Lithium Ion Batteries Standards

1- International Standards

(Vote from participating countries)

United Nations

Recommendations on the Transport of Dangerous Goods,

Manual of Tests and Criteria, Part III, Section 38.3

International Electrotechnical Commission

IEC 62133: Secondary Cells and Batteries Containing Alkaline or Other Non-acid Electrolytes — Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for Use in Portable Applications

IEC 62281: Safety of Primary and Secondary Lithium Cells and Batteries During Transportation

IEC 62660-1, Ed 1 Dec 2010,"Secondary Li-ion cells for the propulsion od electric road vehicles – Part 1: performance testing

IEC 62660-2, Ed 1 Dec 2010, "Secondary Li-ion cells for the propulsion of electric road vehicles – Part 2: reliability and abuse testing.

International Standard Organisation

ISO 26262, Nov 2011, "Road vehicles – Functional Safety

ISO 12405-1:2011 « Electrically propelled road vehicles – test specification for Lihium-ion traction battery packs and systems – part 1 : high power applications »

ISO 12405-2:2012 « Electrically propelled road vehicles – test specification for Lihium-ion traction battery packs and systems – part 2 : high energy applications »

ISO/DIS 12405-3:2013 "Electrically propelled road vehicles - Test specification for Lithium-ion traction battery packs and systems -- Part 3: Safety performance requirements"

2- National organizations

Tests manuals from the US DOE 

US ABC Technology Assessment plan, Issued November 30,2009

INL/EXT-07-12536 Battery test Manual For Plug-In Hybrid Electric Vehicles, Revision 0, Issued March 2008

SAND 2005-3123 Freedom CAR Electrical Energy Storage System Abuse Test Manual For Electric and Hybrid Electric Vehicle Applications, Issued June 2005

INEEL/EXT-04-01986 Battery Technology Life verification Test Manual, Issued February 2005 and Electric Vehicle Battery test Procedures Manual, Revision 2, Issued January 1996

European Council for Automobile R&D (EUCAR) 

Manual of tests and criteria

3 -Standards from groups initiative

Underwriters Laboratories: 

UL 1642: Lithium Batteries

UL Subject 2580: Batteries For Use in Electric Vehicles

UL Subject 2271: Batteries For Use in Light Electric

Vehicle Applications

UL 1973: (Proposed) Batteries for Use in Light Electric Rail

(LER) Applications and Stationary Applications

UL 2054: Household and Commercial Batteries

UL 2575: Lithium Ion Battery Systems for Use in Electric Power

Tool and Motor Operated, Heating and Lighting Appliances

Institute of Electrical and Electronics Engineers 

IEEE 1625: Rechargeable Batteries for Multi-Cell Mobile

Computing Devices

IEEE 1725: Rechargeable Batteries for Cellular Telephones

National Electrical Manufacturers Association 

C18.2M: Part 2, Portable Rechargeable Cells and Batteries — Safety Standard

Society of Automotive Engineers 

SAE J2929, Feb 2011 “Electric and Hybrid Vehicle Propulsion Battery System Safety Standard - Lithium-based Rechargeable Cells”

SAE J2344, March 2010 “Guidelines for Electric Vehicle Safety”

SAE J1772, Jan 2010 “Electric Vehicle Conductive Charge Coupler”

SAE J2464, Nov 2009 “Electric and Hybrid Electric Vehicle Rechargeable Energy Storage System (RESS) Safety and Abuse Testing”

SAE J2380, March 2009, “Vibration Testing of Electric Vehicle Batteries”

SAE J2289, July 2008, Electric Drive Battery Pack System: Functional Guidelines”

SAE J1798, July 2008, Work in progress “Recommended Practice for Performance Rating of Electric Vehicle Battery Modules”

SAE J1797, June 2008, “Recommended Practice for Packaging of Electric Vehicle Battery Modules”

SAE J 2288, 2008 “Life Cycle Testing of Electric Vehicle Battery Modules”

SA J2847-1/2/3 2011 “Communication between Plug-in vehicles and the Utility grid”

Battery Safety Organisation

BATSO 01: (Proposed) Manual for Evaluation of Energy Systems for Light Electric Vehicle (LEV) — Secondary Lithium Batteries

Telcordia

Generic Requirements for Secondary Non-Aqueous Lithium Batteries

Japanese Standards Association

SBA S 1101: 2011 “Tests and Requirements of Safety for Secondary Lithium Cells and Batteries, for use in Industrial Applications” , , published on July 29, 2011 by Battery Association of Japan

JIS C8714: Safety Tests for Portable Lithium Ion Secondary

Institut National de l’environnement et des risques industriels (INERIS) France

ELLICERT Référentiel de certification des cellules et packs pour véhicules électriques et hybrides rechargeables