



# **BATTERY** TESTING, APPROVAL AND CERTIFICATION SERVICES

## BATTERY

Developing the highest quality batteries that are safe and reliable is a complex challenge in today's competitive market. SGS accredited testing laboratories, and specialized teams of local experts offer a range of services to manufacturers and buyers in the battery industry.

Global standards and customer requirements define the performance, reliability and endurance of Lithium batteries. Ranging from small cells to heavy vehicle battery systems, the SGS, global network is ready to provide all testing, approval, certification and inspection services during product generation, operation and disposal.

SGS laboratories are a recognized partner of the automotive and battery industries. SGS Battery Testing labs provide all of the technical verification required. The customer benefits from the laboratory's ISO 17025 accreditation as well as from its long-standing practical experience with lithium ion batteries.

## TESTING FACILITIES COVER STRINGENT SPECIFICATIONS

- Characterisation/Performance
- Impedance, Energy efficiency, SOC, Driving cycles
- Durability (fully-automated testing for BEV/(P) HEV)
- Calendric/Cyclical (electrical, thermal, combined)
- Comprehensive facilities for environmental assessment
- Temperature, Humidity, Condensation
- Vibration, Shock (300kN shaker, also across different temperatures)
- Immersion, Salt mist, Corrosion
- IP tests, Spray, Splash, Wave water, Dust
- Transport with height simulation (altitude)
- EMC laboratory for EV and HEV-batteries
- Safety Abuse tests in 5 special rooms
- Nail penetration, Crush
- Drop test/Stack test
- Crash, Rollover
- Overcharging, Over-discharge, Rapid charging
- External short circuit
- Thermal stability, Simulated fuel fire
- High-voltage safety, Isolation (ISO 6469, UN ECE)

## COMPLIANCE WITH EUROPEAN DIRECTIVES

We can help you with the necessary proof in order to meet the:

- General Product Safety Directive (2001/95/EG)
- Low Voltage Directive (2006/96/EG)
- Waste Directive on Batteries and Accumulators (2006/66/EC)

## TESTING & CERTIFICATION SERVICES FOR CONSUMER ELECTRONIC PRODUCTS

- ANSI C18.1M, ANSI C18.2M, ANSI C18.3M (Portable Cells and Batteries–Safety Standards)
- IEEE 1625 (Multi-Cell Mobile Computing Devices Batteries)
- IEEE 1725 (Cellular Telephones)
- EN/IEC 60086 (Primary Batteries)
- EN/IEC 61960 (Secondary Lithium Cells and Batteries for Portable Applications)
- EN/IEC 62133, JIS C8714 (Safety Requirements for Portable Cells/Batteries)
- JIS C8714, TIS 2217-2548 (Safety tests for Portable Lithium Ion Secondary Cell/Battery)
- UL 1642, UL 2575 (Power Tools)



## TESTING & CERTIFICATION SERVICES FOR AUTOMOTIVE TRACTION BATTERIES AND COMPONENTS

Whether cells, protection circuits, battery-management systems, modules or battery packs, SGS tests to the OEM's specifications and established standards.

- BATS0 01 (Lithium batteries for LEV)
- IEC 61982 (Non Lithium Dynamic Endurance, Performance, Life Cycle)
- ISO 6469 EV (Safety, Electrical Hazards)
- ISO 12405 (Reliability, Performance, Safety, High Power/Energy Packs/Systems)
- ISO 16750 (Road vehicles- Environmental conditions)
- ISO 26262 (Functional Safety)
- ISO/IEC 62660 (Performance, Reliability, Abuse Lithium cells)
- JIS D5305 (Safety, Functional Safety, Protection, Electric Hazards)
- GB/Z 18333 Li-Ion EV
- OEM Specifications
- SANDIA, SAND 2005-3123 FreedomCAR
- SAE J2464 (Energy Storage Systems (RESS) Safety and Abuse Testing)
- SAE J2929 (Electric and Hybrid Vehicle Propulsion Battery System Safety Standard)
- SAE J2380 (Vibration Testing)
- SAE J2288 (Life Cycle Testing Modules)
- SAE J2185 (Life Test for Heavy-Duty Storage Batteries)
- UN ECE R 10 Radio Interference, EMC
- UN ECE R 100 EV Safety (including latest revisions, ReESS)
- US ABC Technology Assessment Test Plan



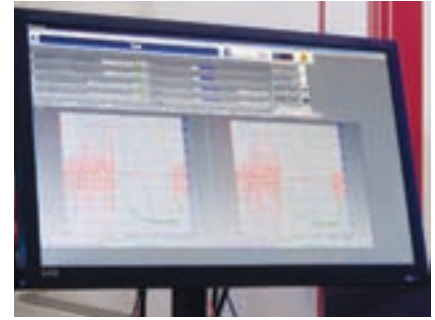
- USCAR/EUCAR
- VDA Test Specification for Li-Ion Battery Systems
- QC/T 743 Li-Ion EV
- 2007/46/EG Directive for Approval of Motor Vehicles and their Components
- 2004/104/EG (Radio Interference of Vehicles Directive)

## TESTING & CERTIFICATION SERVICES FOR BATTERY TRANSPORTATION

- UN Recommendation on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, Sub-section 38.3
- EC/IEC 62281: Safety of primary and secondary lithium cells and batteries during transport
- ADR (European Agreement Concerning Carriage of Dangerous Goods by Road)

## MASTERING THE CHALLENGES OF ELECTRIC MOBILITY

SGS experts are actively working in the area of standardisation. Our testing and consulting services are targeted at the rapid technological changes within the field of electric mobility. We can support you with economically sensible product qualification concepts, homologation services and our SGS global network.



### GLOBAL

[www.sgs.com/batterytesting](http://www.sgs.com/batterytesting)  
[battery@sgs.com](mailto:battery@sgs.com)

### GERMANY

SGS GERMANY GmbH  
 Hofmannstraße 50  
 D-81379 München  
 t +49 89 787475 - 101  
[cqe@sgs.com](mailto:cqe@sgs.com)

### USA

SGS NORTH AMERICA INC.  
 620 Old Peachtree RD  
 Suite 100, Suwanee,  
 GA 30024, USA  
 t +1 770 570 1800  
[ee.northamerica@sgs.com](mailto:ee.northamerica@sgs.com)

### TAIWAN

SGS TAIWAN LTD.  
 No.31, Wu Chyuan Road,  
 New Taipei Industrial Park,  
 WuKu District,  
 New Taipei City 24886,  
 Taiwan (R.O.C)  
 t +886 2 2299 3279 Ext.3610 - 3614  
[tw.rel.cs@sgs.com](mailto:tw.rel.cs@sgs.com)

### SHANGHAI

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD.  
 2/F, Building 9, No.69,  
 Block 1159, Kangqiao Road East,  
 Kangqiao Industrial Park,  
 Pudong District,  
 Shanghai 201319, China  
 t +86 021 6119 6462/6469  
[sh.auto@sgs.com](mailto:sh.auto@sgs.com)

### FRANCE

SGS CTS  
 Bâtiment 8, Parc du Golf  
 CS 30584  
 Aix en Provence 13594, France  
 t +33 1 41 24 87 48  
[ee.france@sgs.com](mailto:ee.france@sgs.com)

[WWW.SGS.COM](http://WWW.SGS.COM)

WHEN YOU NEED TO BE SURE

**SGS**