



Managing Paint Booth Filters

Technical Guidance

This technical guidance document describes the options for properly managing used paint booth filters in Pima County. If you have any additional questions please contact the Pima County Department of Environmental Quality (PDEQ) at (520) 724-7400. Also contact the City of Tucson [Household Hazardous Waste \(HHW\) Program](#) at (520) 888-6947.

Background

There are two types of paint booth filters, intake and exhaust filters. Intake filters keep the paint booth clean by removing particulate matter from the influent “outside” air. Intake filters are typically not hazardous and can go in the trash when spent (removed). Exhaust filters, on the other hand, filter the air from “inside” the paint booth, and when spent, may be hazardous due to contamination by entrapped paint particles and other possibly hazardous constituents.

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. Spent filters, when removed and stored improperly, can self-combust, making them a potential fire hazard as well.

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.
- Use correct air volume 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. Spraying guns into filters is a violation of the EPA Paint Stripping and Miscellaneous Surface Coating Operations MACT Standard found in [40 CFR Part 63, Subpart HHHHHH](#).

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.

Determining if your Filters are 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:

- You only use paints and coatings which contain regulated metals* at levels below limits*; and
- You have written documentation to support this.

*See Table 1.

Paint suppliers provide “Material Safety Data Sheets” (MSDSs). However, and 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.

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

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.

Table 1: TCLP Heavy Metals – (RCRA-8)

EPA Number	HW Metal	Regulatory Limits ppm or (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:

- You arrange with a testing company capable of performing the TCLP to test a representative sample of your waste paint filters; and
- The 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 eight 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 solvent ingredients in the paint. Because they are part of the paint formulation, any "listed" solvents* a paint may contain do not make the paint waste a "listed" hazardous waste.

Paint waste (including filters) would only be a "listed" hazardous waste if you put additional listed solvent into the paint or into the filter.

The TCLP evaluation is for “toxicity” and does not test if the filters are "ignitable".

Ignitability – Paint waste and filters are hazardous waste if they exhibit the characteristic of “ignitability”. To be hazardous for the characteristic of ignitability, filters would: be capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burn so vigorously and persistently that it creates a hazard, or if they contain a liquid, with a flashpoint less than 60 C (140F). Laboratory testing is the only way to show that waste filters definitively do not exhibit these characteristics.

Table 2: EPA 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, <i>n</i> -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 or 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 Nonhazardous Filters

If filters are non-hazardous, they can be managed as an industrial solid waste and can be placed in a municipal solid waste landfill (MSW). Some landfills may require a Special Waste Authorization for disposal. Check with your local solid waste landfill for disposal procedures.

Make sure the filters are completely dry prior to disposal to minimize the chance of fire. Some dried coatings may give off vapors that can ignite other combustible materials. Use best management practices (BMP’s) to minimize the contact between filters and combustible materials such as paper. Take precautions during hot weather as a covered load of dried filters mixed with combustible material could potentially cause problem.

Generators may contact the EPA for issues related to the Resource Conservation and Recovery Act (RCRA) at (913) 551-7958. Check out EPA’s fact sheet on “What makes a waste hazardous” at:

www.epa.gov/wastes/wydc/manag-hw/e00-001e.pdf

For additional information regarding proper management of solid or hazardous waste in Pima County, you may contact the Pima County Department of Environmental Quality (PDEQ) at (520) 724-7400, or the address at the beginning of this document, or visit the PDEQ website at <http://www.deq.pima.gov/waste/index.html> for access to the PDEQ Hazardous Waste Generators Handbook and waste or generator specific, technical guidance documents.