Lithium Battery Handling Meeting Kit

What’s At Stake

Lithium and lithium-ion batteries are rechargeable batteries used in consumer products, and they are very safe. But proper use, handling and storage are important for keeping workers safe on the job.

COMMON USES OF LITHIUM BATTERIES

Lithium batteries are used in many devices present in the workplace. They include pretty much all computers, cell phones, cordless tools, watches, cameras, flashlights, golf carts, electric cars, airplanes.

TYPES OF LITHIUM BATTERIES

Lithium metal batteries are almost always single-use, non-rechargeable batteries. Lithium-ion batteries are usually rechargeable. They use lithium ions found in lithium compounds to create a chemical reaction. Lithium-ion batteries are more stable than lithium metal batteries, but they can still generate heat, catch fire, or even explode.

What’s the Danger

HAZARDS OF LITHIUM AND LITHIUM COMPOUNDS

Lithium is a soft, silver-white alkali metal that reacts with water, including the moisture in ambient air. Lithium is flammable and can spontaneously ignite. It must be encased in a compatible substance such as petroleum jelly so it cannot contact moisture or anything else. It is corrosive to skin and other metals, and toxic if consumed in large enough quantities, and releases toxic vapors if burned. Most incidents happen when the battery’s shell is damaged, and the lithium is exposed to air/moisture. Lithium compounds contain lithium ions which are individual lithium atoms. These are different from pure lithium metal. They tend to be much more stable, though they can still be corrosive, irritating, or toxic.

HANDLING DAMAGED LITHIUM BATTERIES

- Do not use damaged batteries. If currently installed, remove from device. If you are unable to remove the device safely and easily, keep the battery in the device and recycle the entire unit.
- Do not put a damaged battery in the trash.

HOW TO PROTECT YOURSELF

BEST SAFE HANDLING AND STORAGE METHODS FOR LITHIUM BATTERIES

It’s important to wear all required protective equipment, including eye protection. Preventing shorts by protecting battery terminals from contacting each other is a fundamental safe handling and storage practice. Battery terminals should remain covered, if possible. Care should always be taken when handling batteries. Using excessive force to remove batteries from a device can cause damage, so be careful. Batteries should only be charged according to manufacturer’s instructions. Any swollen, dented, or damaged batteries should be disposed of.

Batteries should be stored in a well-ventilated, dry area kept between 40- and 80-degrees Fahrenheit. They should be stored away from direct sunlight, heat sources, and water.

LITHIUM BATTERY DISPOSAL

Some types of lithium batteries can be recycled; some types cannot be recycled. It may be necessary to consult a qualified person or other resource to find out what the proper disposal method is for the battery you have. In some cases, you may be able to just throw the battery in the regular trash.

LITHIUM BATTERY SPILL CLEANUP

If a lithium battery is damaged and the contents spill out, precautions must be taken to prevent anyone from contacting the spilled material. Only people with proper training should attempt to clean the spill. If the spill involves a lithium metal battery, the area should be evacuated until a qualified person can be called in to respond to the spill. If battery contents get on the skin, the area should be flushed with clean water for at least 15 minutes. Gases or vapors from batteries must not be inhaled. If you think someone has inhaled gases or vapors get medical help.

MAINTAIN THE INTEGRITY OF THE BATTERY

- Never disassemble batteries from their original packaging; the contents could leak out.
- Don’t crush, pierce, or expose the battery to excessive physical shock or vibration.
- Don’t place batteries in fire—they could rupture and release electrolyte, which could catch fire or explode.
- Never place batteries in water—they could rupture and release electrolyte. When the electrolyte reacts with humidity, water, or fire it can create hydrofluoric acid, which is a toxic and corrosive substance.

PREVENT BATTERY FAILURE

- Make sure lithium batteries, chargers, and other equipment are certified by a Nationally Recognized Testing Laboratory (NRTL). To recognize whether or not your batteries are certified, there will be icons, as seen below, on the battery packaging.
- Properly store and charge batteries per manufacturer’s instructions
- Make sure replacement batteries are designed and approved for the device.
- Do not overcharge batteries. Once fully charged, remove batteries from the charger.
- Store lithium batteries in cool, dry locations.
- If batteries are damaged, remove them from the device and place them in a fire-resistant container or DDR kit with sand or another extinguishing agent following local, state, and federal regulations.

KNOW THE EMERGENCY PROCEDURES FOR AN ACCIDENTAL LEAK, FIRE, OR EXPOSURE OF LITHIUM

BATTERIES

- Keep a Class D fire extinguisher available to extinguish burning batteries.
- Keep a spill kit with absorbent materials available in case of a battery leak.
- Only trained personnel wearing proper personal protective equipment (PPE) should attempt to clean up a battery leak or handle a fire or release.

KNOW THE FIRST AID PROCEDURES TO TREAT INDIVIDUALS FOR AN EXPOSURE TO LEAKING BATTERIES.

- Move them to fresh air if there has been an inhalation exposure. Provide medical attention if needed.
- Wash skin with copious amounts of water and provide further medical attention if needed.
- For eye exposures, avoid rubbing the eyes and immediately flush them with water for at least 15 minutes.
- For ingestion emergencies, don’t induce vomiting. Give the victim copious amounts of water.
- Any contact with hydrofluoric acid requires immediate medical treatment. Ice can be used to slow down the reaction on the way to medical treatment.

FINAL WORD

Lithium batteries have become the industry standard for rechargeable storage devices. Lithium-ion battery fires and accidents are on the rise and present risks that can be mitigated if the technology is well understood.