International Standards

Jean-Marie Bodet

AIB STABALID STALLION Meeting
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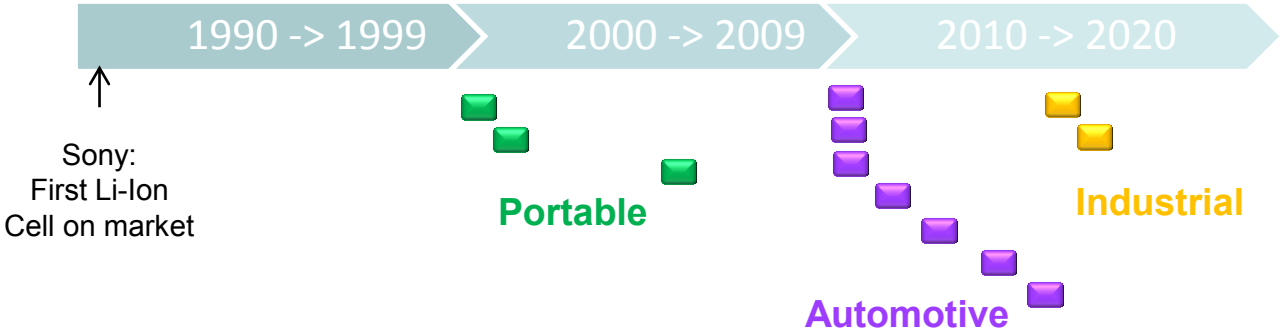
Agenda

1. Introduction
2. Portable Applications
3. Automotive Applications
4. Industrial Applications
5. Conclusions

1- Introduction

Standard and regulations

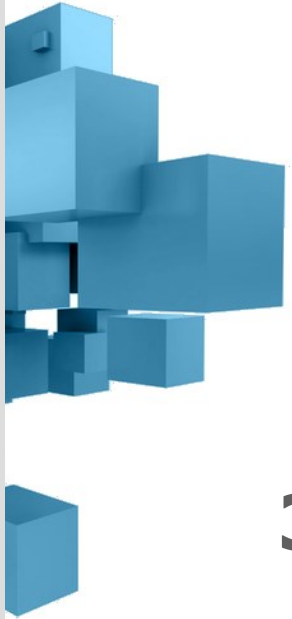
- Objective comparison of battery manufacturers
- Driving toward the safe commercial use of battery system
- Developing the level of confidence on the technology
- Stabilizing the business in avoiding introduction of products out of quality.
- Supporting the development of world trade exchanges



2. Portable Applications

2- Standard for Portable Applications

- **IEC 61960** Ed 3.0 - Performances
  - 1rst Edition : ---------- 2000-11
  - Update Committee Draft: ---------- 2013-10
  - Forecasted Publication: ---------- 2016-06
- **IEC 62133- 2** Ed 3.0 - Safety
  - 1rst Edition : ---------- 2002-10
  - Update Committee Draft: ---------- 2013-11
  - Forecasted Publication: ---------- 2016-09
- **IEC 62466** Ed 1.0 - Sec Lithium for watch batteries
  - 1rst Edition : ---------- 2009-06

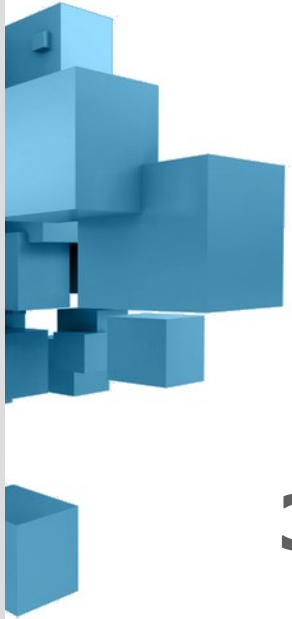


3. Automotive Applications

2- Standard for Automotive Applications

- **IEC 62660-1** Ed 1.0 - Cell - Performances Testing
  - Publication: ---------- 2010-12
- **IEC 62660-2** Ed 1.0 - Cell – Reliability and Abuse testing
  - Publication: ---------- 2010-12
- **IEC 62660-3** Ed 1.0 - **Safety** Requirements (with criteria)
  - Forecasted Publication : ---------- 2016-03

- **ISO 12405-1** Ed 1.0 - Battery Syst. – High Power Applications
  - Publication: ---------- 2011-08
- **ISO 12405-2** Ed 1.0 - Battery Syst. – High Energy Applications
  - Publication: ---------- 2012-07
- **ISO 12405-3** Ed 1.0 - **Safety** Requirements (with criteria)
  - Forecasted Publication : ---------- 2014-06
- **ISO 18300** Ed 1.0 - Li-Ion cell and battery coupled with other type of battery and capacitor
  - Forecasted Publication : ---------- 2015-08



