

Can rechargeable lithium-ion batteries be managed as universal waste batteries?

In its FAQ memo, the EPA made clear that both rechargeable lithium-ion and single-use lithium batteries may be managed as universal waste batteries.

Are lithium-ion batteries hazardous waste?

Most lithium-ion batteries on the market are likely to meet the definition of hazardous waste under the Resource Conservation and Recovery Act (RCRA). Most lithium-ion batteries when discarded would likely be considered ignitable and reactive hazardous wastes (carrying the waste codes D001 and D003, respectively).

Are end-of-life lithium-ion batteries hazardous waste?

New EPA guidance clarifies that most end-of-life lithium-ion batteries will be subject to the full suite of hazardous waste requirements if the batteries are not managed as "universal wastes."

Is a discarded lithium ion battery a universal waste?

Indeed, EPA "recommends that all lithium batteries be managed" as universal waste. Thus, if a generator decides not to handle a discarded lithium ion battery as a universal waste, it should have a sound technical basis for concluding that the battery does not meet the ignitability or reactivity criteria.

Are hazardous waste batteries considered universal waste?

Once hazardous waste batteries reach their final destination, they can no longer be considered universal waste, and are subject to the ordinary RCRA hazardous waste regulations. Additionally, the FAQ memo distinguishes between management of "broken or damaged hazardous waste batteries" from end-of-life batteries.

Are Li-ion batteries a universal waste?

International shipments of Li-ion batteries managed as universal waste must also comply with RCRA requirements for export and import of universal waste. EPA recommends that businesses consult their state solid and hazardous waste agencies for additional information on applicable universal waste regulations.

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A "handler" of waste batteries means: (1) a generator of universal waste batteries; or (2) an owner or operator of a facility that receives universal waste batteries from other handlers, accumulates the waste batteries, and sends the waste batteries to another handler or to a destination facility.

Handlers of universal



The Memorandum states that EPA believes the streamlined universal waste requirements are appropriate for lithium-ion batteries because the wide variability of battery chemistries makes it difficult to determine the specific hazardous waste characteristics for any given battery; allowing all batteries to be recycled under the universal waste

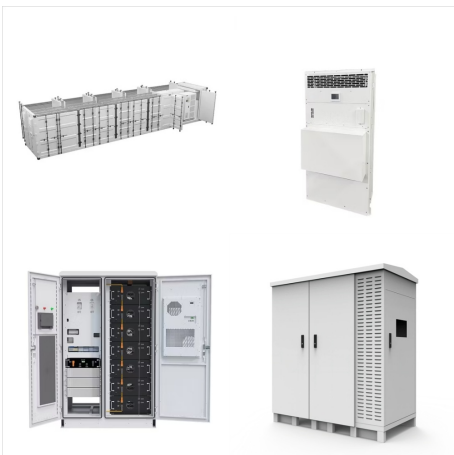


A coalition of industry associations affiliated with the electric power industry petitioned the EPA in 2021 to add photovoltaic solar panels to the universal waste management program. The EPA is also working to create a universal waste category specifically for lithium-ion batteries, separate from the existing general battery category.

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Dangerous waste generators may recycle lithium-ion batteries as universal waste under most circumstances, but proper storage and recycling is critical: Send batteries to another universal waste handler or destination facility authorized to receive waste batteries. Never put lithium-ion batteries in the trash or with regular recycled items.



(When a characteristic waste is added to the universal waste regulations of this part 273 by using a generic name to identify the waste category (e.g., batteries), the definition of universal waste in ? 260.10 of this chapter and ? 273.9 will be amended to include only the hazardous waste portion of the waste category (e.g., hazardous waste



Transporting Lithium Batteries Guidance - Lithium batteries, transported for recycling, are regulated as a Hazardous Material by the Department and Recovery Act (RCRA) regulations to lithium-ion battery recycling and answers questions on hazardous and universal waste regulations, best management practices, black mass, permit requirements

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For example, a waste generated within a state that has added the waste to its universal waste program can be managed as a universal waste, however, shipments of that waste to a state that has not added the waste to its universal waste program must comply with the full hazardous waste requirements (60 FR 25492, 25537; May 11, 1995).



