Battery fires in recycling facilities

A burning issue and how to resolve it

6 October 2022

up to **€1.3 million**

in costs for battery fires

36%

of WEEE recyclers have reported a severe fire incident (2016 – 2019)

10%

growth in demand for lithium

EuRIC

Battery fires caused by lithium batteries in recycling facilities

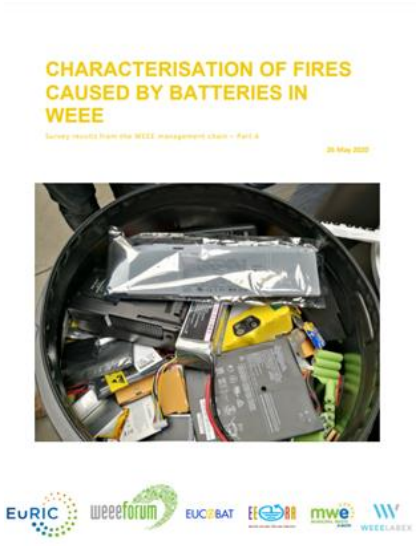
Facilities recycling electronic waste, metal scrap and other waste streams are increasingly confronted by fires caused by defective high-energy batteries, particularly lithium batteries. This is mainly due to:

- Increased numbers of batteries in devices and appliances which automatically increases the risk of having incidents and thermal events in facilities recycling or handling them.
- High energy levels in lithium batteries, which can cause a thermal runaway in case the battery is damaged. In the process of collecting, storing, sorting and recycling waste streams, the chances of damaging batteries are high. This problem is particularly pertinent when batteries are disposed of in waste streams where they are not intended to be.
- Improper collection of the numerous products containing lithium batteries which lead to end-of-life products containing lithium batteries to be inappropriately disposed of.
- Lack of design for dismantling or recycling of batteries found in multiple products.

For this reason and in an effort to quantify the problem EuRIC together with relevant organisations produced two reports aimed at characterising battery fires and defining best practices.

The first report found that for the most severe thermal events – such as explosions and intense fires, the average time needed to extinguish them was between 1 and 6 hours. The costs associated were estimated to be on average €190,000 for small events and €1.3 million for more severe ones. Such costs are difficult to bear by an industry that is primarily constituted by SMEs and whose turnover are structurally low.

References of the two reports published by the Roundtable can be consulted below:



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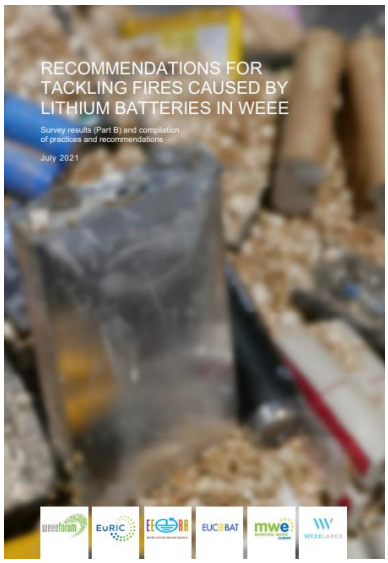

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Urgent actions and increased cooperation along the value chain needed to tackle lithium battery fires in recycling facilities

Battery fires are increasingly common, and this poses an existential risk to recycling companies processing waste streams other than batteries.

Despite investments being made in fire prevention and mitigation measures/equipment, battery fires remain a significant problem for the recycling industry. The rise in the amount of lithium batteries used in the last years makes the issue a societal problem, yet recycling companies are the ones who are presented the bill. Therefore, EuRIC calls for much quicker actions to tackle issues arising from battery fires, which require shared efforts from the entire value chains, including:

- ✓ Better product design to mitigate the risks of fires linked to lithium batteries throughout the products' life-cycle;
- ✓ Proper labelling of products containing batteries to easily identify the type of batteries and their location;
- ✓ Proper funding for information campaigns to consumers about the risks of lithium batteries, including proper handling and proper disposal;
- ✓ Increasing the number of collection points and the enforcement of the producers' responsibility (including online resellers) while ensuring consumers are properly informed;
- ✓ Develop a study on the viability of setting up a deposit return system which will be activated when the amount of portable and light means of transport lithium batteries found in other waste streams than were they should be, has not decreased dramatically in 2 years;
- ✓ Support to training programs for workers in the waste management & recycling sector for the dismantling and handling of waste batteries;
- ✓ Creation of a roundtable with insurers at EU and national levels to exchange in an institutional manner on issues linked to battery fires and to ensure that risks linked to running a sorting or a recycling facility are adequately covered.

Efforts to mitigate issues which impact recycling companies – playing a key role in transitioning towards a circular economy – shall be evenly shared among the value chain:

- ✓ Manufacturers must improve the design and labelling of batteries and electrical and electronic appliances to ease their extraction and make them less flammable.
- ✓ Awareness campaigns shall be mandatory for collective schemes, towards citizens (especially for students in early years of education), in order to separately sort WEEE containing batteries at collection points, and also to sort the battery contained, when extractable. That way, WEEE arriving at recycling facilities are less inflammable.
- ✓ Insurance companies will need to adapt their policies and have continuous and constructive dialogue with waste operators.
- ✓ Recyclers will have to rely on efficient fire prevention and mitigation tools and good relations with local fire rescue services.
- ✓ Policy makers shall address the issue in different pieces of legislation (e.g., revision of WEEE Directive etc.,) and take steps for the creation of a platform whose purpose will be to collect accurate data on battery fires, which will in turn lead to better informed decisions.
- ✓ National and local authorities must enforce removal and separate collection of batteries at the point of disposal.

Tackling the problems arising from lithium battery fires is a must to move towards a more circular economy. It should be also mentioned that lithium has been characterised by the European Commission as a critical raw material and therefore more efforts should be made at an EU level to find a solution to the aforementioned issue. For this reason, EuRIC strongly believes that co-operation and constructive dialogue amongst public authorities, battery manufacturers, EPR schemes, recyclers and insurance companies is key to quickly solving this issue.

About European Recycling Industries' Confederation (EuRIC)

The European Recycling Industries' Confederation (EuRIC) is the umbrella organisation that encompasses a network of European Member States and National recycling associations. It is the link between the recycling industry and the European Union, acting as the platform for co-operation and the exchange of best practices across the industry. EuRIC represents key companies included in the collection, processing, recycling, transport, and trade of various recyclables (metals, paper, plastics, tyres, construction & demolition waste from household or industrial waste, WEEE, ELV, Packaging, etc.) across Europe.