Textile Manufacturing

530SW90027E

Industry Overview

Not all textile manufacturing industries produce hazardous waste. If, however, you use hazardous solvents and materials containing toxic chemicals, you might be subject to Resource Conservation and Recovery Act (RCRA) requirements covering the generation, transportation, and management of hazardous waste.

The following *textile manufacturing industry* segments are covered by this summary:

- Broad woven fabric mills and wool mills, including dyeing and finishing
- Knitting mills and knit goods finishing
- Other dyeing and finishing textile mills
- Floor covering mills, including dyeing and finishing.

Hazardous Wastes from Textile Manufacturing

Most of the hazardous waste generated by textile manufacturers results from the use of solvents. Solvents are used in the dry-cleaning of synthetic fiber knit fabrics and woven and wool fabrics; in specialty operations such as tricot and lace splitting or solvent scouring; in dyeing operations; and in some finishing operations for impregnation or coating of textile fibers. In addition, solvents are used to clean machinery such as rollers and spinning machines used in textile manufacturing. Spent solvents are listed hazardous wastes. In addition, tetrachloroethylene, trichloroethylene, benzene, and ethylene dichloride are included in the recently expanded Toxicity Characteristic. Insecticides and disinfectants also sometimes contain Toxicity Characteristic chemicals such as cresols, chloroform, and carbon tetrachloride. Wastewaters or other process wastes containing these chemicals are hazardous if they fail the Toxicity Characteristic Leaching Procedure (TCLP) test.

Table 1 lists general processes/operations that use hazardous materials and that might result in the generation of hazardous waste. If you generate 100 kilograms (220 pounds or about half of a 55-gallon drum) or more of hazardous waste per month, you must fill out a Uniform Hazardous Waste Manifest when you ship the hazardous waste off your property. The Manifest requires the proper Department of Transportation (DOT) description for each waste. Table 2 lists proper DOT shipping descriptions for a number of wastes that are potentially generated during textile mill operations. Table 1 and Table 2 are not comprehensive lists. If you suspect that you generate a waste that is not included in this summary, contact your state hazardous waste management agency or EPA Regional office for assistance.

Waste Minimization

An effective waste minimization program can reduce the costs, liabilities, and regulatory burdens of hazardous waste management, while potentially enhancing efficiency, product quality, and community relations. Waste minimization techniques that can help you reduce the amount of hazardous waste that you generate include:

- Production planning and sequencing
- Process/equipment adjustment or modification
- Raw material substitution
- Loss prevention and housekeeping
- Waste segregation and separation
- Recycling.

Training and supervision of employees implementing waste minimization techniques is an important part of your successful program. Call the RCRA/Superfund Hotline toll-free at 800-424-9346 (or TDD 800-553-7672 for the hearing-impaired) for waste minimization information and publications.

Table 1
Typical Textile Manufacturing Operations: Materials Used and Hazardous Wastes that Might be Generated

Process/ Operation	Materials Used	General Types of Waste Generated
Wool Scouring	Disinfectants, insecticides, solvents	Spent solvents Toxic wastes
Fabric and Floorcovering Finishing	Dyes, solvents, lacquers, bleaches, finishing agents, adhesives	Spent solvents Toxic wastes Wastewaters and wastewater treatment sludges with toxic constituents
Stock and Yarn Processing, Dyeing, and Finishing	Solvents, dyes	Spent solvents Toxic wastes

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Table 2

Textile Manufacturing Waste Descriptions[1]

Waste Type	Designations/Trade Names	DOT Shipping Name	Hazard Class	UN/NA ID Number
WASTE SOLVENTS, SOLVENT STILL BOTTOMS AND OTHER TOXIC WASTES CONTAINING:				
Tetrachloroethylene*		Waste Tetrachloroethylene or Perchloroethylene	ORM-A	UN1897
Trichloroethylene*		Waste Trichloroethylene	ORM-A	UN1710
Methylene Chloride		Waste Dichloromethane or Methylene chloride	ORM-A	UN1593
1,1,1-Trichloroethane		Waste 1,1,1-Trichloroethane	ORM-A	UN2831
Chlorobenzene*		Waste Chlorobenzene	Flammable Liquid[2]	UN1134
Toluene		Waste Toluene or Toluol	Flammable Liquid	UN1294
Benzene*.		Waste Benzene or Benzol	Flammable Liquid	UN1115
Xylene		Waste Xylene (xylol)	Flammable Liquid	UN1307
Ethylene Dichloride*		Waste Ethylene Dichloride	Flammable Liquid	UN1184
Varsol White Spirits Mineral Spirits		Waste Naphtha	Flammable Liquid[3] Combustible Liquid	UN1256 UN1256
OTHER WASTES				
Ignitable Wastes, NOS[4]		Waste Flammable Liquid, NOS Waste Combustible Liquid, NOS Waste Flammable Solid, NOS	Flammable Liquid Combustible Liquid Flammable Solid	UN1993 NA1993 UN1325
Hazardous Waste, NOS		Hazardous Waste, Liquid or Solid, NOS	ORM-E	UN9189

* Toxicity Characteristic constituent. Any waste that results in a TCLP leachate containing a Toxicity Characteristic constitutent equal to or above regulatory levels is hazardous.

1 These descriptions may change given variations in waste characteristics or conditions. Note that the DOT shipping name, hazard class, and UN/NA ID number do not directly correspond to RCRA hazardous waste categories.

2 A flammable liquid has a flash point less than 100°F.

3 A combustible liquid has a flash point between 100°F and 200°F.

4 NOS - not otherwise specified.

For further information call the RCRA/Superfund Hotline 1-800-424-9346