For more information on lithium-ion battery recycling, check out the following resources: EPA Resources: Lithium-ion Battery Recycling FAQs. Used Lithium-Ion Batteries. Frequent Questions on Lithium-ion Batteries. Universal Waste Webpage: Batteries section. Workshop on Lithium-Ion Batteries in the Waste Stream.



The universal waste rules were designed to promote recycling and simplify disposal for certain types of commonly generated hazardous waste. The universal waste rules reduce the regulatory burden in spent lead-acid, and lithium batteries. a?c Consumer electronics: A device containing an electronic circuit board, liquid crystal display,

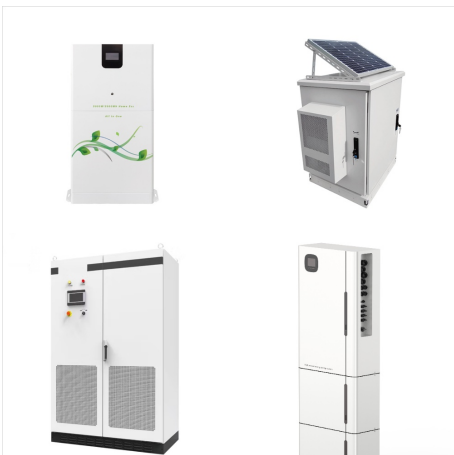
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Summary. On May 2, 2024, EPA's Tribal Waste Management team held an informational webinar for Tribes that introduced the EPA's plan for adding new universal waste categories for solar panels and lithium batteries and provided an overview of the Bi-partisan Infrastructure Law-mandated battery collection and labeling efforts. During the battery a?|



Batteries generated by businesses, schools, institutions, governments and other non-households are subject to hazardous waste requirements, which allow for certain wastes to be managed under universal waste requirements. Alkaline batteries may be put in the trash, but others must be recycled or managed as universal waste.



receiver's name, and any of the following phrases: "Universal Waste a?? Batteries" or "Waste Batteries" or "Used Batteries" as soon as they arrive. d) Leaking batteries should be stored in structurally sound, closed containers. Refer to the Universal Waste Rule (603) 271 or call NHDES at -2942 for more information on business,

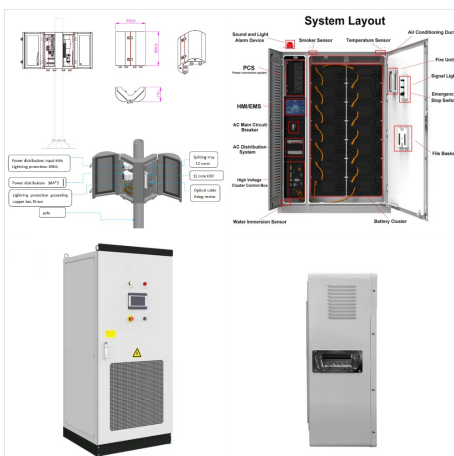
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Individual batteries or containers of universal waste batteries must be labeled or marked clearly "Waste-Batteries," "Waste Batteries," or "Used Batteries." Accumulation time (40 CFR 273.15, 273.35) Handlers generating universal waste, including accumulating universal waste for a?



Universal waste includes batteries, agricultural pesticides, mercury-containing equipment, bulbs (lamps), and aerosol cans. The Universal Waste Rule in 40 CFR 273 is adopted by reference in Indiana and applies to wastes that are a characteristic or listed hazardous waste by definition under 40 CFR 261.



