



# Be Battery Smart

A Household Safety Guide  
for Lithium-Ion Batteries



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BE BATTERY SMART

# Lithium-Ion Batteries

Lithium-ion (Li-ion) batteries power products from smart phones, laptops, tablets, e-bikes, e-scooters, tools, and toys to electric vehicles.

**Li-ion batteries are the most popular rechargeable batteries and continue to grow in popularity.**

Why? There are many types and sizes of Li-ion batteries – which makes them convenient to use in countless applications.

Compared with traditional battery technology, Li-ion batteries charge faster, last longer, and have a higher power density for more battery life in a lighter package.

Despite its overall advantages, Li-ion has its drawbacks. The battery – **which stores a large amount of energy in a small space** – is more **easily damaged and volatile** than other batteries. If improperly charged, stored, disposed of, or damaged, **Li-ion batteries can catch fire or explode.**

This guide is designed to provide household safety tips as well as recycling options.



## Contents

Installation .....	2	In Case of Fire .....	4
Use.....	2	End-of-Life Management .....	4
Storage .....	3	8 Ways to Stay Battery Safe.....	6
Charging .....	3		

## Small button and coin batteries can cause BIG RISKS.



Button batteries and lithium coin batteries are small, shiny round batteries that power many items around the house including children's toys.

These batteries also are associated with **thousands of emergency room visits each year, where children swallow batteries or insert them into their nose or ears.**

The consequences of a child swallowing a battery can be immediate, devastating, and deadly.

### 8 Ways to Stay Battery Safe

- 1** When buying, look for batteries in child-resistant packaging and/or with a non-toxic bitter coating to discourage swallowing.
- 2** Store your batteries in a secured container in a safe place, out of sight and reach of children.
- 3** Know what items in your home contain button batteries and lithium coin batteries, including older children's toys, calculators, and games.
- 4** Make sure battery compartments are secure. Consider taping shut these compartments for an additional layer of security.
- 5** Even batteries that are "dead" can be dangerous. Remove, tape the terminals, and place them in a secure container until properly recycled.
- 6** Make sure childcare providers and family members are aware of the safety concerns.
- 7** Talk to kids about battery safety. For more information, visit [batterysmart.com](http://batterysmart.com) or [epa.gov/recycle/used-lithium-ion-batteries](http://epa.gov/recycle/used-lithium-ion-batteries).
- 8** If you think your child swallowed a battery, seek medical attention **IMMEDIATELY!**

## Installation

- Buy batteries and devices that have been certified by UL or another independent safety testing agency.
- Check for recalls before buying.
- Install properly. If you don't, the battery can overheat.
- Don't let children install batteries.
- Don't mix old batteries with new or rechargeable batteries with non-rechargeable ones.



## Use

- Stop using a device if the battery shows signs of damage (e.g., unusual odor, change in color, leaking, hissing, cracking, popping sounds).
- Don't let children take battery-powered devices to bed. Burns and other injuries may occur if the battery leaks or overheats.
- Check children's devices to ensure battery compartments are secure.

## Lithium & Lithium-Ion Batteries?

The main difference between lithium cells and lithium-ion cells is that Li-ion batteries are rechargeable, while their counterparts are not.



## Storage

- **Store batteries in a dry location**, at room temperature and away from heat, anything flammable, and direct sunlight.
- **Keep batteries out of sight and reach of children.**
- **Remove and safely store batteries** from devices that you won't use for a long time (e.g., seasonal decorations, old toys).
- **Store expired batteries** in a non-metal container until they can be recycled.
- **Tape the terminals of expired batteries or place each battery in a plastic bag** until it can be recycled. Terminals that rub against each other could cause a spark.

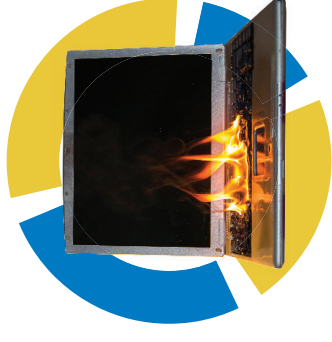
## Charging

- **Always use the charger the device came with or one recommended by the manufacturer.**
- **Always plug directly into a wall electrical outlet.**
- **Place the device or battery charger on a non-flammable surface** during charging.
- **Stay away from flammables** (e.g., pillows, blankets, sheets, clothing, sofas, curtains).
- **Charge your device where you can see it**, but not near the primary exit of a room. Left unattended, a device with a defective battery could overheat and catch fire.

A smoke alarm is an excellent safety tool.



- **Do not overcharge.** Li-ion batteries can overheat, explode, and catch fire when overcharged.



## In Case of Fire

- **If a battery fire occurs**, go outside, call 9-1-1, and stay outside.
- **Do not try to put out the fire.** Li-ion fires are extremely dangerous and difficult to extinguish.

## End-of-Life Management

- **Remove rechargeable batteries** before recycling or disposing of the device.
- **Do not place batteries in your household trash or recycling container.**
- **Recycle properly.** To learn how and where, visit [Be Battery Smart](#).

