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# Battery and accumulator testing and certification

## Testing and certification services

Through our global network of laboratories, Eurofins can help you ensure your cell, battery and accumulators meet the electrical, mechanical, performance, reliability and safety compliance requirements to attain the certifications you need for faster market access.

We offer a single-source for battery testing and certification for all battery chemistry types as stand-alone products, and special requirements for implemented batteries. Our services include testing and certification for compliance with national and international Regulations and Directives including:

- **Regulation (EU) No. 1103/2010**, pursuant to 2006/66/EC with regards capacity labelling of portable secondary (rechargeable) and automotive batteries and accumulators.
- **European Directive 2006/66/EC** on batteries and accumulators and waste batteries and accumulators, and its amendments in Directive 2013/56/EU for CE marking.
- **United Nations (UN) 38.3** regulations on the transport of dangerous goods.
- **European ATEX Directive 2014/34/EU and IECEx scheme** special requirements for implemented cells and batteries.
- **European Low Voltage Directive 2014/35/EU** safety requirements for implemented cells and batteries.

## Cells and batteries

We offer primary and secondary battery testing at both cell and pack level for compliance with the following standards and certifications for lead-acid (VRLA, SLA..etc.), nickel (NiMH, NiCd… etc.) and lithium (Li-ion & Li-metal) systems, including:

- IEC/EN 60086-1
- IEC/EN 60086-2
- IEC/EN 60086-5
- IEC/EN 62133-1
- IEC/EN 62133-2
- IEC/EN 60896-11
- IEC/EN 60896-21
- IEC/EN 60896-22
- UN/DOT 38.3
- IEEE 1625
- IEEE 1725
- GR-4228-CORE VRLA
- GR-3150-CORE
- GR–3168–CORE
- GR-3020-CORE
- SAE J2380
- UL 2054
- UL 1642
- VZ.TPR.9802
- SAE J2380

## Electric accumulators (portable cells and batteries)

Specific tests and certifications are available for attaining compliance for secondary cells and batteries for portable applications, including nickel and lithium systems:

- IEC/EN 61960
- IEC/EN 62133
- IEC/EN 61951-1
- IEC/EN 61951-2
- IEC/EN 61959

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## Test criteria evaluated

The test criteria evaluated varies depending on the battery chemistry-type, application and whether the product under test is a primary or secondary cell, battery or accumulator. For example lithium metal and lithium ion batteries require transport specific tests for UN 38.3 compliance and VRLA batteries require GR-4228-Core safety and performance testing for the telecommunication industry.

**Specification**

- Markings and designations
- Dimensions

**Performance**

- Discharge test
- Shelf life and Charge retention
- Capacity measurement
- Battery cycling test
- Battery life test

**Mechanical**

- Impact
- Crush
- Shock
- Earthquake simulation
- Vibration
- Drop tests (free-fall)

**Safety & electrical**

- Short-circuit tests
- Electrostatic discharge (ESD)
- Gassing
- Operational safety
- Thermal runaway
- Leakage test
- Incorrect installation
- Reverse polarity
- Over charging
- Over discharge
- Forced discharge
- Continuous charging

**Environmental**

- Altitude simulation (low pressure)
- Temperature
- Humidity
- Immersion
- Salt-fog
- Fire propagation & projectile hazard

# Special requirements for implemented batteries

## Batteries and cells for use in explosive atmospheres

We offer testing and certification of cells and batteries implemented in products used in explosive atmospheres to comply with intrinsic safety "i" requirements under ATEX Directive 2014/34/EU and/or the IECEx scheme.

**IEC/EN 60079-11 Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"** chapter 10.5 Tests for cells and batteries.

## Equipment containing batteries and their protection circuits

It is a requirement under the European Low Voltage Directive 2014/35/EU to ensure the safety of batteries and their protection circuits in audio/video, information technology equipment. We offer safety testing of these products for compliance with **IEC/EN 62368-1 (Annex M).**