Office for Product Safety & Standards

Prevention of fires caused by dangerous e-bikes and e-scooters

Advice to businesses on the responsibilities and risks associated with carrying out repairs, modifications and conversions to e-bikes and e-scooters.

Do you carry out repairs, modifications or conversions of e-bikes, e-scooters or their accessories as part of your business?

If so, this advice is for you.



If you carry out repairs and modifications to e-bikes, e-scooters and any associated accessories, you must ensure that once you have completed work on the product it can be used and charged safely. This includes converting pedal bikes to electrically-powered bikes. If you are not sure – then do not take on the work.

These products contain lithium-ion batteries that can be volatile and can cause fatal fires if modified, tampered with, charged in certain conditions (such as direct sunlight), damaged, or combined with incompatible components. If you work on these products you must:

- **be competent to do the work safely;**
- **operate only in accordance with the relevant manufacturer instructions; and**
- **understand your legal responsibilities.**

What's the problem?

- Lithium-ion batteries for e-bikes and e-scooters are one of the fastest growing sources of fires. On average, there is a lithium-ion battery fire in London every two days. *[Source: London Fire Brigade]*
- Fires involving e-bike and e-scooter batteries are explosive and can be deadly because of their rapid spread and quick release of noxious gases.
- They often happen at home, when occupants are sleeping.
- Tragically, there have been over 680 fires reported to OPSS by fire and rescue services in the UK since the beginning of 2023, leading to at least 19 fatalities.
- Fatal incidents have occurred following repairs being attempted to lithium-ion batteries and converted e-bikes.
- Ensure your business is responsible for only supplying and working on safe products.

What's the solution?

1. **Batteries and chargers must be safe.** If you are supplying either, you must be sure of the source and be able to prove they are safe through appropriate documentation from the manufacturer or supplier.
2. **Batteries and chargers must be supplied with adequate instructions and warnings.** If you are supplying either, you must provide customers with full, appropriate and accessible warnings, labelling, and instructions for their safe use. This is especially important where consumers may not be technically knowledgeable.
3. **All parts, including batteries and chargers, need to be compatible with each other, including the components in a conversion kit, if you supply these products and/or convert a pedal bike or scooter.** Don't mix and match. Just because components connect does not mean they are compatible. You must follow manufacturer instructions and ensure that products are safe and will work compatibly when used together, for example in relation to their chemistry, their connections and their power and voltage ranges. You need to be able to demonstrate this through documentation from product suppliers.
4. **Recalled parts and products must not be supplied.** You must have processes in place to ensure that unsafe recalled parts and products are not used. See below for a link to the UK Product Recalls and Alerts system.
5. **Existing e-bikes and e-scooters should only be modified or repaired in accordance with the manufacturer's instructions**, **using approved parts**. If you carry out a modification or repair, you should follow the manufacturer's instructions and use compatible components. You may still have product safety responsibilities for the repaired or modified product. You should seek advice on the specific responsibilities you are taking on.
6. **Conversion kits and converted e-bikes/e-scooters must be safe when placed on the market or put into service.**
    a. Manufacturers of conversion kits are legally responsible for ensuring they are safe when they are placed on the market or put into service, including during their intended and foreseeable uses.
    b. If you affix a conversion kit to a pedal bike, you would not take on responsibility for the safety of the conversion kit providing you have followed the manufacturer's instructions, including only affixing to a recommended pedal bike. This would not include circumstances where any additional alterations or modifications are made to a conversion kit or a pedal bike at the same time.
    c. If you otherwise convert a pedal bike or a scooter into an e-bike or e-scooter using separate parts, including but not limited to second-hand parts, **you are legally responsible for that converted bike's safety under the Supply of Machinery (Safety) Regulations 2008 and may be liable for any damage caused by any defect**. The section below sets out further guidance on laws that apply in this area. You should get advice on the specific legal responsibilities you are taking on.
7. **If you supply new, or repair or replace lithium-ion batteries** for e-bikes and e-bike conversion kits, you must ensure they are safe products as set out in the Government's statutory guidelines on lithium-ion batteries. These apply to producers or distributors under the General Product Safety Regulations 2005. The full guidelines are available on the link below.

8. **Warn about incompatible components.** You should clearly warn customers about the risks of using incompatible components, and should not supply incompatible components to customers. You should be ready to provide guidance on what is compatible and how to identify safe products. This helps reduce the risk of fire and ensures you meet your legal obligations. If you are unsure, do not take the risk.
9. **Refuse work that you don't know to be safe.** If you refuse to do the work for a customer, give them clear information about why, so they know the risks and why they should not attempt to do it themselves.

Where to go for further advice/help

- OPSS guidance on conversion kits – GOV.UK
- General Product Safety Regulations 2005 – Legislation.gov.uk
- Supply of Machinery (Safety) Regulations 2008 – Legislation.gov.uk
- PAS 7050: Bringing Safe Products to the Market – BSI
- E-bikes and e-scooters guidance - Business Companion
- E-bikes and e-scooters: safely using and charging – Fire Kills
- Statutory guidelines on lithium-ion battery safety for e-bikes – GOV.UK
- OPSS Product Recalls and Alerts – GOV.UK
- Find your local Trading Standards Service – GOV.UK