



Managing Waste Aerosols

Hazardous Waste Fact Sheet #4.00 March 1999

This fact sheet discusses aerosol can management requirements for businesses.

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Environmental Concerns

Aerosol cans are used in a wide variety of industries. Some aerosol products — paints, solvents, pesticides — are hazardous. Most aerosol cans pose a fire hazard because they contain highly flammable propellants such as propane and butane. Aerosol products must be used with adequate ventilation and/or personal protective equipment to prevent inhalation, employee exposure and potentially harmful health effects. (Always check the Material Safety Data Sheet (MSDS) for proper usage and follow the directions!)

Pressurized cans present additional environmental concerns. If punctured, contents may be released so forcefully that injuries could result. Extreme temperatures may cause cans to rupture, and moisture may cause them to rust, resulting in a release of the contents with potential to harm the air, water or land. Pressurized cans sent to a landfill present safety concerns during compacting, and fire hazard becomes more acute if container contents are vacated using an aerosol-puncturing device for the purpose of disposal.

Fire Safety Concerns

The 1997 Minnesota Uniform Fire Code (MUFC) classifies aerosol products into three categories. Storage and display requirements for aerosol products (including allowable quantities), arrangements for indoor and outdoor storage, fire protection systems and equipment and storage room construction features all vary by category. Contact your local fire official for specific requirements for the types of aerosol products you store or display.

The MUFC does not address handling or disposal of waste aerosol containers; however, there is the potential of fire and/or explosion when aerosol cans are punctured. Releasing the contents of an aerosol container, even when not under pressure, may introduce flammable vapors or liquids to a source of ignition. Take care and plan well when setting up puncturing procedures. Local fire official approval may be required in some cases.

Waste Prevention

First, determine whether or not a material is even needed. Could the entire process using the aerosol be eliminated? If required, choose a non-hazardous product or the least hazardous product that will do the job (a Material Safety Data Sheet — MSDS— is one resource that may be helpful). Use only as much as is needed. Store aerosol products in a dry area not subject to extreme temperatures. Follow label directions to clean the nozzle after use to prevent clogging. Use up products before buying others. Consider purchasing products in bulk and using a non-aerosol pump applicator instead. To apply paints, use a brush instead of an aerosol, or consider electrostatic painting, when possible.

Managing Empty Aerosol Containers

Empty means the can contains no product and no pressure. **Empty containers are exempt from hazardous waste rules.** They have no special storage, labeling or disposal requirements. Recycle them, if possible, or send them to an incinerator that will recover the metal. If you have a small number of





empty aerosol containers, they may be able to be mixed with your solid waste. Check with your solid waste handler first.

Managing Non-Empty Aerosol Containers

First, try to return or exchange malfunctioning aerosols. Malfunctioning aerosols returned to the supplier or manufacturer are considered “product” — not “waste.” Hazardous waste rules do not apply. You must follow applicable Department of Transportation (DOT) requirements for transport.

Non-empty aerosols that cannot be returned or exchanged must usually be managed as a hazardous waste. Regardless of the contents, most aerosols are hazardous because they are ignitable (D001) due to the type of propellants used.

Storage and Labeling of Waste Aerosols

Waste aerosols whose contents (including propellants) are non-hazardous have no hazardous waste storage requirements. Follow fire protection requirements for product storage.

Store hazardous waste aerosols in a closed container marked with:

- the words *Hazardous Waste*,
- a clear description of the waste, and
- the accumulation start date (the date you first placed waste in the container).

If you have only a few aerosol cans, you may mark them individually as outlined above, and place them in a fire-safe storage cabinet. You may designate a special cabinet for waste, or reserve and mark a special section of your product cabinet for waste. If storing incompatible materials, store them in separate containers (such as plastic dishpans) within the waste storage area.

Perform and document weekly inspections of the waste.

Disposal / Recycling Options

Non-empty aerosol cans, even though they have been determined to be non-hazardous, have few disposal options. They generally cannot be sent to a landfill or a solid waste incinerator. They will probably need to be managed by a company specializing in hazardous and problem waste disposal.

Aerosol cans containing hazardous product or propellant should be shipped to a hazardous waste facility for proper disposal. (For a list of facilities, request MPCA Hazardous Waste fact sheet #6.03, [Hazardous Waste Disposal Companies](#).) Very Small Quantity Generators (VSQGs) have the additional option of taking waste aerosol cans to a VSQG collection site. For a list of collection sites, request MPCA Hazardous Waste fact sheet #2.51, [VSQG Collection Program Requirements for Generators](#).

