# Safety Alert

## OSW 2025

# Lithium-ion battery hazards

Lithium-ion (Li-ion) batteries are used to power equipment including power tools, e-rideables, mobile phones, laptops, torches and toys e.g. button batteries. Most Li-ion batteries will have markings containing any of the following words, 'lithiumion', 'Li-ion', 'li-po', 'lithium-polymer' or 'Li+'. However, when Liion batteries fail, they can pose a range of hazards.



**Figure 1:** Example of a marking identifying the battery as Li-ion.

#### What is the risk

Damaged, faulty or incorrectly charged Li-ion batteries can go into 'thermal runaway' meaning the chemicals in the battery increase in temperature causing batteries to swell, catch fire, explode and release toxic and flammable vapour. Li-ion battery fires are difficult to extinguish and may readily reignite.

### How can risks be managed?

Risks can be managed by appropriately handling, storing and charging of Li-ion batteries.

- Ensure staff, students and parents are provided information about the risks of Li-ion batteries and how your school/facility manages this type of equipment including processes about on-site charging.
- Always follow the manufacturer's instructions about care, use and charging. Most importantly always use the charger that came with the device containing the Li-ion battery. Retain the manufacturer's instructions in the workplace for ongoing reference.
- Charge workplace-supplied equipment and devices on a non-combustible surface (e.g. concrete, ceramic tiles) not on soft furnishings or timber. Charge away from moisture and heat sources and away from emergency exits, doors and populated spaces.
- Check that the charger has the Regulatory Compliance Mark (RCM) to show it has met the relevant Australian Standards. This is especially important prior for online purchases that may be imported products. Do not use <u>electrical equipment</u> without an RCM.
- Disconnect Li-ion batteries from charging devices when fully charged.



- Charge personal devices at home before bringing them to the workplace e.g. phones and laptops and especially e-scooters and e-bikes
- Li-ion batteries and charging devices that are damaged or show signs of failure including denting, overheating, swelling or leaking should be removed from service and safely dispose of at a dedicated facility as soon as practicable.
- ☑ Refer the school community to Queensland Fire Department's (QFD) Lithium-ion safety brochure: <u>https://www.fire.qld.gov.au/sites/default/files/2023-11/RLIB-Flyer\_A4-English.pdf</u>

#### Implement local management processes

- ☑ Refer to the information provided by the QFD about <u>Battery and charging safety</u>
- 1. Identify items with Li-ion batteries and record their locations if practicable (including charging and storage areas). Determine if these are:
  - department property (e.g. cleaners' equipment) and included in relevant equipment management processes,
  - staff property stored at department facilities,
  - student property used at schools.
- 2. Provide information to staff, parents and students about safe use of Li-ion batteries:
  - refer to manufacturer's or supplier's instructions,
  - QFD information shared in newsletters, staff bulletins etc.
- 3. Decide on local arrangements for:
  - purchasing equipment with Li-ion batteries is an assessment completed prior to purchase to ensure it can be used, stored and charged safely?
  - charging personal devices and equipment at school (e.g. a 'charge at home' policy)?
  - charging school-owned equipment (particularly overnight)?
  - storage of items workplace or personal, while not on charge (e.g. e-rideables, battery packs, laptop banks etc.).
- 4. Provide information to all staff about what to do if damage or fire occurs:
  - Contact 000 if fire or smoke is evident.
  - Inform staff and students about local emergency management procedures.
  - Identify required emergency response equipment to extinguish a fire.
- 5. Share information to all staff and parents about safe disposal:
  - Li-ion batteries can ignite if terminals touch or if they are damaged, posing a fire risk. Improper disposal can lead to harmful substances leaching into the environment.
  - If the battery is damaged (swollen, punctured, or leaking), handle it with extreme caution.



- If you can safely remove the battery from the product, do so. Tape the battery terminals with clear adhesive tape or electrical tape to prevent short circuits. <u>Refer to B-cycle</u> <u>guidance</u>.
- Find a recycling drop-off point and carefully place in the bin/bay: e.g. B-cycle, RecycleMate, Mobile Muster. Many hardware stores and supermarkets now have battery recycling bins.
- Contact a <u>B-cycle</u> accredited collector or your local council waste management facility if you need guidance on safe disposal and recycling options, particularly if the battery is damaged and/or embedded in a device or equipment and cannot be removed safely.

#### **Further Information**

- Electrical Safety Office. <u>https://www.electricalsafety.qld.gov.au/lithium-ion-battery-operated-equipment-including-electric-scooters</u>
- B-cycle. Taping batteries saves lives. <u>https://bcycle.com.au/how-you-can-b-cycle/battery-safety/</u>
- CSIRO. Lithium-ion battery safety. <u>https://www.productsafety.gov.au/system/files/CSIRO-ACCCLithiumIonBatteries.pdf</u>
- Safety alert: button batteries: <u>https://education.qld.gov.au/initiativesstrategies/health-safety-wellbeing/Documents/button-batteries.pdf</u>

