

Emergency FAQs: Lithium-Ion Battery Fire Response

These FAQs provide a quick reference guide to managing lithium-ion battery fires and related emergencies, ensuring safety and compliance with best practices and regulations.

Entry/Exits/Plan

- 1) What should be done to keep exits clear in case of a battery fire?
 - a. Ensure exits are free of any obstructions, allowing easy egress. Batteries should be stored away from exits or exit doors, maintaining a minimum distance of 5 feet.
- 2) How far should batteries be stored from exits or exit doors?
 - a. Batteries should be stored at least 5 feet away from exits or exit doors.
- 3) What kind of plan should be in place for fire safety?
 - a. A fire safety plan with emergency response actions should be in place, detailing steps to take upon detection of a fire or possible lithium fire.

Safety Equipment

- 4) What type of fire alarm system is recommended for indoor areas?
 - a. An indoor area should be protected by a fire alarm system, utilizing air-aspirating smoke detectors or radiant energy-sensing fire equipment.
- 5) What type of sprinkler system should a facility have?
 - a. A facility should have an automatic sprinkler system with fire detection.

Storing Batteries

- 6) What is the maximum volume of lithium-ion batteries that can be stored in containers?
 - a. No more than 15 cubic feet of lithium-ion batteries should be stored in containers.
- 7) How should containers storing batteries be constructed?
 - a. Containers should be open-topped and constructed of noncombustible materials or approved for battery collection.
- 8) How should containers be spaced?
 - a. Individual containers or groups of containers should be separated by at least 3 feet of open space or 10 feet of space containing combustible materials. Containers should be located no less than 5 feet from exits or exit access doors.
- 9) What is the recommended state of charge for stored batteries?
 - a. Where feasible, reduce the state of charge of batteries to 30% or less.

Permissions

- 10) Are permits required for storing large quantities of lithium-ion batteries?
 - a. Yes, permits may be required for sites storing more than 15 cubic feet of lithium-ion batteries according to NFPA Regulation 322.

Hot Battery Situation

- 11) What should be done immediately if a hot battery situation is detected?
 - a. Completely evacuate all personnel from the area and secure the area to prevent unnecessary access. If safe, quickly determine if an external short-circuit is present and remove it.
- 12) How long should an area remain evacuated after a hot battery incident?
 - a. The area should remain evacuated until the cell has cooled to room temperature.
- 13) What should be done with a hot battery after it has cooled?
 - a. Using appropriate personal protective equipment, remove the cooled battery from the work area and dispose of it properly.

Guidelines for Emergency Response

- 14) What should be done if a lithium-ion battery fire occurs?
 - a. Evacuate the area, keep unauthorized personnel away, and ventilate closed spaces before entering. Use appropriate extinguishing agents and follow all safety protocols for handling and disposing of batteries.
- 15) What are the recommended extinguishing agents for lithium-ion battery fires?
 - a. Small lithium-ion battery fires can be extinguished with ordinary extinguishing agents (ABC extinguishers), Halon, or CO2 extinguishers. Dry chemical or water-based extinguishers can also be used, though they are less effective. Gel-based extinguishers such as Fire Ice are also effective.
- 16) What should you do if other combustibles catch fire as a result of a lithium-ion battery fire?
 - a. Use the appropriate extinguishing agent for the secondary fires caused by the lithium-ion battery fire.

Protocol

- 17) Who should handle the cleanup after a lithium-ion battery incident?
 - a. Only trained and qualified personnel should handle the cleanup. They should contact the battery's Original Equipment Manufacturer (OEM) for cleanup protocols and use appropriate personal protective equipment.
- 18) How should leaking cells be handled during cleanup?
 - a. Place leaking cells in a sealable plastic bag, cover them with a mixture of neutralizing agent (soda ash or baking soda) and absorbent material (vermiculite), and then double-bag and seal the bag. Collect the contaminated absorbent into a sealable bag and clean the area with water or an ammonia-based cleaner.

What To Do

- 19) What should you do if you come into contact with lithium-ion battery electrolyte, gases, or combustion byproducts?
 - a. Warn others and report the emergency, evacuate to a safe area, attend to any exposed person if safe, wait for further instructions from the Emergency Coordinator, move the victim to fresh air, call 911 or emergency medical services, give artificial respiration if the victim is not breathing, administer oxygen if breathing is difficult, and remove and isolate contaminated shoes and clothing. Immediately flush skin or eyes with running water for at least 20 minutes and ensure medical personnel are aware of the materials involved.