

# Battery charging: electric fork lift trucks and pallet trucks

This guidance highlights some of the hazards associated with the charging of batteries for use in fork lifts and the steps that can be taken to reduce or mitigate them.

## RISK ADVICE LINE

Having read this guidance should you have any additional questions on this topic or other risk related matters, as a valued Ecclesiastical customer you can contact us through our 'Risk Advice Line' on 0345 600 7531 (Monday to Friday 9am - 5pm, excluding bank holidays) and one of our in-house risk professionals will be able to assist. Alternatively you can email us at [risk.advice@ecclesiastical.com](mailto:risk.advice@ecclesiastical.com) and one of our experts will call you back within 24 hours.

For queries about your policy cover or claims please contact your insurance broker.



The charging of batteries, for use in fork lift trucks introduces a range of hazards associated with both the trucks themselves and the environment in which they operate.

Electric forklifts can be powered by large lead-acid batteries, and lithium-ion batteries, which you must routinely charge.

It is important that your health & safety and fire risk assessments are up to date, completed by a competent person and include all the risks associated with battery charging. Fire hazards include potential ignition sources such as electrical short circuits, sparks from electrical equipment, engine components and exhaust systems. Other risks to consider include manual handling injuries, electrocution and impact by lift trucks or other vehicles.

Wherever practicable, the charging of batteries should not take place when your premises are unattended outside working hours.

Battery charging should ideally be undertaken in a detached, non-combustible building, dedicated to and specially designed for this purpose. Alternatively, a specially designed charging area within your premises may be used. This should be separated from other areas by a fire rated compartment with at least 60 minutes fire resistance.

Where neither of the above is practical, you should confine charging to a dedicated area of your workplace which you must keep entirely free of combustible materials.

You must maintain a clear space separation of at least 2 metres between charging equipment/fork-lift trucks and any adjacent combustible materials or combustible building parts.

Ideally, a guard rail should be erected to help maintain a clear area and to also protect chargers from vehicle impact, whilst hatched lines painted on the floor or wall can assist in identifying the designated area.

You should install charging equipment on a concrete floor, or securely mounted on a non-combustible wall structure. Under no circumstances should battery chargers be affixed to or placed against insulated composite panel walls having a combustible core, or placed on combustible surfaces, particularly wooden pallets.

Batteries must only be charged and used in accordance with the manufacturer's instructions. Safety cut-out protection should be provided to all battery charging equipment, specifically over-charge and over-current devices.

Connecting leads between the battery charger and vehicle under charge should be kept as short as possible. Leads and connectors should be kept in good condition and inspected frequently for damage. When not charging, leads should be stored in a manner which precludes mechanical damage.

The area must also be kept clear of metallic objects which could fall across the battery terminals causing them to short. Bracelets and neck-chains worn by operators should be removed before working on a battery to prevent short-circuiting. Short circuits can cause extensive arcing, burning and melting of metal objects and explosion of any charging gases.

During and after charging, lead-acid batteries give off hydrogen which is an easily ignited and explosive gas. Therefore, the charging area must have adequate ventilation (particularly at a high level immediately above the batteries). Ventilation rates should be sufficient to maintain the atmosphere at or below 25% of the Lower Explosive Limit (LEL).

Hot work and the use of open flames should be prohibited in battery charging areas. Smoking must be specifically prohibited in and around charging areas and suitable signage to this effect should be prominently displayed.

All personnel authorised to change or charge batteries should be adequately trained and have all the necessary equipment, including personal protective equipment (PPE) for them to do so.

Suitable fire extinguishers must be provided and maintained, and personnel trained in their use.

Where it is appropriate to the risk, the exhaust outlet on the fork lift truck should be fitted with a spark arrestor.

It is important to consider obligations under the following health and safety regulations:

- The DSEAR (Dangerous Substances and Explosive Atmosphere Regulations)

- The COSHH (Control of Substances Hazardous to Health Regulations)

- The Electricity at Work Regulations.

## Further guidance

Further guidance can be found in RC11 Recommendations for use of fork lift trucks. This is available to download free from [www.riscauthority.co.uk](http://www.riscauthority.co.uk)

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