



THE SAFETY CIRCUIT:

How Standards Help Make Batteries Safer for You

Rechargeable devices — from laptops to e-bikes — depend on lithium-ion batteries. But when these batteries are damaged, defective, or improperly used, they can enter **thermal runaway, a dangerous, self-heating state that may lead to fire or explosion — and injury.**

ULSE standards help **reduce these risks at every stage** of a battery's lifecycle—from product development to daily use to safer repurposing. Learn more about each stage of the circuit: design, use, and reuse.



Learn more

ULSE's battery safety standards and resources can help you more safely use lithium-ion batteries.

Visit [ULSE.org/safety-circuit](https://ulse.org/safety-circuit)



Design & Define

Standards shape safer batteries before they reach consumers

Common Rechargeable Products:



Phones



E-bikes



Drones

- ULSE standards serve as expert-built instruction manuals for evaluating battery safety and may inform design
- Batteries certified to ULSE standards are tested under real-world and extreme conditions
- Standards also help support safer battery integration into everyday products

Battery Safety Standards



- UL 2771 | E-Scooter Batteries
- UL 2054 | Household Batteries
- UL 2580 | EV Batteries



Everyday Use

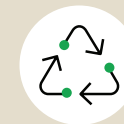
How standards and informed behavior reduce real-world risks

60% of Americans are unaware that lithium-ion batteries power many of the products they routinely use

- Consumers may be unaware of the risk of thermal runaway or that their device is powered by a lithium-ion battery
- Because of a lack of awareness, consumer misuse (e.g., improper charging, crushing, overheating) can increase risk
- Standards plus safe behavior — together — keep you and your devices protected.

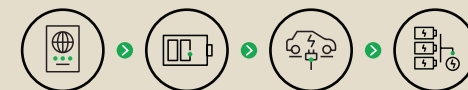
Common Risky Behaviors:

- ! Leaving in a hot car, purchasing counterfeit batteries, and overcharging



End-of-Life & Reuse

What happens when a battery's job is done



- Li-ion battery use is growing — repurposing batteries at the end-of-life supports sustainability
- Improper disposal poses fire and environmental risks
- ULSE standards provide best practices for developing, producing, and repurposing batteries



5,000+ battery fires occur annually at recycling facilities

