Misused or damaged lithium batteries can lead to fire or explosion

Special to Pelahatchie News

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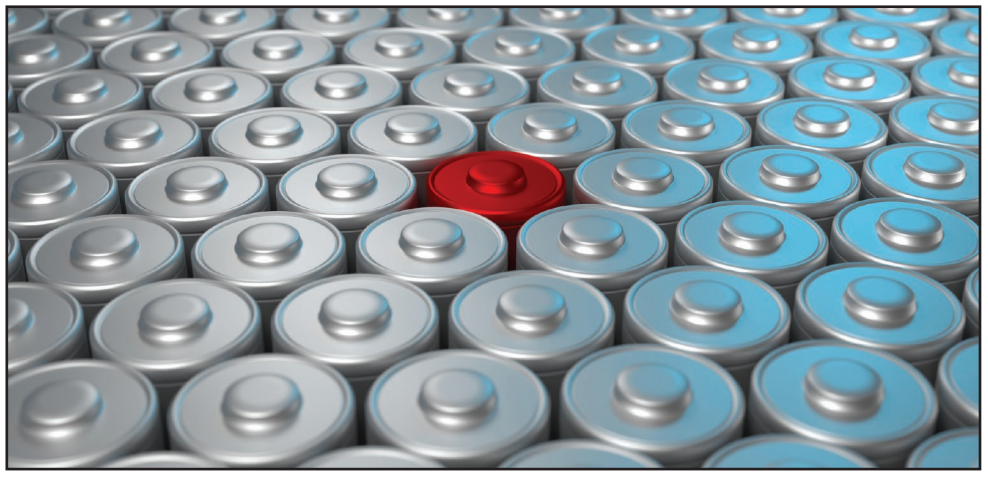
We are hearing much about battery powered equipment, leaf blowers, weed eaters, chain saws, and cordless drills. These devices are powered by Lithium Batteries. Their popular use is due to this battery's high-power capacity, in a relatively small package.

There are several different types of lithium batteries, some rechargeable and some non-rechargeable, both of which are generally safe and unlikely to fail but only so long as there are no defects or damage.

When lithium batteries fail to operate safely or are damaged, they present a fire or explosion hazard. Damage can occur immediately or over a period of time.

There are different ways that lithium batteries can be damaged:

- Improper use, storage, or charging.
- Physical impacts, such as dropping, crushing, or puncturing.
- Exposure to extreme temperatures. Temperatures above 130 degrees F., open flames, continuous direct sun exposure, exposure to heaters, etc., can damage these batteries. Below freezing temperatures, during charging, can also lead to a damaged lithium battery.



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Any of these can result in cell failure, releasing intense heat and damaging other nearby cells causing a chain reaction known as a thermal runaway. The high energy density in lithium batteries makes them more susceptible to these reactions. Lithium cell failures can result in chemical and/or combustion reactions, which can result in heat release and/or combustion reactions, which can result in heat releases and/or over-pressurization quickly leading to acid exposure, smoke, fire or explosion.

Lithium battery fires are extremely difficult to extinguish. Fire extinguishers may only temporarily knock the flames down and large amounts of water are often ineffective. Lithium fires usually re-ignite and have to burn out before they are no longer a threat. Isolating the burning object from other flammable material is often the only way to prevent the spread of a lithium battery fire.

Prevention steps to help prevent a lithium battery fire are:

1. Ensure lithium battery's chargers, and associated equipment, are a high-quality product (recognized by national testing standards; ex. UL).
2. Always store, use and maintain by the manufacturer's recommendations.
3. When replacing lithium batteries, always ensure they are specifically designed for and match the device.
4. Remove lithium-powered devices and batteries from the charger once they are fully charged.
5. Store lithium-powered devices and batteries and devices in dry cool locations.
6. Clean lithium batteries with a clean, slightly damp cloth. Do not use solvents.
7. Inspect lithium batteries for signs of damage, such as bulging and cracking or rising temperature.
8. If lithium batteries are damaged, leaking or smoking, remove them from service and isolate them from everything else. For example, smaller batteries can be placed outside in a fire-resistant container, such as a metal drum.

Source: MSU Dawg Tracks Safety Newsletter, "Lithium Battery" January 2023, Leslie Woolington