Companies that regularly have significant numbers of similar waste aerosols may be interested in using an aerosol-puncturing device. (Use of a puncturing device does not require a waste-treatment permit at this time.) If you choose to use one, here are some precautions to keep in mind:

- Follow the manufacturer’s instructions for operating, cleaning and maintaining the puncturing device.
- Staff operating the device should be thoroughly trained and should wear appropriate personal protective equipment — tyvek body suit, nitrile gloves, full-face respirator (or half-face respirator with safety goggles and face shield) containing the appropriate cartridges. **WARNING:** The major propellants of aerosol cans (propane and butane) are extremely flammable. A filter unit does **not** capture them — they vaporize quickly into the surrounding air, producing a flammable hazard. Smoking should **not** be allowed in or near the puncturing area. To prevent static sparks, ground steel containers before you begin to fill them.
- Do not puncture aerosol cans containing any of these ingredients: ethyl ether (often found in starting fluids), chlorinated compounds, pesticides, freons and foamers, oven cleaners, unknowns. These types of aerosols should be lab-packed and managed as hazardous waste.
- Sort cans by size and puncture similar sizes at the same time. You may wish to puncture cans containing solvents, degreasers and/or lubricants last to help clean the puncturing unit.
- Operate only in an open, well-ventilated area. Avoid confined spaces.
- Collect liquids in an appropriate, marked and labeled hazardous waste container — such as a



rust-free drum with a bung opening that can be fitted with a pressure-release valve.

Perform and document weekly inspections of the container.

Proper Shipping Procedures

Aerosol cans determined to be hazardous waste must be accompanied by a manifest and shipped via hazardous waste transporter. The exception to this is Very Small Quantity Generators hauling their own waste to a VSQG Collection Site. In this case, follow DOT hazardous material transportation requirements outlined below. Collection program staff will help you.

For a list of hazardous waste transporters, request MPCA Hazardous Waste fact sheet #6.02, [Licensed Hazardous Waste Transporters](#).

Non-hazardous, pressurized aerosol cans should be accompanied by a shipping paper (not a manifest) and shipped according to applicable DOT requirements outlined below.

DOT Regulations

U.S. DOT Regulations (found in 49 Code of Federal Regulations Parts 171 through 173), establish hazard communication and packaging provisions for aerosols. These regulations define an aerosol as: *any non-refillable metal receptacle containing a gas compressed, liquified or dissolved under pressure, the purpose of which is to expel a non-poisonous (other than a Division 6.1 Packing Group III material) liquid, paste or power, and fitted with a self-closing release device allowing the contents to be ejected by the gas.*"

The following requirements apply to shipment by highway. (Different regulations apply if the aerosols are transported by air.)

DOT regulations make no distinction between *product* and *waste*. If an aerosol meets the DOT definition, it must be documented on a hazardous-materials shipping paper *unless* it can be classified as an *ORM-D consumer commodity*. Aerosols classified as an *ORM-D consumer commodity* and excepted from manifest requirements do not need shipping papers.

Aerosols classified as an *ORM-D consumer commodity* or shipped under a DOT Limited Quantity Exception must be packaged in a strong, closed outside package. If shipped as *limited quantities*, packages containing aerosols must

not exceed 30 kilograms gross weight each. Aerosols not eligible for these exceptions must be packaged in authorized UN-standard specification packaging.

Packaging containing aerosols must be marked with the proper DOT shipping name and the UN identification number. Outer packaging should be marked: *Inside containers comply with prescribed regulations*. Aerosols classified as *ORM-D materials* must be marked with the *ORM-D consumer commodity* mark. In most cases, the packaging does not require a DOT hazard class label.

For more information about DOT regulations, contact the Minnesota Department of Transportation hazardous materials specialists at the number given on the last page.

Required Paperwork

Purchasing Request a Material Safety Data Sheet (MSDS) for all aerosol products. Occupational Safety and Health Administration (OSHA) regulations require MSDSs be made available to employees using the products. (Hazard information should also be provided in foreign languages for employees who may not understand English.)

Storage Inspect all hazardous waste storage areas and document inspection results. For help with this requirement, request MPCA Hazardous Waste fact sheet #2.41, *Documenting Container Inspections*.

Shipping Keep shipping papers/ manifests for a minimum of three years to show waste has been shipped properly.

Disposal Know where waste is going. Request proof that the waste has been received and disposed of or recycled properly. Keep records for a minimum of three years.



For More Information

Your metropolitan county and the MPCA have staff available to answer your questions about aerosol management. Fact sheets on related topics are available on the MPCA web site. For more specific information or to request paper copies of any of the fact sheets, contact your assistance provider listed below.

Minnesota Pollution Control Agency

Toll free..... (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) 297-8363

MPCA Web Address: <http://www.pca.state.mn.us>

(Look under Waste/ Publications/ For Businesses)

Metro County Hazardous Waste Offices

Anoka County (612) 422-7093
Carver County (612) 361-1800
Dakota County (612) 891-7011
Hennepin County (612) 348-8100
Ramsey County (651) 773-4466
Scott County..... (612) 496-8177
Washington County ... (651) 430-6655

Department of Transportation

Hazardous Materials (612) 405-6060
Toll free (800) 4-Safety

Fire Prevention

St. Paul..... (651) 228-6230
Minneapolis (612) 673-2546
State Fire Marshal..... (651) 215-0500