



Commercial Hazardous Waste Empty Containers

Just about every business uses containers to store chemical products, raw materials or wastes. Once empty, businesses must arrange to have containers recycled or disposed. If not managed carefully, however, an empty container and its residues can become a liability. Why? Residuals can contaminate soil, surface water and groundwater and harm people and wildlife, which can result in considerable liability. Containers are regulated under the federal Resource Conservation and Recovery Act (RCRA). Read on to learn how to protect human health and the environment by properly managing containers.

What is considered a container?

A container is “any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.”¹ Containers are made from a wide variety of materials such as steel, plastic and fiber and may include pails, cans, bottles, jars, drums, barrels, totes, bags, boxes and inner liners.

There are two types of industrial packages: those intended for reuse and those that are not. Most containers are intended for single use only and will be recycled or disposed. A reusable container can be reused on-site as is, or it can be reconditioned, repaired and used as packaging for on-site storage or off-site transportation.

When is a container considered RCRA-Empty?

The definition for a RCRA-Empty container can be found in Minnesota Rules, part 7045.0127, subparts 2-4. Note there are different requirements for containers smaller and larger than 119 gallons:

Subp. 2. Empty containers or inner liners; definition.

A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste in part 7045.0135, subpart 1a, items B and C, and Code of Federal Regulations, title 40, section 261.33(e), as incorporated in part 7045.0135, is empty if:

A. All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container such as pouring, pumping, and aspirating; *and*

- B.** No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or
- C.** No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container or inner liner is less than or equal to 119 gallons in size; or
- D.** No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container or inner liner is greater than 119 gallons in size.

Be sure you don't read the “and” at the end of paragraph A as “or” and conclude that leaving one inch of residue in the container qualifies the container as being empty regardless of if the container has been emptied of as much of its contents as possible by methods commonly employed. When paragraphs A and B are properly read together, it is clear that one inch (or 3 percent or .3 percent in C and D, respectively) of waste material may remain in a RCRA-Empty container only if more cannot be removed by commonly employed means. If an inch or less remains in the container and commonly employed means of removing the material from the container could be employed to extract more, putting paragraphs A and B together, it does not meet the definition of RCRA-Empty. Be especially careful with gooey materials that adhere to the sides of the container. Over time, they will settle to the bottom and will exceed one inch. A business may need to use “commonly employed” means like scraping the sides of the container with a spatula to make it RCRA-Empty.

7045.0127, Subparts A – D apply to most residuals found in drums. However, there are some types of residuals that warrant special consideration, namely residuals that are acutely toxic, aerosols, compressed gases and pesticides. For these types of wastes refer to the section titled “RCRA-Empty based on material type.”

When is a container's residue no longer considered hazardous waste?

When a product or hazardous waste container meets the definition of “empty” as defined in state and federal hazardous waste regulations, its residues are no longer regulated even if they would otherwise be considered hazardous waste. These

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Are your containers truly empty?
Remember you must use common emptying practices to empty a drum, such as pouring, pumping or aspiration.

¹Source: Responsible Packaging Management document, Reusable Industrial Packaging Association, June 2003

containers are often called “RCRA Empty,” and will be referred to as such throughout this document. This “RCRA-Empty” exception only applies when the hazardous residue is in its original container. Once residuals are removed from their original container, they again meet the definition of a regulated waste and must be managed properly. If the residues are mismanaged, businesses can be held liable.

Management of RCRA-Empty containers

1. Reuse

RCRA-Empty product containers should only be reused at a facility to store a waste or material that is compatible with the material originally stored in the container. Putting something into the container that will react with other residuals can cause serious, sometimes life threatening problems, including the emission of toxic gases, fire, extreme pressure and explosion. If a container needs to be cleaned before reuse, the wash water, solvent, or rags generated must be evaluated to determine how to dispose of them appropriately.

Also consider the fate of the materials that will be placed in the container. If the residuals will contaminate something else like scrap metal, the result may be improper disposal and liability exposure for a business.

