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BULLETIN

LITHIUM-ION BATTERIES

As the Lithium-ion battery market experiences significant global growth, Connecticut public entities have become increasingly reliant on these batteries for government and operational functions. Lithium-ion batteries, also known as Lithium-ion batteries, are now part of our daily lives, regardless of age, purpose, or setting. They have become one of the most common power sources found in municipalities' fire departments, police stations, schools, and even residential buildings.

These batteries are ubiquitous; they power almost every device and countless tools we use daily to support modern life. The widespread use of lithium-ion batteries in portable electronics, power tools, mobility devices[1], and emergency response equipment has brought significant operational benefits. While these batteries are an effective and efficient power source, they also carry an increased risk of overheating, fire, or even explosion if not used, charged, stored, or recycled correctly.

According to the U.S. Consumer Product Safety Commission (CPSC), there were more than 25,000 incidents of fires or overheating involving lithium-ion batteries between 2017 and 2022. These incidents resulted in an estimated 13 deaths and 141 injuries.[2]

Lithium-ion battery fires burn hotter and faster than any conventional fires.

Connecticut General Statute 22a-256g[3] states the following:

(a) *"No person may place a used lead acid storage battery in mixed MSW or discard or otherwise dispose of such used lead acid storage battery, except by delivery to a retailer or wholesaler, or a recycling facility, or a secondary lead smelter permitted by the US EPA, or a scrap metal processor, or a municipally established collection site."*

(b) *"No retailer shall dispose of a used lead acid storage battery except by delivery to a battery manufacturer for delivery to a secondary lead smelter permitted by US EPA, or a recycling facility, or a secondary lead smelter permitted by US EPA, or a scrap metal processor."*

(c) *"Any person violating subsection (a) or (b) shall be fined not more than one thousand dollars. Each battery disposed in violation of this section shall constitute a separate violation."*

Recycle Batteries Responsibly:

It is essential to recycle lithium-ion batteries responsibly, as they contain energy, metals, and chemicals that can ignite, explode, leak, or harm the environment if improperly discarded.

When damaged or crushed in regular waste streams, these batteries can spark fires in collection trucks, transfer stations, or landfills, creating avoidable risks to people and property. Schools, town offices, public works facilities, and waste-handling operations have also reported increasing near misses and incidents linked to improper battery handling or disposal. Lithium-ion battery fire statistics from the Environmental Protection Agency (EPA) show 245 fires at 64 waste facilities over seven years (2013-2020).[4]

Recycling of batteries in regular household bins is not only hazardous but also illegal, according to CT Department of Energy and Environmental Protection. Therefore, it is recommended that effective, regular communication with residents outlining appropriate disposal methods for lithium-ion batteries be conducted.

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1 Such as electrics vehicles, e-scooters and e-bikes.

2 https://www.cpsc.gov/s3fspublic/High_Energy_Density_Batteries_Status_Report_2_12_18.pdf?UksG80UJqGY0q4pfVBkbCuUQ5sNHqtwO

3 https://portal.ct.gov/DEEP/Reduce-Reuse-Recycle/Recycling-Laws---Annotated-List#:~:text=other%20solid%20waste.,Sec.,their%20components%20from%20being%20disposed

4 An Analysis of Lithium-ion Battery Fires in Waste Management and Recycling

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RECOMMENDATIONS

Usage, Charging, and Storage of Lithium-Ion Batteries:

- Only purchase batteries that are appropriately labeled and listed by a nationally recognized testing laboratory.
- Consider using charging equipment compatible with the device and, if possible, the charging equipment provided with it.
- Ensure that the lithium-ion batteries are not overcharged. Always unplug or stop charging the battery once it has reached its full capacity.
- Ensure devices are not left on charge overnight (e.g., in classrooms, workshops, offices, or garages).
- It is recommended not to charge Li-ion battery-powered devices using an extension cord; plug your device charger directly into a wall outlet.
- Consider storing batteries in a cool, dry area at or below 86°F (30°C).
- It is recommended to inspect batteries regularly for swelling, odor, leak, or crack.
- Consider replacing the battery or stopping the use of the device if the battery shows signs of damage, such as an unusual odor, excessive heat, unusual sounds, swelling, or a color change.
- Do not charge a Li-ion battery-powered device if either the charger or the battery is damaged.
- It is recommended that staff be trained to recognize early warning signs and hazards associated with battery failure.
- Always have all repairs performed by a qualified professional.

Disposal of Lithium-Ion Batteries:

- Regularly communicate to employees and residents the proper disposal methods for lithium-ion batteries to ensure that they are never placed in household trash, recycling bins, or mixed waste.
- Ensure that damaged or swollen batteries are handled carefully and brought to an approved hazardous waste or battery recycling center.
- Ensure that staff and residents are aware of safe handling procedures.

CIRMA
Connecticut Interlocal Risk Management Agency
545 Long Wharf Drive, 8th Floor, New Haven, CT 06511
Phone: 203.946.3700 | cirma.org