and the office of the legislative reference bureau, 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; **correction made in (3) under s. 13.92 (4) (b) 6.**

**NR 296.06 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 296.05,

(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) In the application of effluent limitations in this chapter to a textile mill engaged in commission scouring in subcategory (1) or in commission finishing in subcategory (2), (4) or (5) of s. NR 296.02, where the commission scouring or commission finishing conforms to the definitions of s. NR 296.03, the appropriate effluent limitations of ss. NR 296.10, 296.11 and 296.12 shall be increased, except for pH, by an amount equal to such limitations in those sections.

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

**NR 296.10 Effluent limitations, best practicable treatment.** The following effluent limitations for all or specific subcategories when applied in accordance with s. NR 296.06 (3) establish, except as provided in s. NR 296.05, 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.

(1) The pH of all discharges shall be within the range of 6.0 to 9.0.

(2) The fecal coliform present in discharges in subcategory (3) shall not exceed an MPN of 400/100 ml.

(3) The oil and grease content of discharges in subcategory (1) shall not exceed a 30-day average of 3.6 nor a daily maximum of 7.2 lbs/1,000 lbs or kg/1,000 kg of wool.

(4) The 30-day average limitations for BOD<sub>5</sub>, suspended solids, COD, total chromium, phenol and sulfide are set forth in table 1. Daily maximum limitations are 2 times the 30-day average values.

Table 1  
BPT Effluent Limitations  
in lbs/1,000 lbs or kg/1,000 kg of product

Subcategory as defined in s. NR 296.02

	BOD	TSS	COD	Chromium Total	Phenol	Sulfide
(1)	5.3	16.1	69.0	.05	.05	.10
(2)	11.2	17.6	81.5	.07	.07	.14
(3)	.7	.7	1.4	-	-	-
(4) (a)	3.3	8.9	30.0	.05	.05	.10
(b)	3.3	8.9	40.0	.05	.05	.10
(c)	3.3	8.9	50.0	.05	.05	.10
(d)	3.3	8.9	60.0	.05	.05	.10
(5) (a)	2.5	10.9	30.0	.05	.05	.10
(b)	2.5	10.9	40.0	.05	.05	.10
(c)	2.5	10.9	50.0	.05	.05	.10
(6) (a)	3.9	5.5	35.1	.02	.02	.04
(b)	3.9	5.5	45.1	.02	.02	.04

(7) 3.4 8.7 42.3 .06 .06 .12

Note: For "product" substitute "wool" and "fiber" respectively for subcategories (1) and (2).

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

**NR 296.11 Effluent limitations, best available treatment.** The following effluent limitations for all or specific subcategories when applied in accordance with s. NR 296.06 (3) 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.

(1) The pH of all discharges shall be within the range of 6.0 to 9.0.

(2) The fecal coliform present in all discharges shall not exceed an MPN of 400/100 ml.

(3) The oil and grease content of discharges in subcategory (1) shall not exceed a 30-day average of 1.0 nor a daily maximum of 2.0 lbs/1,000 lbs or kg/1,000 kg of wool.

(4) The 30-day average limitations for BOD<sub>5</sub>, suspended solids, COD, total chromium, phenol, sulfide and color are set forth in Table 2. Daily maximum limitations are 2 times the 30-day average values.

Table 2  
BAT EFFLUENT LIMITATIONS  
lb/1,000 lbs of kg/1,000 kg of product;

Subcategory as defined in s. NR 296.02

	BOD	TSS	COD	Chromium Total	Phenol	Sulfide	Color ADMI
(1)	2.4	2.0	18.0	.05	.05	.10	600
(2)	4.6	2.5	27.1	.07	.07	.14	600
(3)	.2	.2	.4	-	-	-	-
(4) (a)	2.2	1.5	10.0	.05	.05	.10	300
(b)	2.2	1.5	13.3	.05	.05	.10	300
(c)	2.2	1.5	16.7	.05	.05	.10	300
(d)	2.2	1.5	20.0	.05	.05	.10	300
(5) (a)	1.7	1.7	10.0	.05	.05	.10	300
(b)	1.7	1.7	13.3	.05	.05	.10	300
(c)	1.7	1.7	16.7	.05	.05	.10	300
(6) (a)	2.0	1.0	11.7	.02	.02	.04	225
(b)	2.0	1.0	15.0	.02	.02	.04	225
(7)	2.3	1.9	14.1	.06	.06	.12	300

Note: For "product" substitute "wool" and "fiber" respectively for subcategories (1) and (2).

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

**NR 296.12 Standards of performance.** The following effluent limitations for all or specific subcategories when applied in accordance with s. NR 296.06 (3) 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.

(1) The pH of all discharges shall be within the range of 6.0 to 9.0.

(2) The fecal coliform present in discharges in subcategory (3)

shall not exceed an MPN of 400/100 ml.

(3) The oil and grease content of discharges in subcategory (1) shall not exceed a 30-day average of 3.6 nor a daily maximum of 7.2 lbs/1,000 lbs or kg/1,000 kg of wool.

(4) The 30-day average limitations for BOD<sub>5</sub>, suspended solids, COD, total chromium, phenol, sulfide and color are set forth in table 3. Daily maximum limitations are 2 times the 30-day average values.

Table 3  
STANDARDS OF PERFORMANCE EFFLUENT LIMITATIONS  
in lbs/1,000 lbs or kg/1,000 kg of product;

Subcategory as defined in s. NR 296.02

	BOD	TSS	COD	Chromium Total	Phenol	Sulfide
(1)	5.3	5.3	69.0	.05	.05	.10
(2)	11.2	11.2	81.5	.07	.07	.14
(3)	0.7	0.7	1.4	-	-	-
(4) (a)	3.3	3.3	30.0	.05	.05	.10
(b)	3.3	3.3	40.0	.05	.05	.10
(c)	3.3	3.3	50.0	.05	.05	.10
(d)	3.3	3.3	60.0	.05	.05	.10
(5) (a)	2.5	2.5	30.0	.05	.05	.10
(b)	2.5	2.5	40.0	.05	.05	.10
(c)	2.5	2.5	50.0	.05	.05	.10
(6) (a)	3.9	3.9	35.1	.02	.02	.04
(b)	3.9	3.9	45.1	.02	.02	.04
(7)	3.4	3.4	42.3	.06	.06	.12

Note: For "product" substitute "wool" and "fiber" respectively for subcategories (1) and (2).

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

**NR 296.13 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.