The universal waste rule has covered lithium batteries, like all batteries, since its inception in 1995. However, EPA has been concerned that waste lithium batteries may cause fires when improperly managed. See, e.g., EPA, "An Analysis of Lithium-ion Battery Fires in Waste Management and Recycling" (EPA Publication 530-R-21-002) (July 2021)

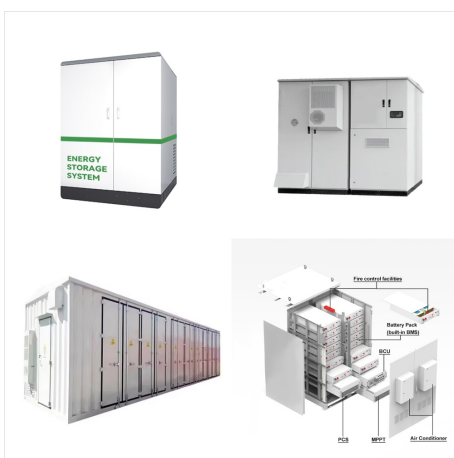
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Lithium-ion (Li-ion) batteries and devices containing these batteries should not go in household garbage or recycling bins. They can cause fires during transport or at landfills and recyclers. Instead, Li-ion batteries should be taken to separate recycling or household hazardous waste collection points .



For Lithium batteries, the batteries are smashed to expose the internal casing, and then submerged in basic water to neutralize the electrolyte and recover the metals. The battery is then processed, in this case, into lithium carbonate which can be reprocessed into new batteries. With a NYS Part 364 Universal Waste Handler Permit, EWASTE+



Instead, EPA recommends that all household lithium batteries be dropped off at battery collection sites (e.g., often located at electronics retailers) or household hazardous waste collection facilities for proper management. The EPA Used Lithium-Ion Batteries web page offers resources to find a battery recycling location near you.

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Rechargeable Batteries. Lithium-ion; Nickel cadmium (NiCad or NiCd) Nickel metal hydride (NiMH) Small-sealed lead acid (SS-Pb) Universal waste batteries, spent lead-acid batteries, and hazardous waste batteries must be managed according to the applicable requirements for handling, accumulation, labeling, transport, and disposal.



Although innovations are happening quickly in lithium-ion battery recycling, currently there are two main methods to recover the metals out of black mass: A heat-based smelting process (pyrometallurgy). A liquid-based leaching process (hydrometallurgy).

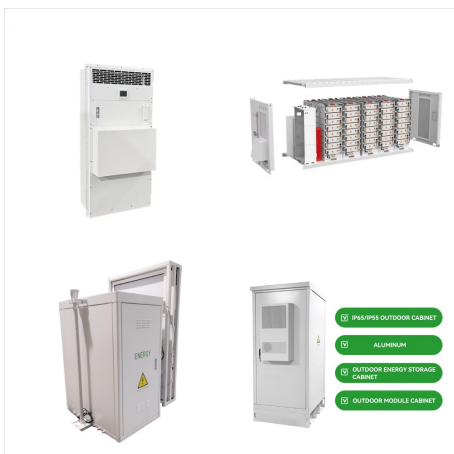


On May 24, 2023, the U.S. Environmental Protection Agency (EPA or the Agency) issued guidance on the potential applicability of the nation's hazardous waste regulatory program under the Resource Conservation and Recovery Act (RCRA) to the collection and recycling of lithium-ion batteries. The new guidance document may be useful to persons generating or a?

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Additionally, under the universal waste regulations, handlers of lithium-ion batteries can perform certain limited activitiesa??including removing batteries from products, disassembling battery packs, sorting, and mixing batteries, or discharging batteries to remove the electric chargea??without triggering the full RCRA requirements, as long as



Other batteries, such as rechargeable lithium-ion, can be more difficult to remove and even dangerous if not handled properly. The following guidance is intended to help the regulated community by providing general information and guidance on universal waste battery management. For battery type and disposal method guidance for homeowners,



a?c (Batteries typically managed under the universal waste rules include lithium, mercury, silver ion, and nickel/cadmium batteries.) Under the universal waste provisions, used batteries become waste on the date they are discardeda??such as when batteries are sent for reclamation. In addition, a battery that is unused becomes a waste on the

