FORUM OF INSURANCE LAWYERS

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Disposal and Recycling of Lithium Battery-Powered Devices

The lithium battery market in the UK is forecast to grow at a Compound Annual Growth Rate (CAGR) in the region of 15% to 2026, fuelled by mounting penetration of lithium battery-powered devices in everyday life, especially electric vehicles, consumer electronics, and medical equipment.

Their increased prevalence has raised concerns regarding their safe disposal and recycling, with the environmental and health implications of improper disposal garnering attention from regulators, manufacturers, and consumers. This raises questions about the liability associated with the disposal and recycling of lithium batteries.

Concerns of disposal

Lithium batteries, known for their high energy density, enhanced performance, and longevity, are an integral component of a wide range of devices in modern society. Their disposal, however, poses environmental risks, as improper handling can lead to hazardous waste issues. Lithium batteries contain toxic materials, including lithium, cobalt, and nickel, which can leach into soil and water if not disposed of correctly.

The potential for fires and explosions during landfill decomposition further exacerbates the risks associated with improper disposal. A survey by the non-profit organisation Material Focus in 2023 highlighted 710 battery-related fires in refuse collection vehicles and recycling

centres a year, costing £158 million. The majority of local authorities surveyed also indicated that battery-related fires are increasing.

As the volume of lithium batteries in circulation rises, so does the liability regarding their disposal. Regulations surrounding battery disposal vary significantly across jurisdictions, but many countries, including the UK, have implemented stringent guidelines to mitigate the environmental impact of battery waste. The EU Battery Directive, for instance, mandates that suppliers take responsibility from end users for collecting, recycling, and safely disposing of batteries, thereby imposing liability for improper management.

Supplier responsibilities

Under UK law, manufacturers and retailers of lithium battery-powered devices are obliged to comply with regulations governing their disposal and recycling. This includes participating in producer responsibility schemes, which require businesses to take back used batteries and ensure they are recycled in an environmentally responsible manner. Failure to comply with these regulations can result in significant financial penalties and reputational damage.

In addition, manufacturers are increasingly being held accountable for the entire lifecycle of their products, including end-of-life disposal. This shift towards a circular economy ensures valuable minerals are retained for future battery production and encourages companies to design products with recyclability in mind, reducing their environmental footprint and liability associated with waste management.

Lithium is a lightweight metal that can be recycled again and again. However, the process of recycling lithium batteries is complex and sensitive, as lithium is highly reactive and needs careful handling. It is also a costly process, with the costs of recovering expensive materials from batteries often far higher than mining for the raw materials. Research is ongoing to find sustainable and cost-effective ways to recycle lithium batteries.

Consumer liability and awareness

Consumers also bear a degree of responsibility regarding the disposal of lithium battery-powered devices. While many may be unaware of the risks associated with improper disposal, there is a growing movement to educate the public on the importance of recycling batteries correctly. Local councils and environmental organisations often provide resources and facilities for safe battery disposal, yet consumer compliance remains inconsistent.

Figures suggest only around 5% of lithium batteries are recycled worldwide, compared to a 99% recycling rate for lead batteries. However, lead batteries were invented in 1860, whereas the first commercial recyclable lithium battery only became available in 1991, so there are much more established processes and systems in place for recycling.

The lack of awareness can lead to unintentional violations of regulations, placing liability on consumers if they fail to dispose of batteries appropriately. Encouraging responsible

behaviour through education and accessible recycling options is crucial in mitigating these risks.

Spotlight on pacemaker recycling

Pacemakers, which are essential devices for patients with heart conditions, present a unique challenge in the context of lithium battery disposal and recycling. Approximately 20% can be reconditioned, but there is not currently a recycling process that is commercially viable. Research suggests many pacemakers still have significant battery life left after removal, highlighting the need to establish efficient recycling.

Recycling pacemakers is particularly sensitive, and medical facilities and manufacturers must follow strict protocols to dispose of pacemakers. This includes adhering to guidelines from regulatory bodies such as the Medicines and Healthcare Products Regulatory Agency (MHRA) in the UK, which governs the safe disposal of medical devices.

The liability associated with pacemaker recycling extends beyond environmental concerns and encompasses ethical considerations. Manufacturers and healthcare providers must ensure the recycling process does not compromise patient confidentiality or safety, as any mishandling of discarded devices could lead to legal repercussions and damage to public trust.

Healthcare providers, including hospitals and clinics, are responsible for ensuring pacemakers removed from patients are disposed of in compliance with these regulations. They must work with licensed waste disposal companies, ensuring pacemakers are safely recycled or disposed of in a manner that prevents environmental contamination. Failure to adhere to these obligations may result in significant legal liabilities, including fines and sanctions from regulatory bodies.

Additionally, the Environmental Protection Act 1990 imposes a duty of care on healthcare professionals and institutions to manage waste responsibly, which extends to the handling of pacemakers. Everyone involved in the disposal process must be trained and compliant with these legal requirements to avoid penalties and mitigate any risks associated with improper disposal.

The recent consultation paper published by The Law Commission, which seeks to reform regulations surrounding burials in England and Wales, specifically addresses the disposal of pacemakers. These medical devices originally formed part of the deceased owner's estate upon death, but ownership could revert to the health authority if patients consented when the device was fitted.

The responsibility for the removal cost, however, is intended to sit with the health authority, but a reluctance to cover these expenses has resulted in funeral directors across the UK being left with substantial quantities of removed pacemakers without any legal entitlement to dispose of them. Compounding this issue is the absence of a central register indicating

who has consented to the return of ownership, leaving funeral directors uncertain who the rightful owner is. This situation highlights the need for transparent regulatory reform to address the complexities of pacemaker disposal and ensure that all parties involved can navigate these challenges with clarity and legal assurance.

The growing risk for insurers

Insurers should stay alert to the increasing risk of product liability claims arising from lithium batteries. While they offer numerous benefits, they present fire hazards when overheating, posing a risk of serious injury or death. In recent years, there has been a rise in product safety recalls, and several UK train companies have banned lithium battery-powered e-scooters due to concerns over fire risks.

In the UK, manufacturers and suppliers are strictly liable under the Consumer Protection Act 1987 for defective lithium batteries that cause injury, death, or property damage. Claims may also arise under the Consumer Rights Act 2015, while businesses could seek recourse under the Sale of Goods Act 1979 or the Supply of Goods and Services Act 1982 if they suffer losses from faulty batteries supplied by third parties.

The UK Government's battery strategy prioritises safer lithium production, focusing on reducing fire risks from mechanical, thermal, or electrical stress. Advancements, such as devices shutting down during overheating and alternatives like sodium-ion batteries, are expected to enhance safety.

To mitigate risks, insurers should ensure manufacturers perform all safety checks and provide clear usage instructions, including warnings about misuse, such as using incompatible chargers. Property insurers may need to consider exclusions or expanded coverage options for fire risks linked to battery use. Ensuring proper storage conditions and installing safety systems, such as smoke alarms, is also important for policyholders.

The need for collaboration

As awareness of the environmental and health implications of improper disposal grows, so too does the need for clear regulations and responsible practices. Manufacturers must take proactive steps to ensure compliance with recycling regulations and design products with end-of-life considerations in mind. Consumers must be educated about their responsibilities in the disposal process to encourage more lithium battery recycling.

As society continues to navigate the complexities of lithium battery disposal, collaborative efforts among all parties will be critical in fostering a sustainable approach to recycling and mitigating liability risks.