

# Information Bulletin

## Lithium-Ion Battery Safety for Consumers

Lithium-ion (Li-ion) batteries supply power to many kinds of devices including smart phones, laptops, scooters, e-bikes, smoke alarms, toys, Bluetooth headphones, and even cars. Li-ion batteries store a large amount of energy and can pose a threat if not treated properly.

### Why do lithium-ion batteries catch fire?

Li-ion batteries are easily rechargeable and have the highest energy density of any battery technology, meaning they can pack more power into a smaller space. They can also deliver voltage up to three times higher than other battery types. Generating all this electricity creates heat, which can lead to battery fires or explosions. This is especially true when a battery is damaged or defective, and uncontrolled chemical reactions called thermal runaway are allowed to occur.

### How do I know if a lithium-ion battery is damaged?

Before a failing lithium-ion battery catches fire, there are often warning signs. Here are a few things to look for:

**Heat:** 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, there is a good chance it is defective and at risk to start a fire.

**Swelling/Bulging:** A common sign of li-ion battery failure is battery swelling. If your battery looks swollen or appears to be bulging, you should stop using it immediately. Similar signs are any type of lump or leakage from the device.

**Noise:** Failing li-ion batteries have been reported to make hissing, cracking, or popping sounds.

**Odor:** If you notice a strong or unusual odor coming from the battery, this is also a bad sign. Li-ion batteries emit toxic fumes when they fail.

**Smoke:** If your device is smoking, a fire may have already started.

If your battery is showing any of the above warning signs, immediately turn off the device and unplug it from the power source. Slowly move the device to a safe, isolated area away from anything flammable. Use tongs or gloves to avoid touching the device or battery with your bare hands. Call 9-1-1.

### How can I prevent a battery fire?

**Follow instructions:** Always follow the device manufacturer's instructions for charging, use, and storage.

**Avoid knockoffs:** When purchasing devices, be sure that the equipment has undergone third party testing such as Underwriters Laboratories (UL) or Intertek (ETL). These marks show that the product has been safety tested. Only replace batteries and chargers with components specifically designed and approved for your device.

**Watch where you charge:** Do not charge a device under your pillow, on your bed, or on a couch.

**Unplug your device:** Remove devices and batteries from the charger once they are fully charged.

**Store batteries properly:** Batteries should always be stored in a cool, dry place. Keep devices at room temperature. Do not place devices or batteries in direct sunlight.

**Inspect for damage:** Regularly inspect your device and batteries for the warning signs listed above.

**Call 9-1-1:** If a battery overheats or you notice an odor, change in shape/color, leaking, or odd noises coming from the device, discontinue use immediately. If safe to do so, move the device away from anything that can catch fire and call 9-1-1.