Department of State
Consumer Protection

# Lithium-Ion Battery:
## A Consumer Safety Guide

# Lithium-Ion Battery Fires: What You Need to Know

## What Are Lithium-Ion Batteries?

Lithium-ion batteries power many products including e-bikes, e-scooters, hoverboards, smart phones, laptops, and power tools. Compared to traditional battery technology, they charge faster, last longer, and have higher power density.

## Why Do They Catch Fire?

These batteries are easily rechargeable and can store large amounts of energy in a small space. However, if not treated properly, lithium-ion batteries can extremely overheat, creating thermal runaway, which causes large, violent fires. Damaged, defective, or uncertified batteries have a greater risk of causing thermal runaway fires or explosions.

## How Can I Prevent a Lithium-Ion Based Fire?

**Tips When Buying:**

- **Purchase Products From Reputable Manufacturers and Vendors.** Products that are well-engineered, and are well-tested are also safer products. Avoid the "low price, low quality" option that could put you or your family in danger.

- **Look for a Nationally Recognized Certification Laboratory.** Safety marks from nationally recognized certification laboratories, such as Underwriters Laboratory, mean a product has been certified to meet safety, quality or security standards. Look for safety marks on product packaging, the product itself or within product details when shopping online.

- **Check for Recalls Before Buying.** The U.S. Consumer Product Safety Commission regularly reports when a lithium-ion battery product has an identified fire safety hazard. Before buying, check to see if a product has been recalled by reviewing the CPSC database at cpsc.gov/recall.

## Tips When Using, Charging, Maintaining & Storing:

**Usage Tips:**

- **Follow manufacturers' instructions:** Always charge, store, and use your devices according to the manufacturer's instructions. Do not disassemble or modify your device's battery in any way. This significantly increases the risk of explosion.
- **Only use the charger that came with your device:** If you need to buy a new charger, make sure the replacement is approved by the device manufacturer. Don't replace batteries and chargers with components unless they are specifically designed and approved for your device. Just because a charger fits in your device doesn't mean that it is safe to use.

**Charging Tips:**

- **Never leave any lithium-ion powered devices unattended while charging:**
  - Unattended charging can increase the chance of overcharging. When overcharged, lithium-ion batteries may overheat, explode and catch fire.
  - Never overcharge and never leave devices charging while sleeping.
  - Always remove devices and batteries once they are fully charged.
- **Always plug directly into a wall electrical outlet:** Do not plug your devices into a power strip or overload an outlet.
- **Pick a safe place to charge your device:**
  - Micro-mobility products (e-bikes, e-scooters, & hoverboards):
    - Do not charge these devices near the front door because a fire could prevent you from leaving your home.
    - Charge lithium-ion batteries in a flat, dry area away from children, direct sunlight, liquids, tripping hazards and in a location where the micro-mobility product is not at risk of falling.
  - Smaller devices (smart phones, laptops, headphones, etc.):
    - Avoid charging these devices under your pillow, on your bed, or on a couch.

**Maintenance and Storage Tips:**

- **Inspect for damage regularly:** Regularly check your device and batteries for broken or cracked cases.

- **Store batteries properly:** Keep your devices and batteries stored in a cool, dry place. Do not place devices or batteries in direct sunlight.

- **Keep your devices and batteries at room temperature:** Keep your devices and batteries out of extremely high or low temperatures. Do not charge them at temperatures below 32°F (0°C) or above 105°F

## How Do I Dispose of Lithium-Ion Batteries?

**Never throw away lithium-ion batteries in household trash or recycling bins.**

- **Non-vehicle rechargeable batteries weighing less than 25 pounds and in good condition:** may be returned through the Call2Recycle retail collection takeback program: Call2recycle.org/locator.

- **E-mobility batteries in good condition:** may be accepted through voluntary collection programs like Call2recycle.org/e-bikes, or through household hazardous waste events/facilities when generated by households.

- **Damaged, defective or recalled batteries:** Call2Recycle has specialty kits available for purchase for safely managing these: Call2recycle.org/safety/damaged-defective-and-recalled-batteries.

- **More information on how to properly manage batteries at end-of-life:** NYS Department of Environmental Conservation at dec.ny.gov/chemical/72065.html, or at nyc.gov/batteries for NYC residents.

## What Are Warning Signs of a Battery Fire?

**Look out for these warning signs that a failing lithium-ion battery may catch fire:**

- **Device is hot:** It is normal for batteries to generate some heat when they are charging or in use. However, if your device's battery feels extremely hot to touch, it is likely defective and at risk to start a fire.
- **Device is swelling or bulging:** Look out for any type of lump or leakage from the device as well.
- **Device is making a hissing, cracking, or popping sound:** Some failing lithium-ion batteries make hissing, cracking, or popping sounds.
- **Device has an odor:** Pay attention to any strong or unusual odors coming from the battery. Lithium-ion batteries emit toxic fumes when they fail.
- **Device is smoking:** If your device is smoking, a fire may have already started. Get outside, stay outside, and **call 9-1-1**.

**If you notice any of these warning signs:**

- Stop using the device and turn it off immediately
- Unplug it from the power source
- If safe to do so, move it away from anything flammable using tongs or gloves.
- Leave the area.
- **Call 9-1-1.**

## What To Do if Your Lithium-Ion Battery Catches Fire?

- **Leave the area immediately then call 9-1-1.** If you can't get outside, call 9-1-1 and tell the fire department you can't get outside.

- **Do not try to put the fire out yourself:** Lithium-ion battery fires spread quickly, aggressively, and can become explosive or reignite. Water may not prevent a battery from burning and fire extinguishers do not work on lithium-ion battery fires. The safest decision you can make is leave the area immediately and call 9-1-1.

## For more information on Fire Safety Prevention and Response visit:

NYS Division of Homeland Security and Emergency Services, Office of Fire Prevention and Control

dhses.ny.gov/office-fire-prevention-and-control

NEW YORK STATE | Homeland Security and Emergency Services

Division of Consumer Protection's Fire Safety Brochure

dos.ny.gov/fire-safety-tips

Consumer Product and Safety Commission (CPSC)

cpsc.gov/Safety-Education/Safety-Education-Centers/Fire-Safety-Information-Center

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