Press Release

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New FSRI Online Training Addresses the Science of Fire and Explosion Hazards from Lithium-ion Batteries

Increasing firefighter knowledge of hazard development during lithium-ion battery incidents to improve future mitigation strategies.

January 19, 2023 (Columbia, Maryland) – UL's Fire Safety Research Institute (FSRI) announced today the release of the new "The Science of Fire and Explosion Hazards from Lithium-ion Batteries" online training course to provide actionable insights from the foundational research conducted to date, including lithium-ion battery cell construction, thermal runaway, and how fire and explosion hazards can develop.

Lithium-ion battery-powered devices – like cell phones, laptops, toothbrushes, power tools, electric vehicles, and scooters – are being deployed at a massive scale. Despite the many advantages of lithium-ion batteries, a significant safety drawback is the possibility that these batteries can overheat, catch fire, and cause explosions. Fires involving various lithium-ion battery-powered products have increased at an alarming rate, resulting in numerous injuries and fatalities. Last year in New York City alone, there were over 200 fires caused by these devices. Even when the initial cause of the fire was not the lithium-ion powered device, the involvement of these batteries can increase the intensity and magnitude of the fire. This course will help firefighters better understand the physical phenomena that determine how hazards develop during lithium-ion battery incidents and develop strategies to mitigate the associated risks.

After taking this course, firefighters will be able to:

- Describe the construction of lithium-ion cells and identify the unique characteristics of lithium-ion batteries.
- List the reasons lithium-ion batteries fail and explain the process of thermal runaway
- Describe the fire and explosion hazards resulting from thermal runaway propagation in lithium-ion batteries.
- Develop strategies to reduce the risk associated with thermal runaway, including fire and explosion hazards.

"We believe one of the most effective ways to combat risks to life safety and minimize sensationalization of lithium-ion battery thermal runaways is to inform the general public and the fire service about thermal runaway causes, how fire and explosion hazards can develop, and what can be done before and after thermal runaways to minimize the consequences," said Adam Barowy, FSRI research engineer.

Click here to access the course via the FSRI Fire Safety Academy.
Click here to watch an intro video to the course.

About Fire Safety Research Institute

UL's Fire Safety Research Institute (FSRI) strives to advance fire safety knowledge and strategies in order to create safer environments. Using advanced fire science, rigorous research, extensive outreach and education in collaboration with an international network of partners, the organization imparts stakeholders with knowledge, tools, and resources that enable them to make better, more fire safe decisions that ultimately save lives and property. To learn more, visit fsri.org. Follow FSRI on Twitter, Instagram, Facebook, and LinkedIn.

About UL Research Institutes

UL Research Institutes is a nonprofit research organization dedicated to advancing the UL public safety mission through scientific discovery and application. With best-in-class experts, we are the world's premier safety science research organization. We conduct rigorous independent research, analyze safety data and explore at the edges of technology to be the first to uncover and act on emerging risks to human safety. To learn more, visit ul.org.

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