

# 2023 FIREFIGHTER SAFETY STAND DOWN



June 18, 2023



The 2023 Safety Stand Down theme is Lithium-Ion Batteries: Are You Ready? So, are you ready? This theme focuses on responder safety during incidents involving lithium-ion batteries. Each day this week we will focus on a different topic within the theme: recognition of hazards, firefighting operations, firefighter safety, post-incident considerations, and public education. During the course of the week you will receive newsletters with helpful information, links to videos and articles, and online courses. Below you will find some basic information to get you started.

Batteries are increasingly replacing fossil fuels and other sources of energy in industrial, commercial and consumer applications.

Lithium-ion batteries supply power to many kinds of devices including smart phones, laptops, e-scooters and e-bikes, e-cigarettes, smoke alarms, toys, and even cars.

## The Problem

- These batteries store a large amount of energy in a small amount of space.
- Sometimes batteries are not used the right way; batteries not designed for a specific use can be dangerous.
- Like any product, a small number of these batteries are defective. They can overheat, catch fire, or explode.

## Li-ion Cell Construction

- **Electrolyte:** Transports positively charged ions between the cathode and anode terminals and is typically a solution of hydrocarbons and lithium-ion salts. The choice of electrolyte in all batteries is critical for performance as well as safety.
- **Cathode:** Positive or oxidizing electrode that acquires electrons from the external circuit and is reduced during the electrochemical reaction. Lithium-ion cells are generally named after their cathode active material.
- **Separator:** Is a permeable membrane placed between a battery's anode and cathode. The main function is to keep the two electrodes apart and prevent electrical short circuits. The separator is very thin and is typically made from plastics.
- **Anode:** Negative or reducing electrode that releases electrons to the external circuit and oxidizes during an electrochemical reaction.

[CLICK HERE](#) for courses with more in-depth information on the construction and science behind batteries.