Before containers can be reused in commerce, regulations require them to be reconditioned, retested and recertified.

2. Recycle or Recondition

Containers, especially larger containers like drums, can often be reconditioned for re-use by re-salers. Those that cannot be reconditioned – especially metal containers – can often be recycled by scrap metal dealers. It is best to check with recyclers and reconditioners to ensure that they can properly manage residues that remain inside containers. As with any waste, businesses retain cradle-to-grave responsibility.

For recycling options visit www.hennepin.us/hazwastedisposalcompanies, or www.rethinkrecycling.com (search “drums and pails”).

3. Dispose

Garbage haulers should be contacted first to ensure RCRA-Empty containers that can't be reused, recycled or reconditioned can be placed in the trash. Additional requirements may apply before they can accept these types of containers as industrial solid waste.

Smaller containers, such as five gallon pails, one gallon jugs and quart size cans are usually not reconditioned and are sometimes difficult to recycle depending on what the container previously held (paint, adhesive, solvent, etc.). These smaller containers also need to meet the RCRA-Empty definition before they can be placed in the trash.

RCRA-Empty based on material type

1. Acutely toxic materials

All residuals in empty containers that meet the definition of P-listed (acutely toxic) hazardous waste, including certain pharmaceuticals and pesticides and certain F-listed wastes (F020, F021, F022, F023, F026 and F027) are considered acute hazardous wastes. These hazardous wastes are “acute” because small amounts pose serious health and environmental hazards.

A container with acutely toxic residue is RCRA-Empty after the inner liner in contact with the waste has been removed or when the container (or inner liner) has been cleaned by triple rinsing.

If the container itself contains any residuals, it is considered a hazardous waste. If the liner is removed, the liner is considered hazardous waste, and the container from which the liner was removed is not hazardous as long as the liner did not leak. Liquid used to triple rinse the container or liner is acutely toxic hazardous waste. For more information on P-Listed hazardous waste, search for the “P List of Acute Hazardous Wastes & Managing Acute Hazardous Wastes” fact sheet at www.pca.state.mn.us.

2. Aerosols

An aerosol container is RCRA-Empty after all of the material has been discharged as intended. That means that no detectable pressure or product is left in the container. A good rule to follow is if a container is shaken and liquid can still be heard or felt, it is not RCRA-Empty.

If material remains in the container after the propellant has been discharged or because the nozzle is broken or missing, further steps should be taken before the container is considered RCRA-Empty:

- One common practice used to remove remaining material from an aerosol can is puncturing and draining using explosion-proof puncturing equipment designed for emptying aerosol cans. Employees must be provided with proper training to operate the puncturing equipment.
- Alternatively, non-RCRA empty hazardous waste aerosol cans may be placed intact in a closable container and managed as hazardous waste. For more information, search for the “Managing Waste Aerosols” fact sheet at www.pca.state.mn.us.

3. Compressed Gas

A general rule for compressed gases is that the container is RCRA-Empty when the pressure inside equals or nearly equals atmospheric pressure. Note that deliberate venting of a hazardous waste compressed gas is prohibited.



These containers are NOT being managed properly. They should be managed according to RCRA standards.



An example of a P-Listed Waste.

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4. Pesticides

Empty pesticide containers are subject to Minnesota Department of Agriculture regulations. Visit www.mda.state.mn.us and search for “Management & Disposal of Pesticide Containers” for information on management of empty pesticide containers.

How to store RCRA-Empty containers

It's a good idea to mark RCRA-Empty containers as “empty” and protect them from the weather. Any rain, snow and condensation that collect inside containers will become contaminated



Not an acceptable storage method. Water and other materials accumulating in this drum no longer qualifies it as an empty container.

from container residue and may become hazardous waste that is costly to dispose of. The contaminated water must be evaluated to determine if it is hazardous waste and to find the appropriate way to dispose of it. Even if contaminated rainwater, snow or condensate is not hazardous, dumping it on the ground, in surface waters, or down storm drains or in ditches is illegal. Consult with state or local authorities or other waste disposal specialists to determine proper disposal. The best policy is to keep rain, snow and condensate out by storing containers indoors, or under cover. Even closed drums can expand and contract due to temperature changes and suck water that has collected on top into the drum.

