

HEALTH SAFETY & WELLBEING ALERT

Lithium-Ion Batteries

BACKGROUND

Lithium-ion batteries are found in many products. These products are commonly used, stored or charged in the workplace. Examples of equipment that may use lithium-ion batteries include:

- Handheld power tools
- Power supplies (generator/battery systems, including laptops, mobile phones, tablets, power banks)
- Light electric vehicles (electric scooters and e-bikes)
- Electric plant (forklifts, elevated work platforms and earth moving equipment)
- Passenger vehicles (hybrid and full electrical vehicles) & heavy vehicles (trucks and buses)

The information contained within this Alert is based upon current advice from WorkSafe Victoria and Fire Rescue Victoria (FRV).

WHAT IS THE RISK?

When overheated, lithium-ion batteries of all sizes can catch fire. The fire is often hard to put out and the smoke from the fire can be toxic. Specialised fire extinguishers are required to be used. Using the wrong extinguisher can make the fire worse, or cause explosion. Common reasons lithium-ion batteries may overheat and catch fire include:

- damage
- using incorrect charging equipment

Battery packs of any size can pose a significant risk if the lithium-ion battery overheats and catches fire. Some sprinkler systems may not be capable of suppressing or controlling a large lithium-ion battery fire.



Image 1: Remnants of a small battery fire at Monash

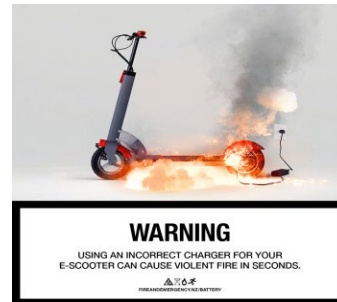


Image 2: Example of an e-mobility battery fire



Don't help your devices to overheat

Devices left on soft surfaces can overheat and catch fire.

- Don't charge batteries or devices on soft surfaces such as beds, couches and carpet.
- Keep batteries and devices away from items that can easily catch fire like blankets, clothing and paper.
- Never charge a device under a pillow.



Don't leave charging devices unattended

- Avoid charging batteries or devices overnight.
- Avoid leaving batteries or devices unattended while they are on charge.



Image 3: Advice from Fire Rescue Victoria: [Lithium-ion battery safety info tips](#)

Additional Resources:

- WorkSafe Vic Guidance: [Lithium-ion battery fires](#); [Electrical-safety](#)
- Fire Rescue Victoria: [Battery safety for consumers](#); [Fire safety light electric vehicles](#)
- Monash Health Safety & Wellbeing Team hsw@monash.edu; [Monash HSW Alert: Electrical safety](#)

CALL TO ACTION

The following are simple steps we can all take every time we purchase, use or charge a lithium-ion battery:

- **Only** purchase and use devices and equipment from reputable manufacturers and suppliers. **Always** follow the manufacturers' charging and operation instructions.
- Ensure all equipment used at Monash carries the **Regulatory Compliance Mark**. 
- Ensure all equipment used at Monash has an **in-date test & tag** attached, if not do not use. 
- **Visually check** all chargers, power cords and battery packs before plugging in. If there are visible signs of damage do not use the item. Either, safely dispose of the item or tag 'out of service' immediately.
- **Only** use chargers that are supplied with the equipment or device, or certified third-party charging equipment that is compatible with the battery specifications.
- **Remove combustible materials** e.g. clothing, paper, timber products from charging areas.
- Place charging equipment **away from emergency exits** and evacuation routes.
- Keep charging equipment **out of direct sunlight** and away from where it can be exposed to heat or moisture.
- **Monitor** equipment while charging. **Disconnect** a device or battery once it indicates that it is fully charged.

RECOMMENDED WAYS TO CONTROL RISK

To further control the risks associated with lithium-ion batteries overheating and catching fire, it is recommended that all areas review their local risk assessments and safe work instructions, to ensure they cover the following:

- Ensure risk assessments are appropriate, clear and documented for equipment that may use lithium-ion batteries.
- Undertake audit or site walkthrough of work areas, to identify lithium-ion batteries currently being charged and stored, including any mobile or movable equipment.
- Where appropriate, replace lithium-ion batteries with other batteries or power sources that are less likely to overheat and catch fire.
- Establish dedicated charging areas that are separate from areas where people work. Ensure equipment is kept within fire resistant areas and/or cabinets. For example: equipment could be stored or charged outdoors or in purpose-built fire-resistant cabinets (where appropriate).
- Assess the fire risk of the storage/charging area and remove lithium-ion batteries from areas where a lithium-ion battery fire could be a hazard. For example: identify and remove/relocate combustible materials, ensure appropriate fire protection systems and reduce risk of loss of surrounding material and infrastructure
- Ensure there is an easily accessible way, to remotely disconnect or isolate battery chargers if the equipment catches fire. For example: consider location of e-stops and isolators at distribution boards and automatic disconnection systems that are triggered if a fire alarm activates.
- Have a documented emergency response plan that address the risk of a lithium-ion battery fire. Emergency response plans should include clear instructions that people should:
 - evacuate the area via a suitable route and avoid inhaling smoke or fumes
 - only attempt to extinguish a fire involving lithium-ion batteries if you have an appropriate fire extinguisher and are trained to do so.
 - leave the building and call Triple Zero (000) even if you no longer see visible smoke or flames. There is a good chance that the battery might reignite if it has not been cooled enough.

SAFE DISPOSAL OF BATTERIES

Dispose of lithium-ion batteries appropriately – they **must not be disposed of in regular household or recycling bins**. Refer to [Monash website](#) and for further advice on classifying, safe handling and collection, contact your faculty store manager, safety officer, supervisor or Cleanaway directly. Phone: 1300 667 787.

HAZARDS & INCIDENTS

If you spot a hazard such as those outlined above, you must ensure you:

- do what you can immediately to safely mitigate this e.g. do not use the equipment and tag it out of service; disconnect the power supply if safe to do so; and/or arrange for safe disposal;
- report hazards and incidents into the SARA system as soon as possible, preferably before the end of the shift, and no later than within one working day.

If there is an **immediate or significant risk to health and safety**, contact the most appropriate below support services, as required: Emergency Services via 000; Monash Security via (03) 9905 3333.