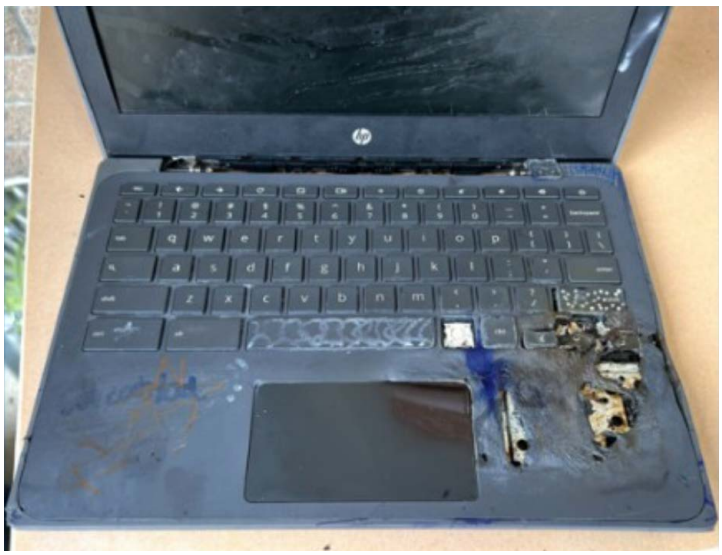
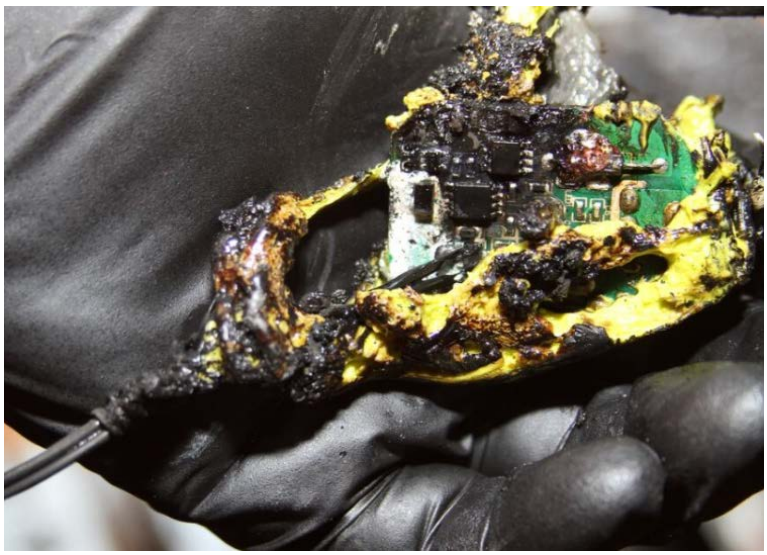
HEALTH & SAFETY





Lithium-Ion Battery Safety Sheet

December 2025

Lithium-Ion/Lithium polymer batteries supply power to many kinds of devices including smartphones, laptops, drones, scooters, e-bikes, power tools, smoke alarms, toys, Bluetooth headphones, and even cars. Lithium ion batteries store a large amount of energy and can pose a threat if not treated properly.

Lithium-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, an uncontrolled chemical reaction called thermal runaway can occur. This reaction causes extreme heat and a fiery explosion that can ignite nearby combustible items.

Important Safety Tips for Lithium-Ion Batteries

Lithium Ion Battery General Safety Tips

- Use only the original manufacturer's charger or a certified equivalent.
- Avoid overcharging—unplug devices once they reach full charge.
- Charge batteries on a hard, flat surface away from flammable and combustible materials and extreme temperatures.
- Store batteries in a cool, dry place.
- Stop using any battery that shows signs of damage (swelling, leaking, unusual odor, dents, or overheating).
- Check laptop and tablet cases regularly. If cases suddenly separate, it may be a sign of a lithium ion battery starting to fail. Contact IT immediately.
- Do not block vents on laptops or tablets. Do not store these devices under a pillow or blankets in classrooms.

Why Batteries Should Not Stay Plugged In

- **Battery degradation:** Keeping a lithium-ion battery at 100% for long periods stresses the cell chemistry and shortens overall lifespan.
- **Increased fire risk:** Although rare, continuously charging a battery—especially one that is old, damaged, or paired with a faulty charger—can increase overheating risk.
- **Limited protection:** Modern battery management systems help prevent overcharging, but they cannot eliminate the stress caused by maintaining a full charge.

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Best Practices for Charging

- **Unplug at 100%:** Disconnect the charger once fully charged.
- **Use 80% limits if available:** Some devices offer "charge to 80%" modes to extend battery life.
- **Avoid high temperatures:** Heat accelerates degradation, especially when the battery is full.
- **Use proper equipment:** Always use the original or manufacturer-approved charger.
- **Maintain mid-range charge:** For daily use, keeping the battery between ~20% and 80% can extend lifespan.
- **Avoid leaving at 100%:** Only fully charge when necessary.
- **Limit fast charging:** Frequent fast-charging can degrade battery health.
- **Charge regularly:** Lithium-ion batteries perform best with consistent cycling.

Storage Guidelines

- **Store at 40–50% charge** for long-term storage.
- **Keep in a cool, dry environment** (32°F to 77°F).

Safety While Charging

- Always use the correct charger/battery combination.
- Charge on a stable, non-flammable surface.
- Never charge unattended, especially overnight.
- Do not charge a damaged, swollen, or leaking battery.
- Do not charge a frozen battery—allow it to return to room temperature first.
- **If a battery is damaged**, swollen or leaking, store in a flammable storage cabinet or in a metal bin filled with sand.

What are warning signs of a Lithium-Ion 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 the device away from anything flammable using tongs or gloves.
- Leave the area.
- Call 9-1-1

Lithium-Ion Battery: A Consumer Safety Guide

Emergency Procedures

(Lithium-Ion Battery Fire)

- **Evacuate immediately and call 911, specifying that it is a lithium-ion battery fire.**
- **Do not move a smoking or burning device.**
- **Do NOT attempt to extinguish the fire yourself—lithium battery fires can explode or reignite.**
- Allow the device and surrounding area to cool completely before handling anything; re-ignition is possible.
- Follow all instructions from fire officials.
- If the fire department responds or the fire is due to a thermal runaway, districts are to file a Fire Response Incident Report Form to the NYSED Fire Safety Unit (FSU) within 48 hours. Form can be found here: https://www.p12.nysed.gov/facplan/documents/FireIncidentReportForm.pdf
- Form should be e-mailed to FSU at: FireSafety@nysed.gov, Questions – Contact the NYSED Fire Safety Unit at 518-474-3906 or FireSafety@nysed.gov

Properly dispose of damaged or defective batteries

Improperly disposed of batteries can cause fires in waste handling centers or equipment. Check with your local municipality for battery drop-off recycling centers. Many retailers that sell battery-operated products usually recycle old batteries for free.

For more information visit:

- Battery Management – OCRRA
- Recycling | Cortland County, NY
- New York – Call2Recycle.org | Leading the Charge for Battery Recycling

More information on how to properly manage batteries at end-of-life: NYS Department of Environmental Conservation at: https://dec.ny.gov/environmental-protection/recycling-composting/rechargeable-battery-recycling

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