

Disposal of lithium batteries: Fuelling the solution

Lithium batteries are an integral part of everyday life; whether fuelling our electric vehicles, supporting power generation in solar panels, or powering household items, such as phones, laptops, electric toothbrushes, and I-watches. The availability of micro-mobility vehicles such as e-Bikes and mobility scooters has also been made possible through lithium battery technology.

Like all batteries, lithium batteries have a lifespan – which will vary according to the item or device in question.

Research have shown that when these reach ‘end of life’, many of us will dispose of these in our general waste bins.



Did you know?

Lithium battery fires are the cause of 48% of all waste fires – how does this happen?

Lithium batteries are extremely susceptible to damage when exposed to moisture, heat, pressure or impact damage. When this happens, this starts a chemical chain reaction which leads to thermal runaway, smoke, fire, and explosion.

Fires often start in bin lorries and garbage compactors. These fires burn at high temperature and are often difficult to manage.

Former London Fire Brigade Officer and Zurich Risk Engineer, Gareth Jones comments:

‘The increasing popularity of lithium batteries is plain to see. With this increased popularity we are seeing a rapid increase in lithium battery related fire incidents. Having been a London Fire Brigade Officer for 18 years, I understand the extreme difficulty in effectively fighting Lithium battery fires. The current thinking is the best way to extinguish a fire is to fully submerge the battery cell in water, which is generally not possible. To protect the public and themselves, firefighters are forced to contain the fire, attempting to limit fire spread to adjacent areas.

The impact to our customers

As well as countless fires at household properties, Zurich Expert Property claims team have managed several catastrophic fire claims at different waste recycling facilities

These fires can be devastating for a number of reasons.

The most obvious being injury – to employees at these facilities, but also to individuals from the fire service responding to the blaze.

However, it's important to call out the adverse impact on our communities – through recycling waste facilities being destroyed or their operations being significantly restricted, this impacts local waste collections and recycling initiatives and may increase littering.

Graeme Campbell, a Forensic Scientist working for Burgoyne's, comments:

Burgoyne's were instructed by Zurich to investigate a fire that caused severe damage to a waste recycling facility. The fire originated within the reception area where mixed waste from refuse vehicles was deposited and was fought for several days before it was fully extinguished. It is likely this was caused by a lithium-ion battery powered device amongst the waste. The fire could have been avoided, however, if the device had been disposed of correctly.

Risks when not safely recycled

When littered, lithium battery devices can cause hazardous chemicals and plastics to enter our water stream, impacting wildlife and their habitats.

Disposable vapes are one of the biggest contributors

According to the research carried out by Material Focus, a not-for-profit organisation focusing on recycling e-waste, "at least" 1.3 million disposable e-cigarettes, also known as vapes, are thrown away every week. Many of these end up littering our streets.

This figure is set to rise as the number of disposable e-cigarette users continues to grow. Use of disposable vape types is particularly prevalent in young adults and the percentage of users has increased hugely in 2022.

Ash Action on Smoking and Health reported that 'Among 18–24-year-olds, almost half of current e-cigarettes users (48%) use disposables as their main type in 2022, an increase from only 2.8% in 2021.'

Each single-use vapes contains on average 0.15g of lithium and with over 1.3 million single-use vapes thrown away every week this accumulates to 10 tonnes of lithium a year, equivalent to the lithium in batteries inside 1,200 electric vehicles.

If these items were recycled, the lithium could be reused.

How can you dispose of your lithium battery devices safely and in a sustainable way?

Retailers have a legal responsibility to take back any item of WEEE, so if you have any end-of-life electronic device, you can take it back to a retailer, some even offer discount vouchers for certain items.

Some local authorities offer kerbside collections of WEEE and some are starting to roll out kerbside battery collections too.

What is WEEE?

If a product needs a battery or a power supply to work properly, this is referred to as electrical and electronic equipment or EEE for short. When this product reaches end of life or the user wishes to dispose of it, it becomes waste electrical and electronic equipment or WEEE for short.

Small electronic items containing lithium batteries, such as toys, electric toothbrushes, disposable or single use vapes/ e-cigarettes and e-scooters would fall under this category.

AJ Marsh, Senior Commercial Manager from waste management and recycling experts, Recycling Lives comments:

‘Due to the popularity of these items, more and more are ending up being disposed of incorrectly. E-bikes and e-scooters in particular are being separated as scrap metal which is resulting in fires at disposal routes.

Recent technological advances have led to more lithium batteries in our households and the demand for lithium battery power is growing, so it’s now more crucial than ever, to ensure that lithium batteries are recycled.

We’re working with local authorities to improve signage at household recycling centres to ensure more lithium battery containing items and loose lithium batteries can be sorted correctly and end up at the correct treatment facilities’.

Please check with your local authority for information on the services offered in your area

Failing that, items can always be taken to household recycling centres. Most household recycling centres will have battery safe disposal bins.

[You can find your local recycling centre here](#)

If you have a household item which contains an integrated battery (disposable vape, electric toothbrush, mobile phone), please don’t attempt to remove the batteries yourself

When it comes to old or unused mobile phone or laptops, rather than leaving these at the back of cupboards where they can sustain damage, why not look into recycling these through a private online company or your mobile phone provider? Many will offer a cash incentive and send you everything you need direct to your home



Support your global community

Like all mining, lithium mining is environmentally and socially damaging.

Through recycling, we can ensure we're extending the lifespan of lithium batteries and where possible, reducing the need for aggressive lithium mining.

Lithium batteries also contain rare earth metals such as lithium and cobalt which are currently mined in dangerous and unregulated conditions, another reason why it's important to dispose of these items correctly so these materials can be extracted and recycled

Want to know more?

[We previously created an article outlining useful best practice tips](#) for the use and charging lithium battery powered household devices.