



Managing Paint Booth Filters

Waste/Hazardous Waste # 4.38, rev. June 2003

This fact sheet is intended for owners/operators of spray-painting operations.

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Worker Health and Environmental Concerns

To protect the quality of the air we breathe and the health of painters, spray-painting operations must use paint booths with exhaust filters. Exhaust filters (also known as “paint-overspray arrestors”) and filters from waterfall or waterwash operations are designed to collect paint and other particles – preventing them from polluting the air or lodging in a worker’s respiratory passages. Often the paints that collect on the filters are hazardous, potentially making the filters hazardous. Filters, when removed and stacked, sometimes have the tendency to self-combust – making them a potential fire hazard as well.

Booth *intake* filters are designed to remove dust and other small air-borne particles to supply a dust-free environment for painting. They are not hazardous under normal circumstances.

Maximizing Filters and Preventing Pollution

To ensure you get maximum performance from your filters, in addition to cost, consider:

- capture efficiency,
- durability and
- lifespan.

Other management ideas that may help you get the most use from your filters:

- Store new filters in a way that will protect them from dust and damage prior to use.
- Use the correct filter for the type of

paint, equipment and booth that you use. Work with your vendor to keep up on new products or necessary adjustments.

- Use the spray booth for its intended use – not for other projects that can prematurely fill the filters with other particulates.
- Use correct air volume and velocity.
- Minimize overspray. 1) Adjust spray equipment to ensure proper fan pattern and operating pressure; 2) Check electrostatic spray equipment to make sure it is operating at proper voltage and is properly grounded; and 3) Train and periodically monitor employees to ensure they are using correct spray technique (controlled spraying saves time, money and paint).
- Use recycled solution baths or gun washers to clean spray equipment; don’t clean guns by spraying them into the filters.

Tip: If spent filters are a difficult waste stream to manage, consider using styrene (foam) filters. When spent, this type of filter can be mixed with waste solvent. If you generate very little solvent, this may not be the best option because, if the mixture becomes very thick and sludge-like, it is expensive to dispose of. Work with your filter supplier and waste hauler to determine if this is a viable option for you.



Evaluating the Filters

No matter which type of exhaust filter you use – wet or dry, fiberglass, paper, styrene, composite or another type – all types must be evaluated to determine whether or not they are hazardous. If you choose not to evaluate, you must manage them as a hazardous waste.

Two Options for Determining if Hazardous

Evaluating filters to determine whether or not they are hazardous can be done two ways:

1. through “knowledge of the waste”; or
2. by use of a laboratory test – the “Toxicity Characteristic Leaching Procedure” (TCLP).

Using one of these methods to determine whether or not your filters are hazardous assumes you are not:

- spraying a hazardous solvent into the filters when cleaning spray guns; or
- adding a hazardous solvent to your paint product other than what may be required to meet manufacturer’s specifications.

If you do either of the above, your paint filters are considered hazardous and must be managed according to full hazardous waste rules.

1. “Knowledge of the Waste”

Using “knowledge” to evaluate your filters means:

1. you only use paints and coatings which contain regulated metals* at levels below limits*; and
2. you have written documentation to show this.

*See Table 1.

Using “knowledge of the waste” to show your waste is nonhazardous is acceptable provided you have documentation to back up your evaluation. A written statement or certification from the manufacturer stating that any RCRA* metals in the paint you use are below regulatory limits (see Table 1) is adequate documentation to support disposal of filters as nonhazardous.

*RCRA – the Resource Conservation and Recovery Act – determines the criteria for hazardous waste.

Paint suppliers provide “Material Safety Data Sheets” (MSDSs). However, an MSDS is only required to list ingredients that make up more than one percent of the product. Regulated metals in lesser amounts could still render paint and filters hazardous.

Table 1: RCRA Metals and Regulatory Limits

Hazardous Waste Number	Metal	Maximum Concentration (milligrams/liter)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D007	Chromium	5.0
D008	Lead	5.0
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0

2. Testing

Using the Toxicity Characteristic Leaching Procedure (TCLP) laboratory test to evaluate your waste means:

1. you arrange with a testing company capable of performing the TCLP to test a representative sample of your waste paint filters; and
2. test results show levels of any RCRA metals present and compare each to the regulatory limits. For the waste to be non-“TCLP”-hazardous, test results must fall below regulatory limits.