RCRA-Empty containers should be stored so residual materials do not leak out of them. Spilled material must be cleaned up as rapidly and thoroughly as possible, and reported to the State Duty Officer if the spill threatens the environment. Contaminated soil and water must be managed properly to meet strict clean-up standards. Even if the spilled material is not hazardous waste, it must be cleaned up immediately as it threatens soil, groundwater or surface water resources. Keeping the residues in the container until they can be properly managed by a recycler or disposal facility saves money and protects the environment.

Additional Resources

For more information about Hennepin County's hazardous waste program, visit www.hennepin.us/hwgenerators or call 612-348-3777 and ask for the environmentalist-on-call. Review the Minnesota Rules pertaining to empty containers at www.revisor.leg.state.mn.us/rules/?id=7045 and select 7045.0127.



Hennepin County
Environmental Services
612-348-3777
www.hennepin.us/hwgenerators

Commercial Hazardous Waste Empty Containers FAQ

But my containers contain only raw or virgin residues.

If the containers I send to a container recycling, reconditioning or disposal company contain too much product (are not RCRA-Empty), can I have the containers shipped back to me so I can use up the material?

Some businesses assume that because the residual in the container is an unused product, the container recycler, reconditioner or disposer can just ship it back if it contains too much material. Since the intention in shipping the container and its contents was for the destination company to dispose of the contents, the material is considered a waste. If the material meets the definition of a hazardous waste, your business would be in violation of hazardous waste transportation and disposal requirements subject to applicable civil and criminal sanctions and for costs associated with addressing human health and environmental problems that might result from mismanagement. When the container management company determines that the container is not RCRA-Empty and that it contains a material that meets the definition of a hazardous waste, even if the originating business could use it if it were shipped back, the container management company is obligated to contact the company to make arrangements to ship it to a state or federally permitted disposal facility using a hazardous waste manifest via a hazardous waste transporter. If there were a problem in transit, the business shipping it would be held liable for improperly managing hazardous waste.

When is a container considered “empty” by the DOT?

While preparing empty packaging for shipment to reconditioners, recyclers or disposers, generators should be certain that it meets the MPCA's and US EPA's empty container criteria as described. Generators must also meet all applicable Department of Transportation (DOT) regulations (49 CFR 173.29). The DOT's definition for an empty container is more stringent than the MPCA's. Although hazardous waste residues that remain inside an RCRA-Empty container may not be subject to the hazardous waste laws when disposed of or recycled, the residue inside the container is regulated as a DOT hazardous material. Businesses need to understand the hazardous materials transportation requirements before transporting empty containers. For more information, refer to the “Hazardous Materials Communication Standards” DOT fact sheet available at www.dot.state.mn.us/cvo/factsheets/hm2.pdf.

How can I avoid generating empty containers with residuals in the first place?

Before buying new products, think about how the empty containers will be managed. Can the material be purchased in containers that can be returned and refilled? Can the empty containers be reconditioned and reused? Can they be recycled?

Consider the amount of product needed. Can one large recyclable container replace many smaller disposable containers? Making wise purchasing choices up front can reduce the amount of waste that needs to be managed down the line and reduce disposal costs.

What about containers that held materials that would not be defined as hazardous wastes when discarded?

These containers are exempt from the hazardous waste rules. Reuse or recycle them, when possible, or manage them as an industrial solid waste. Note that not all nonhazardous waste is accepted for disposal as industrial solid waste. Check with solid waste haulers or recyclers to determine whether empty waste containers are acceptable and whether there are other conditions that must be met.