Air Program Fact Sheet
Printing, Coating, and Dyeing of Fabrics and Other Textiles
January 2017

In May 2003, the U.S. Environmental Protection Agency (EPA) issued the Maximum Achievable Control Technology (MACT) standard regulating emissions of hazardous air pollutants (HAPs) from printing, coating, and dyeing of fabrics and other textiles. EPA expects to reduce HAPs by 60 percent, or 4100 tons per year, through implementation of this standard.

Is My Business Affected?
If your operations have the potential to emit hazardous air pollutants (HAPs) in quantities greater than 10 tons per year of any single HAP, or 25 tons per year of all HAPs combined, you are affected. Any operation emitting HAPs above those levels is defined as a major source of HAPs.

The fact sheet on MTE and PTE Calculation Examples and a generic HAPs calculation spreadsheet from the Small Business Environmental Assistance Program (SBEAP) may help you determine whether your facility's potential to emit makes it a major source.

What Operations are Affected?
Each operation that is a major source of HAPs must comply with the rule. EPA divided this rule into three subcategories reflecting the limits and conditions that apply to fabric and other textile operations. In an amendment finalized on August 4, 2004, EPA clarified the rule to indicate that listed operations at synthetic fiber manufacturing facilities where the fibers are the final product of the facility is not an affected source under this rule.

The three emission limit subcategories are:
(1) printing and coating
(2) slashing
(3) dyeing and finishing

(1) ***Printing and coating operations are defined as***: equipment used to apply cleaning materials to a web substrate to prepare it for printing/coating material application (surface preparation), to apply printing or coating material to a web substrate (printing/coating application) and to dry or cure the printing or coating material after application by exposure to heat or radiation (printing/coating drying or curing), or to clean printing/coating operation equipment (equipment cleaning). A web substrate is a continuous textile substrate flexible enough to be wound or unwound as rolls.

A single printing or coating operation may include any combination of these types of equipment, but always includes at least the point at which a printing, coating or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that printing, coating or cleaning material occur. Affected sources may use multiple printing or coating operations.

Not included in the rule as printing and coating operations:

- Coating material application with handheld, non-refillable, aerosol containers, touch-up markers, or marking pens.
- Polyurethane foam carpet backing operations.

(2) ***Slashing operations are defined as***: the equipment used to mix and prepare size for application and the slasher, which is the equipment used to apply and dry size on warp yarn.

(3)(a) ***Dyeing operations are defined as***: the collection of equipment used to dye a textile substrate and includes equipment used for dye application, dye fixation, and textile substrate rinsing and drying. A single dyeing operation may include any combination of these types of equipment but always includes at least the point at which a dyeing material is applied and all subsequent points in the affected source where organic HAP emissions from that dyeing material occur. There may be multiple dyeing operations at an affected source.

(3)(b) ***Finishing operations are defined as***: the collection of equipment used to finish a textile substrate including chemical finish applicator(s), flashoff area(s), and drying or curing oven(s).

My Business is Affected. How Do I Comply?

Both one-time and continuous requirements must be met.

Initial Notification

The Initial Notification is a one-time report that must be submitted to the DNR to indicate that the rule applies. The deadline for existing sources to submit an initial notification has passed. New or reconstructed sources are required to submit an initial notification no later than 120 days after initial startup. If you miss any deadline, contact your local DNR Air Program compliance inspector to determine how you should come into compliance.

Emission Limits and Compliance Options

The following is a summary of the compliance options created by EPA in a brochure on this rule.

Emission Limits

Table 1 shows the emission limits for the subcategories of fabric and textile operations affected by this rule.

Table 1. HAP Emission Limits for Subcategories

Subcategory	Emission Limit (kg HAP/liter solids)	
	New/Reconstructed	Existing Sources
Coating and Printing	0.08	0.12
Dyeing and Finishing	0.016	0.016
Dyeing only	0.016	0.016
Finishing only	0.0003	0.0003
Slashing	0.0[a]	0.0[a]

a As determined according to information from the supplier or manufacturer of the material. You may rely on information such as manufacturer's formulation data, if it represents each organic HAP that is present at 0.1% by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0% by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is 0.5% of the material by mass, you do not have to count it.

Compliance Options

You may comply with emission limits by doing any of the following:

1) **Compliant Material Option**—Each coating, printing, slashing, dyeing, or finishing material you use must not exceed the HAP limit in Table 1, determined for the subcategory during the 1-month compliance period. Each thinner and cleaning material used must contain no organic HAP.
2) **Emission Rate without Add-on Controls**—The organic HAP emission rate, calculated as a 12-month rolling average, for coating, printing, dyeing, finishing, thinners, and cleaning materials must not exceed the HAP limits in Table 1. You cannot use this option for slashing operations.
3) **Emission Rate with Add-On Controls**—The organic HAP emission rate, calculated as a 12-month rolling average, for coating, printing, thinners, and cleaning materials (including emission capture and control efficiency) must not exceed the HAP limits in Table 1. You cannot use this option for slashing operations.
4) **Organic HAP Overall Control Efficiency Option**— HAP emissions must be reduced by an overall control efficiency of at least 98% for new or reconstructed sources and 97% for existing sources. You cannot use this option for slashing, dyeing, or printing operations.

5) **Oxidizer Outlet Organic HAP Concentration Limit**—If you use an oxidizer to control organic HAP emissions, the oxidizer must be operated so that the outlet organic HAP concentration is no greater than 20 parts per million by volume on a dry basis. You cannot use this option for slashing, dyeing, or printing operations.
6) **Equivalent Emission Rate Option**—For the entire dyeing and finishing source, the fraction of applied organic HAP that is discharged to wastewater must be at least 90%. The wastewater must be discharged to a POTW or to secondary wastewater treatment. The total organic HAP emissions must be less than 10 tpy. You must also meet the requirements for Compliance Option No. 2 above.

Compliance Calculations

- For Compliance Option No. 1, the data collected on the regulated materials are used to calculate the organic HAP content of each material used each month.
- For Compliance Option Nos. 2 and 3, an organic HAP emission rate for the 12-month rolling average compliance period is calculated.
- For Compliance Option No. 4, an overall organic HAP control efficiency is calculated for the compliance period.
- Compliance Option No. 5 may be used if you use an oxidizer to control HAP emissions from a coating or printing operation.

The calculations described are much too complex to include in such a brief summary. Depending on which compliance option you choose, you should refer to the rule itself for complete information.

Initial Compliance Demonstration

New or reconstructed sources with initial startup prior to May 29, 2003 were required to demonstrate compliance by May 29, 2003. If your initial startup is after May 29, 2003, you must comply on the date of initial startup. For existing sources, the compliance deadline was May 29, 2006. If you miss any compliance deadline, contact your local DNR Air Program compliance inspector to determine how you should come into compliance.

For more information:

- EPA's Fabric MACT web page: https://www.epa.gov/stationary-sources-air-pollution/printing-coating-and-dyeing-fabrics-and-other-textiles-national
- DNR's NESHAP FAQ web page: http://dnr.wi.gov/topic/AirQuality/HAPFAQ.html
- Contact the SBEAP at DNRSmallBusiness@wisconsin.gov or 1-855-889-3021.

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