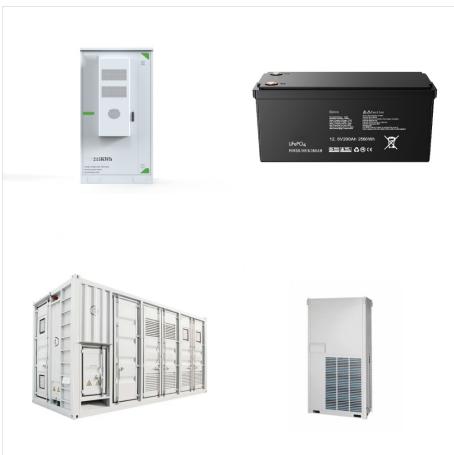
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The Universal Waste Rule (UWR), 6 NYCRR 374-3, (link leaves DEC website) is an alternate way of managing certain common types of hazardous wastes (otherwise they would be subject to all applicable requirements of 6 NYCRR 370 through 374 and 376). Handlers may choose to manage eligible wastes under the UWR or under the ordinary hazardous waste regulations.

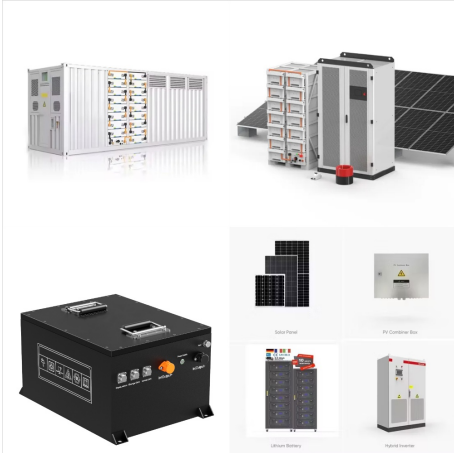


When lithium-ion batteries are at your facility, the EPA classifies them as universal waste (you can also choose to manage them as RCRA-regulated hazardous waste). When they are managed as universal waste, they need to be sent to a recycler, not a landfill.



Universal waste management does not require use of a manifest or a licensed transporter to transport the waste to a permitted treatment, storage or disposal facility. More importantly, management as universal waste allows facilities that meet "universal waste handler" requirements to accumulate these wastes without a full hazardous waste

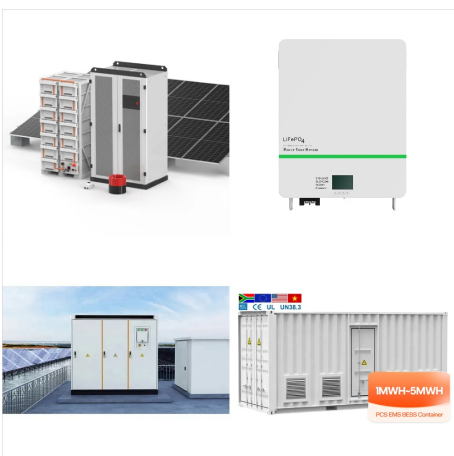
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The EPA recently announced it's planning to propose new rules to improve the management and recycling of end-of-life solar panels and lithium batteries. Plans for the proposed regulations include modifying the Resource Conservation and Recovery Act Universal Waste Rule to add hazardous waste solar panels and to establish a new, distinct category of universal a?|



Collect used batteries in a manner that avoids releasing any constituents to the environment. Place the batteries in the provided poly drum or use a container that can be closed when not adding batteries. If you are using your own container, mark it "Universal Waste a?? Batteries" and mark the date you put the first battery in the container.



You may drain electrolyte from your universal waste batteries, however the drained electrolyte is a newly generated waste and not a universal waste. Manage the drained electrolyte as a hazardous waste unless you In addition, lithium batteries may be subject to specific transport packaging requirements under the HMR. See DOT publication #