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Associated Laboratory for Green Chemistry

Guest seminar

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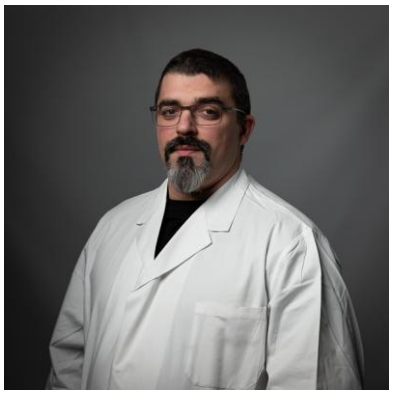
Electrolyte leakage detection from Li-ion batteries - Research of the JRC in support of policy making



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Abstract

The decarbonization of society has led to the increase in uptake of battery-powered products and services. This can be seen from electric vehicles to ships, as well as energy storage systems that help storing energy from renewable sources, be it from domestic or grid support applications.

The main technology deployed is Li-ion batteries. The contemporary lithium-ion batteries contain electrolytes based on organic solvents, mostly carbonates, and lithium salt and additives. If a battery enclosure is compromised, electrolyte leakage can occur and create safety challenges to human health and environment due to the flammability, corrosiveness, and toxicity of electrolyte components.

As the source of independent, evidence-based knowledge and science to support EU policies, the JRC has been studying different ways to detect electrolyte leakage from Li-ion batteries. The current work focuses on the use of lithium ion chromoionophores for the detection of liquid releases, and the use of spectroscopic techniques, namely open path FTIR, for the detection of released gas clouds. The JRC is also working with computational fluid dynamics to model the evaporation of solvents in enclosed spaces, like garages

Short Bio

Ricardo Barata has been working in the interface of science and policy as a technical agent for the last 16 years. Currently he is the laboratory responsible of the Transport and Border Security Unit of the Joint Research Centre of the European Commission. He previously studied ways to detect electrolyte leakage from Li-ion batteries in the Battery Testing laboratory and in the Solid State Hydrogen storage laboratory.

Webinar Host

Artur J. Moro, Cultural Heritage and Responsive Materials Group (CHARM)