

This guidance document is advisory in nature but is binding on an agency until amended by such agency. A guidance document does not include internal procedural documents that only affect the internal operations of the agency and does not impose additional requirements or penalties on regulated parties or include confidential information or rules and regulations made in accordance with the Administrative Procedure Act. If you believe that this guidance document imposes additional requirements or penalties on regulated parties, you may request a review of the document.

Aerosol Can Waste

This Environmental Guidance Document provides general and specific technical waste management guidance on aerosol can wastes. The discussion focuses on “empty” aerosol containers. Empty aerosol cans that are household waste are not considered hazardous waste.

What is an empty container?

- Title 128 – Nebraska Hazardous Waste Regulations, Chapter 2, §015 gives the definition of empty containers as it applies to the Resource Conservation and Recovery Act (RCRA). The next sentence underlines the elements of “RCRA empty.” While the aerosol can might have all its contents removed using practices commonly employed to remove materials from that type of container, the generator must demonstrate that the aerosol can also has no more than one inch of residue or no more than 3% by weight of the total capacity remaining. A 16-ounce aerosol can should contain no more than 0.48 ounces of residual hazardous waste in order to be considered “RCRA empty.”

Is the “RCRA empty” aerosol can a hazardous waste?

- “RCRA empty” aerosol cans are usually not hazardous waste due solely to the substances they once contained. If the empty container held a P-listed hazardous waste then the can would be P-listed until it was rendered empty by triple rinsing the contents (Title 128, Chapter 2, §015.05). Though, a P-listed aerosol product would be very rare.
- The “RCRA empty” aerosol can of and by itself is usually considered hazardous waste because it exhibits the characteristic of reactivity (D003). That is, it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or it is heated under confinement (Title 128, Chapter 3, §009.01F). The empty aerosol cans generated in a month would normally need to be included in a facility's monthly hazardous waste totals unless they are managed as scrap metal. The characteristic of reactivity can generally be removed if the aerosol can is safely depressurized or emptied via puncturing. (see below)
- Title 128, Chapter 2, §015 excludes from hazardous waste regulation hazardous waste remaining in a “RCRA empty” container. If material is removed from the container that material no longer meets the exclusion condition as stated unless it is a U or P listed commercial chemical product. Title 128, Chapter 3, §015.03 states commercial chemical product residue remaining in a “RCRA empty” container cannot be U or P-listed hazardous waste.

- Note: An aerosol can that is not “RCRA empty” is almost always a D003 reactive waste, but it is also very often a hazardous waste due to the contents of the can. Three examples of cans that are often thought to be “empty” but are not are 1) an aerosol can that has lost its spray cap before the can has been used up, 2) an aerosol can that becomes clogged and fails to spray before the contents are used up, or 3) an aerosol can that the user just doesn’t want any more before the contents are used up.
- Scrap Metal. If the aerosol can is essentially empty (no significant amount of liquid) and is being recycled for scrap metal, then it may be excluded from being hazardous waste and the issue of reactivity is moot. Unpunctured aerosol cans may be managed as scrap metal if they are “RCRA empty.” Some scrap dealers will not accept “RCRA empty” cans that are not punctured. In this case, unpunctured “RCRA empty” cans may still be managed as scrap metal prior to puncturing because the hazardous waste regulations allow altering scrap metal on-site to enhance its value or to improve its handling.
 - Puncturing a “RCRA empty” aerosol can is considered processing and creates “excluded scrap metal” that is excluded from the definition of solid waste. (See Title 128, Chapter 2, [§002.08](#), [§002.09](#), and [§008.14](#).)
 - An unpunctured “RCRA empty” aerosol can prior to puncturing is unprocessed scrap metal if it will be sent off as scrap metal. That can is also exempt from hazardous waste regulation per Title 128, Chapter 7, [§002.03](#). In this case the scrap metal is still a solid waste with a specific exemption and is subject to speculative accumulation.
 - Caution: In order for an aerosol can to be eligible for any scrap metal exemption, it first must be “RCRA empty.” If any aerosol cans are found in a container or pile of scrap metal that are not “RCRA empty,” there could be an assumption that hazardous waste is being improperly managed and disposed.
 - The puncturing of a non-empty aerosol can in order to empty the container is analogous to pouring a can of acetone into a suitable container and then placing the “RCRA-empty” container in the trash as a non-hazardous waste (Title 128, Chapter 2, [§015](#)). That said, a hazardous waste or a container of hazardous waste comingled with scrap metal is allowed so long as appropriate small quantity generator (SQG) or large quantity generator (LQG) accumulation requirements are met for the container of comingled scrap and the hazardous SQG or LQG waste, assuming the materials are compatible. (Title 128, Chapter 9, [§007](#) and Chapter 10, [§004](#)) An example of this would be a container of “RCRA-empty” aerosol cans comingled with aerosol cans that are not empty but otherwise unwanted or unusable.

Who is affected?

