



Lithium-Ion Battery Management by Business

Lithium-ion Batteries

Lithium-ion (Li-ion) batteries are used in many products such as electronics, toys, handheld power tools, small and large appliances, electric vehicles, and electrical energy storage systems. If not properly managed at the end of their useful life, they can cause harm to human health or the environment. The U.S. EPA's [web page on lithium-ion batteries](#) provides useful information including safety advisories about these devices and their end-of-life management for both businesses and consumers, workers who encounter these batteries in the workplace, and anyone who transports lithium batteries.

Lithium-ion Battery Waste Management

All businesses in Ohio are required to properly evaluate their waste (*Ohio Administrative Code (OAC) rule 3745-52-11*) to determine if their waste is a hazardous waste. If the waste is a hazardous waste, it needs to be properly managed. Waste can be a hazardous waste if it exhibits one of the hazardous waste characteristics outlined in OAC rules 3745-51-20 to 3745-51-24 (*ignitability, corrosivity, toxicity, reactivity*) or if it belongs to one of the lists in OAC rules *3745-51-31 to 33*. Specific types of hazardous wastes, including lithium-ion batteries may be alternatively managed as universal wastes.

Most lithium-ion batteries are likely to meet the definition of hazardous waste when discarded as they typically meet the definition of ignitable and reactive hazardous waste (carrying the waste codes D001 and D003, described in OAC rules 3745-51-21 and 3745-51-23, respectively).

Ohio businesses, including *very small quantity generators* of hazardous waste, cannot manage their hazardous or universal waste in the trash, regardless of the amount of hazardous waste generated. All business-generated hazardous waste must be managed appropriately by an authorized facility by being *treated on-site* or sent to either a recycler or a permitted hazardous waste *treatment, storage, or disposal facility*.

Lithium-Ion Batteries as Universal Waste

Ohio EPA recommends that businesses manage their lithium-ion batteries under Ohio's universal waste rules. Universal wastes (UW) are specific hazardous waste streams that a generator can choose to manage in an alternative manner in place of the more complex hazardous waste requirements. These wastes are generated by numerous businesses, typically in small quantities. The Universal Waste Rules (UWR) are intended to promote recycling as well as proper disposal by easing certain regulatory requirements. Ohio's UWRs are located in *Ohio Administrative Code (OAC) Chapter 3745-273*.

Lithium-ion batteries may be managed as universal waste. UW batteries are defined in *OAC rule 3745-50-10(B)(1)* and *OAC rule 3745-273-09(B)* as devices consisting of one or more electrically connected electrochemical cells that are designed to receive, store, and deliver electric energy. An electrochemical cell consists of an anode, cathode, and electrolyte.

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Under the universal waste rules, spent batteries may be sent to another universal waste handler (see our list of [battery recyclers](#)) or to a permitted universal waste destination facility. Businesses that manage their batteries as universal waste must:

- Package any batteries that show signs of leakage, spillage, or damage in closed containers
- Mark the universal waste batteries or their containers with the words “Universal Waste Battery(ies),” “Waste Battery(ies)” or “Used Battery(ies)”
- Develop a method that clearly demonstrates the length of time the batteries have been accumulated from the date they became a waste or are received
- Ensure delivery of the batteries to another universal waste handler or a permitted destination facility.

Universal Waste Battery Rule References in the Ohio Administrative Code

	Small Quantity Handler	Large Quantity Handler
Waste Management Standards	OAC rule 3745-273-13(A)	OAC rule 3745-273-33(A)
Labeling or Marking Standards	OAC rule 3745-273-14(A)	OAC rule 3745-273-34(A)
Accumulation Limit	OAC rule 3745-273-15	OAC rule 3745-273-35

Ohio EPA’s [Universal Waste web page](#) and [Universal Waste guidance document](#) provide information on the universal waste regulations. Ohio EPA list of [recyclers](#) and [Permitted Treatment, Storage, and Disposal facilities](#) may help a business identify a recycler or a permitted universal waste destination facility to manage its waste lithium-ion batteries.

Contact

For more information, contact the Hazardous Waste Compliance Assurance Section of the [Division of Environmental Response and Revitalization](#) at 614.644.2924.