



PERTH MARKETS

**MOBILE PLANT BATTERY CHARGING
PROCEDURE
MAN-FAC-PRO-0039**



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MOBILE PLANT BATTERY CHARGING

1. General Purpose and Principles

The purpose of this procedure is to establish **minimum mandatory safety requirements** for the **design, establishment, operation, and maintenance of mobile plant battery charging stations** within the Perth Market site.

This procedure applies to **lead-acid and lithium-ion battery systems** and is intended to prevent injury, fire, explosion, chemical exposure, asset damage, and business interruption.

2. Implementation

This procedure applies to:

- PMGL facilities and operations
- All battery-powered mobile plant including, but not limited to:
 - Forklifts
 - Pallet movers / pallet trolleys
 - Elevated Work Platforms (EWPs)
 - Order pickers
 - Other materials handling equipment
- The operators of charging infrastructure are responsible for the ongoing maintenance of the equipment and compliance to this procedure.

3. Definitions

Mobile Plant	Any plant that is provided with some form of self-propulsion and is ordinarily under the direct control of an operator.
Lead Acid Battery	A rechargeable electrochemical device that uses lead and lead dioxide plates immersed in a sulfuric acid electrolyte to store and deliver electrical energy. It is classified as a hazardous chemical under the Globally Harmonized System (GHS).
Lithium Ion Battery	A type of rechargeable lithium-ion battery that uses lithium iron phosphate (LiFePO ₄) as the cathode material and a graphitic carbon electrode as the anode.

4. Charging Area Hazards

Mobile plant battery charging introduces combined hazards including:

- Electrical energy
- Stored chemical energy
- Hydrogen gas generation
- Fire and explosion risk
- Mobile plant and pedestrian interaction

Failure to manage these hazards may result in **serious injury, fatality, fire, explosion, or asset loss.**

5. Mandatory Safe Charging Requirements

Charging Area Design & Location

- Charging areas **must be dedicated**, clearly identified, and **not used for storage**
- Charging areas must be **separated from operational traffic routes**
- Charging must **not obstruct emergency egress**
- Charging within storage racks or aisles is **prohibited**

Clearance & Separation

- Maintain a minimum **2 metres clearance** from combustible materials on all sides
- Charging equipment **must not be installed on or against combustible sandwich panels**
- Packaging, pallets, and waste must be removed from the charging area
- Provide physical protection to charger to prevent impact damage

6. Ventilation & Atmospheric Controls

Mandatory Requirements

- Lead-acid battery charging areas must be well-ventilated to disperse gases
- Hydrogen gas accumulation from lead-acid charging must be prevented
- Ignition sources (smoking, hot work, sparking tools) are prohibited

Recommended Controls

- Mechanical ventilation where natural airflow is insufficient
- Hydrogen gas monitors in enclosed or indoor charging rooms

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7. Electrical Safety Controls

- Chargers and electrical equipment must be **fit for purpose** and installed in accordance with the National Electrical Code or its local equivalent.
- All charging equipment must be maintained in accordance with manufacturer instructions
- Electrical leads must be **tested and tagged** at required intervals
- Cables and plugs must be visually inspected **prior to each use**
- Damaged or untagged equipment must be removed from service immediately
- Emergency isolation must be accessible and identifiable

8. Battery-Specific Controls

Lead-Acid Batteries

- Vent caps must be in place and operational
- Electrolyte levels and leaks must be checked where applicable
- Acid exposure controls and PPE are mandatory

Lithium-Ion Batteries

- Only manufacturer-approved chargers may be used
- Damaged, swollen, overheating, or recalled batteries must not be charged
- Chargers and batteries must be operated within specified temperature ranges
- Lithium-ion charging should be segregated from lead-acid charging where practicable

9. Fire & Explosion Controls

Mandatory Requirements

- As a minimum, a monitored smoke detection system
- No charging near flammable or combustible goods
- “No Smoking / No Ignition Sources” signage installed
- Appropriate fire extinguishers provided:
 - Electrical (Class E)
 - Chemical / general purpose

Recommended Controls

- Automatic fire sprinkler coverage where practicable

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Figure 1 Example Warning sign

10. Personal Protective Equipment (PPE)

Where inspection, maintenance, or electrolyte handling occurs, the following PPE is recommended:

- Acid-resistant gloves
- Face shield
- Safety footwear

11. Spill & Emergency Equipment for lead-acid batteries

- Emergency eyewash facilities must be accessible
- Hand-washing facilities must be provided
- Chemical spill kits suitable for battery electrolyte must be available for lead acid battery use
- Spill response signage installed

12. Operational Controls

- Plant must be parked with brakes applied during charging
- Battery covers must be opened where required for ventilation
- Ignition keys must be removed to prevent unauthorised use
- Metal tools and conductive jewellery must be kept away from batteries
- Charging must occur only in designated charging areas

13. Plant-Pedestrian Interaction

- Charging areas must be physically or visually segregated from walkways
- Barriers, bollards, or line marking used where required
- Adequate lighting and signage installed

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14. Training & Authorisation

- Only trained and authorised personnel may perform battery charging
- Training must include:
 - Electrical hazards
 - Battery hazards
 - Fire response
 - Spill response
- Personnel must be trained in the use of provided fire extinguishers
- Training records must be maintained

15. Emergency Response

In the event of:

- Battery overheating, smoke, or fire
- Electrolyte spill
- Hydrogen gas alarm

Personnel must:

- Stop charging if safe to do so
- Isolate equipment if trained and safe
- Evacuate the area as required
- Notify the Supervisor or Site Manager immediately
- Follow site emergency procedures

16. Inspection & Verification

- Operators must conduct pre-use checks
- Charging areas must be inspected at regular intervals
- Defects must be recorded and rectified
- Records of inspections, training, and maintenance must be retained

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