- Once you’ve determined the aerosol cans are hazardous waste, you need to determine your generator status. Household hazardous waste is not regulated under RCRA. Conditionally exempt small quantity generators (CESQG) are not subject to any of the land disposal restrictions described below. A CESQG generates a total of 100 kilograms (220 lbs) or less of hazardous waste in a month. CESQGs are not subject to any of the SQG or LQG hazardous waste accumulation and labeling requirements or the hazardous waste manifesting requirements. A SQG generates between 100 kilograms (220 lbs) and 1000 kilograms (2,200 lbs) of hazardous waste in a month. A LQG generates 1000 kilograms (2,200 lbs) or more of hazardous waste per calendar month.

What can you put in the trash?

- CESQGs may send up to 19.5 kg (43 lbs) of hazardous waste to a regulated municipal landfill per day, up to a total of 100 kg (220 lbs) per month. (Title 128, Chapter 8, §005) Check your local landfill first. Some landfills, counties, and municipalities have more restrictive rules regarding waste disposal. This means a CESQG may place its unpunctured, “RCRA empty” aerosol cans in the trash if they have landfill approval. The department encourages recycling empty aerosol cans as scrap metal whenever feasible.
- Punctured and drained aerosol cans may be disposed in the trash. This applies to hazardous waste generators of all sizes. This does not apply to aerosol cans that contained acutely hazardous waste (P-listed). The department encourages recycling the empty aerosol cans as scrap metal whenever feasible.
- Small quantity and large quantity generators of hazardous waste must manage unpunctured, “RCRA empty” and non-empty aerosol cans, at a minimum, as D003 reactive hazardous waste or as scrap metal. SQGs and LQGs must not place these aerosol cans in the trash.

What about aerosol can puncturing?

The following discussion applies to aerosol cans not being managed as scrap metal.

- Aerosol can puncturing devices may be used to completely empty aerosol cans and also make them non-reactive. This is an allowed form of treatment if the puncturing operation is performed in a closed container. Most of the commercially available aerosol can puncturing systems meet this criteria. A punctured and drained aerosol can no longer exhibits the characteristic of reactivity and may be disposed in the trash. The exception is unless the aerosol can held an “acutely hazardous” material (this would be extremely unusual), which must be treated as hazardous waste due to its association with a P-listed waste. The department recommends recycling drained aerosol cans rather than disposing them.
 - If a SQG or LQG is treating aerosol cans to remove the characteristic of reactivity, the generator must develop and follow a written waste analysis plan (WAP) according to the land disposal restrictions (LDRs). The plan must be kept on site. See Title 128, Chapter 20, §005.01E1 for the WAP contents. Note: There is no need for a WAP if only legitimate scrap metal aerosol cans are being punctured – these cans are not hazardous waste.
 - Puncturing the can causes deactivation of the characteristic of reactivity and meets the DEACT treatment requirement of Title 128, Chapter 20, Table 9, Waste Code D003, “Explosives Subcategory based on Chapter 3, §009.01F through 009.01H.” This is a LDR treatment standard.
 - Since a “RCRA empty” aerosol can, by definition, cannot contain hazardous waste, the can itself does not have any underlying hazardous constituents. Therefore, there are no Section 012 standards to meet as shown in the Non-wastewaters column for this Subcategory of D003 waste.
 - If the aerosol can was not “RCRA empty” prior to puncturing, the puncturing step creates a “RCRA empty” container that is not reactive and excluded from further hazardous waste regulation. As a result, there is no requirement to identify or treat for underlying hazardous constituents as stated in the Non-wastewaters column for this Subcategory of D003 waste.
 - The WAP should include the above discussion.
 - There is no requirement to discuss detailed chemical analysis in the WAP for simple deactivation (DEACT) done by puncturing an aerosol can to render it non-hazardous and to meet LDR treatment standards.

- Once the can no longer exhibits a characteristic of hazardous waste and meets the land disposal restrictions, a one-time notification and certification must be placed in the generator's files and also sent to the NDEE Waste Management Section if the punctured cans go to a landfill. See Title 128, Chapter 20, §006.04 et al. for a full description of the requirements. If you do send the punctured cans to a landfill, do not forget to include in your notification the name of the landfill receiving your waste. Note: This paragraph does not apply if the punctured cans are managed as scrap metal.
- The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires empty pesticide containers be disposed per label instructions. If the label states not to puncture, then do not puncture. Pesticides include insecticides and herbicides. FIFRA applies to all hazardous waste generators including CESQGs.

More aerosol can puncturing considerations.

