

EVS-GTR Task Force #3

Electrolyte Leakage

October, 15, 2014

12:15 pm

Meeting Minutes

Please find below a summary of our discussion during the face to face meeting.

Definitions

- Definition of different types of electrolyte agreed:
 - Aqueous electrolyte: An aqueous electrolyte is an electrolyte based on water solvent for the compounds (e.g. acids, bases) providing conducting ions after its dissociation.
 - Non-aqueous electrolyte: A non-aqueous electrolyte is an electrolyte not based on water solvent.

- Leakage definition needs further discussion. Lists of different existing definitions are provided by JRC. Please give your feedback on leakage definition by end of October.
 - (FMVSS 305) Electrolyte Spillage: The fall, flow, or run of propulsion battery electrolyte in, on, or from the vehicle, including wetness resulting from capillary action.
 - (SAE J2464) Release: any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.
 - (IEEE 1578) Electrolyte Release: Any escape of electrolyte from B, whether in vapor, liquid or gel form.
 - (UN38.3) Leakage: visible escape of electrolyte or other material from a cell or battery or the loss of material (except battery casing, handling devices or labels) from a cell or battery such that there is loss of mass. => can be a good starting point
 - (UNECE R100.02) Both terms are used, however no differentiation is specified.

Non-aqueous electrolyte

- It was agreed during the meeting to propose “no liquid electrolyte leakage inside passenger compartment and outside vehicle” for non-aqueous electrolyte. The present requirement in GTR-draft is 7%, which can be very high for this type of electrolyte.
- *For electrolyte vapor/gas:* JRC is planning to do experiment on ‘single cell’ to confirm the theoretical analysis. They will give priority to measure the amount of free electrolyte coming out of cell and then evaporation over time. Prismatic and pouch type cell will be used. Further details will be shared by JRC in a later stage.
- JRC expects to provide this research result after the 6th GTR-EVS meeting in Korea.
- Task force will discuss further on this topic after the JRC experiment

Other issue discussed during the meeting

- Observation period increase from 30 min to 60 min: at present R100 and FMVSS 305 requires 30 min observation period. This remains an open issue.
- Gas analysis results from INERIS shows that there is not much difference between EV and conventional vehicles.
- JARI has done comparison of fires in lithium-ion battery vehicles and gasoline vehicles. Test results indicated no positive reason for handling a lithium-ion battery installing vehicle and a gasoline vehicle differently with regard to safety measures against harmful gases that may be generated around the vehicle during combustion.
- The recharge document shows some venting gas analysis (recharge report, table 4&5)

Next meeting: if required an audio of 1h before the Korea meeting to discuss the 'leakage' definition

Presentation for 6th EVS meeting: I will send you the TF3 progress report by beginning of November for your comments

Link to discussed documents:

Recharge report: <http://www.rechargebatteries.org/lithium-ion-battery-safety/>