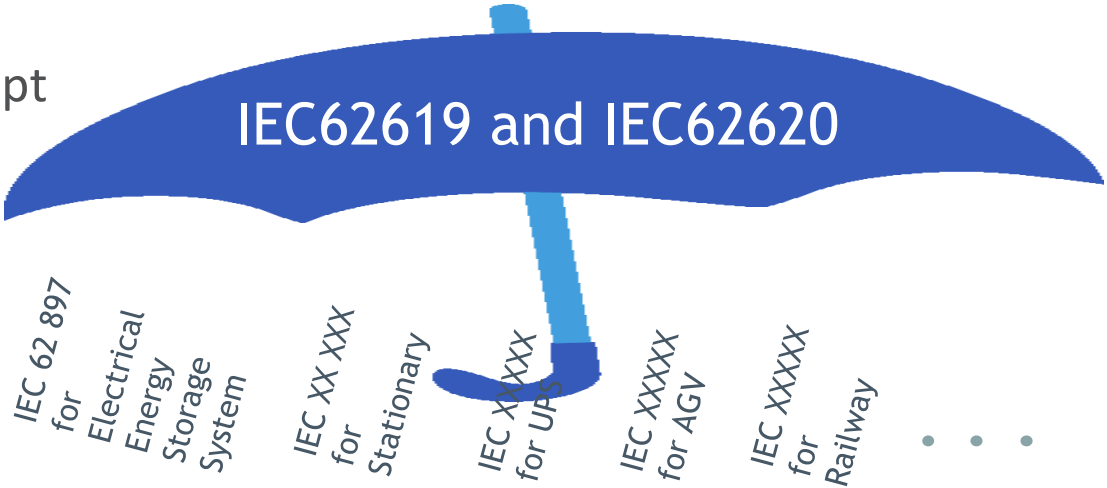
3. Industrial Applications

2- Standard for Industrial Applications

- **IEC 62619** Ed 1.0 - Cells and Batteries - Safety
  - Committee Draft: ---------- 2013-10
  - Forecasted Publication: ---------- 2016-09
- **IEC 62620** Ed 1.0 - Cells and Batteries – Performances
  - Published : ---------- 2014-11
- **IEC 62897** - Stationary Energy Storage Systems with Li Battery - Safety
  - New Proposal

2- Standard for Industrial Applications

Concept



IEC62619 and IEC62620 are developed as *"umbrella Standards"* which cover various industrial applications

Therefore

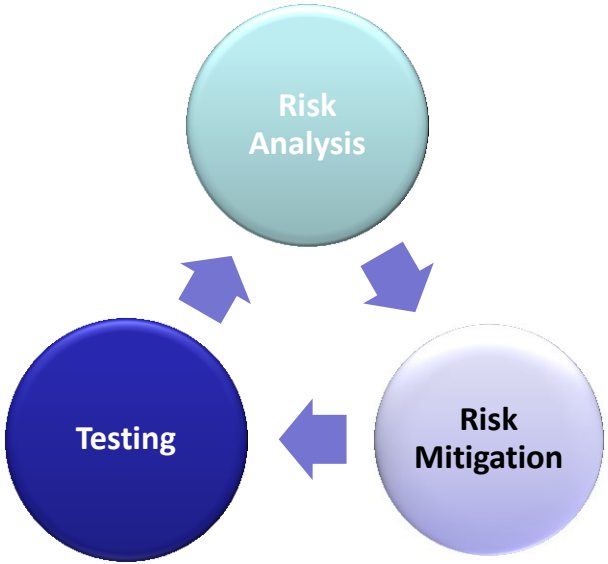
They have minimum requirements
which are considered as common ones

2- Standard for Industrial Applications

Safety Concept

-1-

Identify the risk during the cycle life of the battery system

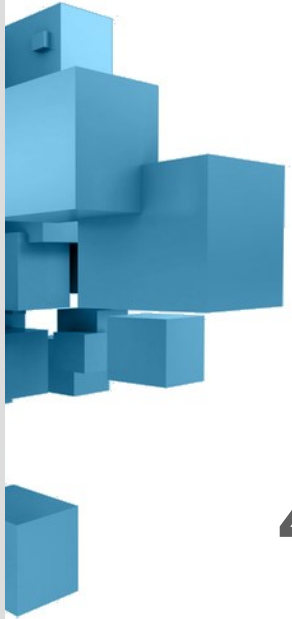


-2-

*Implement proper **process** And **design** activity to reach safety goals*

-3-

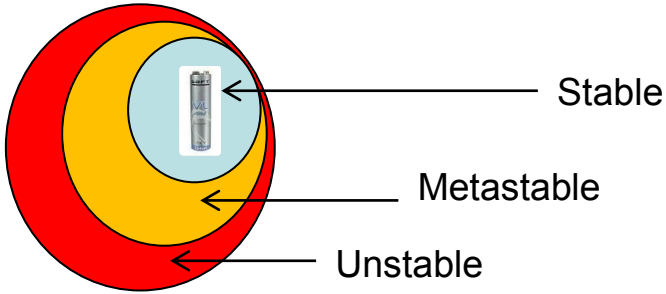
Demonstrate the mitigation of the risk through ad-hoc tests



4. Conclusion

4- Conclusion

- Standards acknowledge Li-Ion cells demonstrates thermal instabilities



2-10 MJ/kg

- Safety is the mitigation of the risks
- Safety is obtained through a process aiming to keep the Li-ion cells in their stable domain during all the product life and in case it is not possible to reduce the risk linked to the thermal runaway of one cell.