The certification and TCLP test method will only determine if your filters are hazardous due to the presence of one or more of the seven regulated (“heavy” or “RCRA”) metals in the paint. When evaluating paint filters to determine whether they are hazardous, you do not need to consider any solvents ingredients in a paint. Because they are part of the paint formulation, any “listed” solvents* a paint may contain do not make the paint waste “listed” (hazardous). **Paint waste (including filters) would only be “listed” hazardous waste if you put additional listed solvent into the paint or into the filter.**

*“Listed” solvents are those identified in Minn. Rules Ch. 7045.0135 Subp. 2(A-E). See Table 2

Neither does this evaluation consider the filters to be “ignitable” as defined by Minn. Rules Ch. 7045.0131 Subp. 2(B): “it is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard”. Although paint filters may self-combust, they do not generally burn “vigorously and persistently” – as the rule states. However, it is possible they could cause fires by giving off vapors that ignite other combustible materials.

**Table 2: Listed Solvents**

- F001** the following solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride and chlorinated fluorocarbons
- F002** tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane
- F003** xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, *n*-butyl alcohol, cyclohexanone and methanol
- F004** cresols and cresylic acid, and nitrobenzene
- F005** toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol and 2-nitropropane

All mixtures/blends containing, before use, a total of ten percent of more by volume of any of the F001-F005 solvents and the still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Managing Hazardous Filters

If your filters are shown to be hazardous, you must store them in a non-leaking container marked with the words “Hazardous Waste” and a description of the waste (i.e., “Waste Paint Filters”). You must use a licensed hazardous waste transporter to ship them to a hazardous waste disposal facility. The shipment must be accompanied by a special shipping paper called a hazardous waste manifest. Before selecting a container, check with the disposal facility you intend to use for a recommendation on what type to use.

For more information on storage and disposal of a hazardous waste, see MPCA’s hazardous waste fact sheets # 1.04 and 1.06. For more information on use of a hazardous waste manifest, see MPCA’s hazardous waste fact sheet #1.07. If you are a very small quantity hazardous waste generator (you generate less than 220 pounds per month), you may participate in a Very Small Quantity Generator Collection Program. For more information about this program, see MPCA’s hazardous waste fact sheet #2.51.

Managing Nonhazardous Filters

Filters that are determined, through evaluation, to be nonhazardous are an *industrial solid waste* and must be managed according to solid waste rules (Minn. Rules pt. 7035.0300, subp.45). **Filters cannot be disposed of in or with your normal trash.**

Prior to transport, contact your waste hauler, an industrial waste management company or the permitted landfill or burner to which you intend to send your waste. Each may have options for managing these wastes that will include special testing, segregation and/or packaging requirements you must follow for proper management and disposal.

Make sure filters and the paints they contain are completely dry prior to disposal to minimize the chance of fire. You may need to allow the paint on the filter to cure for a period of time to ensure it is totally dry. You may need or want to subject the nonhazardous filters to the same heating/curing process you use for your painted products to hasten and ensure drying.

Minimizing or eliminating the contact between the filters and natural fibers, such as paper, will help reduce the chance of a fire. Take precautions during severely hot weather. A large quantity of filters mixed with combustible materials in a covered container sitting in the sun on a hot day might create a problem that could be avoided. You are responsible for ensuring paint booth filters are not disposed of in a manner that could cause a fire.

Should filters and/or adjacent combustible materials catch fire, you may be subject to enforcement action as well as be liable for the costs and losses associated with the fire. For this reason, MPCA and Metropolitan County hazardous waste staff strongly recommend that you take preventive measures.

Each landfill and industrial burner must have an *industrial solid waste management plan* that specifies the solid wastes it can accept. The plan further specifies how each waste will be evaluated, profiled, delivered (using a nonhazardous manifest or bill of lading) and managed when the waste reaches the facility.

These requirements help ensure wastes are managed in a way that will not harm human health or the environment.

Work closely with your hauler and disposal facility to ensure proper disposal which will reduce your long-term liability.



More Information

The MPCA and your metropolitan county have hazardous and solid waste staff available to assist you with waste management questions. Contact your metropolitan county or the MPCA office nearest you for help. For help with air quality concerns, contact the MPCA's Small Business Assistance Program (SBAP).

Metro County Hazardous Waste Offices

Anoka County (763) 422-7093
Carver County (952) 361-1800
Dakota County (952) 891-7557
Hennepin County (612) 348-8100
Ramsey County (651) 773-4466
Scott County (952) 496-8177
Washington County (651) 430-6655

Minnesota Technical Assistance Program (MnTAP)

Toll free (800) 247-0015
Metro (612) 624-1300
Web Site: <http://www.mntap.umn.edu>

Minnesota Pollution Control Agency

Toll free (*all locations*) (800) 657-3864
Brainerd (218) 828-2492
Detroit Lakes (218) 847-1519
Duluth (218) 723-4660
Marshall (507) 537-7146
Rochester (507) 285-7343
St. Paul (651) 297-2274
Willmar (320) 214-3786
SBAP (800) 657-3938 or (651) 282-6143
Web Site <http://www.pca.state.mn.us>
Other hazardous waste fact sheets:
<http://www.pca.state.mn.us/waste/pubs/business.html>