- The contents collected in the aerosol can puncturing drainage collection drum need to be correctly characterized. All waste generators must determine the quantity of hazardous waste they generate in a calendar month.
 - A log may be kept listing what chemicals are being placed in the drum. It is important the facility not only be able to state the correct waste codes, but also be able to identify all underlying hazardous constituents (UHCs) when that is appropriate (Title 128, Chapter 20, §006.01). Identification of UHCs is another LDR requirement and does apply to most characteristic hazardous waste that is drained into the drainage collection drum.
 - Without a good accounting system, a facility may put itself in the position of violating land disposal restriction regulations. (Conditionally exempt small quantity generators are not required to meet land disposal restrictions.)
 - In the event that a log was not kept, or there is some confusion as to the actual contents of the aerosol can puncturing drainage collection drum, the contents must be properly characterized via laboratory analysis. Collect a waste sample from the drum using a disposable Coliwasa (composite liquid waste sampler) tube that extends to the bottom of the container. Ship the waste for disposal only after you have received the analytical results for the waste, and are satisfied that the results are accurate and defensible.
- While not required by Title 128, we recommend a volatile organic compound (VOC) filter be used on the collection drum to control VOCs.
 - If used, the filter should be changed before it becomes ineffective.
 - The spent filter requires a waste determination. Test for any hazardous waste toxicity characteristic (TC) constituents that are present in the products that are collected from the empty aerosol cans. TC hazardous wastes are those 40 chemicals on Table 3 of Title 128, Chapter 3. For example, if empty aerosol paint cans contained methyl ethyl ketone (MEK), the MEK would normally be expected to be present in the VOC filter at some level. MEK is a TC contaminant, hazardous waste number D035.
- Aerosol can puncturing collection drums may be managed as a satellite accumulation container per Title 128, Chapter 9, §007.04. The waste must be accumulated at or near the point of generation under the control of the operator or operators of the process generating the waste. An aerosol can puncturing operation may meet satellite accumulation requirements if persons assigned to handle empty aerosol cans perform the operation. The collection drum must also be in an area so that the collection container is under their control.

- The collection container must be closed unless adding or removing waste. This is true for all hazardous waste accumulation containers at SQGs and LQGs. The department generally considers such drums closed if the puncturing device lid is closed and secured by the setscrew and a VOC filter is in place. Once full the collection container must be closed and moved to a hazardous waste storage area until it is characterized (see above). Hazardous waste storage requirements for CESQGs, SQGs and LQGs apply.

Waste codes.

- Material removed from a “RCRA empty” aerosol container.
 - If the removed material exhibits a hazardous waste characteristic (ignitable, reactive, corrosive, or toxic), it is considered newly generated characteristic hazardous waste. The waste is considered to be generated at the time the can was punctured. The appropriate waste codes must be used and UHCs identified as appropriate. Even CESQGs must count any hazardous waste generated towards their monthly total.
 - Residue coming from a container that has held a commercial chemical product (CCP) does not carry a U or P listing if the container was already “RCRA empty” (Title 128, Chapter 3, §015.03). However, if the residue exhibits any characteristic of hazardous waste such as ignitability or toxicity, then the contents would be hazardous waste due to the characteristic(s) regardless of any listing.
- Material removed from an aerosol container that was not “RCRA empty.”
 - If the removed material exhibits a hazardous waste characteristic (ignitable, reactive, corrosive, or toxic), it is considered newly generated characteristic hazardous waste. The waste is considered to be generated at the time the can was punctured. The appropriate waste codes must be used and UHCs identified as appropriate. Even CESQGs must count any hazardous waste generated towards their monthly total.
 - If the removed materials are CCPs, these would be “U” or “P” listed wastes. For example: If a non empty aerosol can of “Acme Super Solvent” composed of trichloroethylene were punctured, the correct waste code for the disposed residual solvent would be U228, not F001 or F002. (Remember, the solvent coming out of the punctured aerosol can is not a “spent” solvent -- it is unused, but still usable solvent.) Also note that CCPs on the “U” or “P” lists are technical grade (“pure”) or sole active ingredient. Using the same example, if the MSDS of the above “Acme Super Solvent” trichloroethylene aerosol showed both trichloroethylene and carbon dioxide, it would be a U228 because the CO₂ is not an active ingredient -- it is a propellant, and the trichloroethylene is the solvent – the sole solvent. On the other hand, if an aerosol can held two active ingredients, the disposed solvent is not “U” or “P” listed waste. For example, if the aerosol can held spray solvent and the ingredients were xylene, toluene, and CO₂, the disposed solvent would not be U239, U220, F003, or F005. The disposed solvent would be a D001 hazardous waste for ignitability. Even CESQGs must count any hazardous waste generated towards their monthly total.

Final Thoughts:

Note that CESQGs are not required to meet hazardous waste storage requirements if the total facility accumulated CESQG hazardous waste is less than 1,000 kg (2,200 lbs). However, as a best management practice, the department recommends CESQGs routinely manage their hazardous waste as close to SQG requirements as practical. In addition to safer management of hazardous materials, this practice also serves to keep the generator in compliance if it becomes an episodic SQG.

RESOURCES:

- NDEE Website: <http://dee.ne.gov>
- MSDS information: <http://www.ilpi.com/msds> (NDEE does not endorse any public or private website.)

Contacts:

- NDEE Hazardous Waste Compliance Assistance (402) 471-8308
- NDEE Waste Management Section (402) 471-4210
- NDEE Toll Free Number (877) 253-2603

NDEE Publications:

- Title 128 – Nebraska Hazardous Waste Regulations: <http://dee.ne.gov/> and click on “Rules and Regulations”

Produced by: Nebraska Department of Environment and Energy, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-2186. To view this, and other information related to our agency, visit our web site at <http://dee.ne.gov>.