

Where are lithium-ion batteries?

Identifying the tools that power our lives

Underwriters Laboratories is at the forefront of electrochemical safety science. At a time when potentially risky energy storage technologies can be found in everything from consumer products to transportation and grid storage, Underwriters Laboratories helps to lay the groundwork for energy storage designs that are safe and reliable.

What they are

Lithium-ion batteries are used in a wide variety of applications ranging from wearable technology and mobile phones to satellites and electric buses. Lithium-ion is the most popular rechargeable battery chemistry used today.

The products powered by lithium-ion batteries require a range of specifications for optimum and safe performance with respect to energy, power and life span. Lithium-ion batteries and cells are produced in a variety of chemistries and shapes, also known as formats.

Where they are

- Mobile phones
- Laptops and tablets
- Wearable technology such as wireless headphones and smart watches
- Electric vehicles including automobiles, buses, rail, bicycles, scooters and hoverboards
- Portable and stationary power banks
- Renewable energy storage
- Implanted medical devices
- Cordless power tools
- Drones
- Satellites

Why are lithium-ion batteries so prevalent?

Lithium-ion batteries offer a number of benefits that make them well-suited to energy storage for a wide range of applications. Some of these benefits include:

- **High energy density:** Lithium-ion batteries can store a large amount of energy in a small volume and can be very light.
- **High power density:** Lithium-ion batteries have the capability to support very high power demands.
- **Rechargeability:** Lithium-ion batteries can be charged hundreds to thousands of times.
- **Portability:** The combination of high energy density and rechargeability makes lithium-ion batteries useful for powering portable devices.