



Gas management / venting

EC's perspective

Washington DC, June 2015

UNECE Regulation No. 100.02 interpretation by the EC

*Point 6.10. on Emission foresees that, as a general rule, the emission of gases caused by the energy conversion process during **normal** use has to be taken into account and tested for.*

*Under point 6.10.1., **open** batteries are subject to requirements with regard to **hydrogen** emissions*

Closed systems are to be **emission free** under **normal** operation and need not be tested.

This means that closed systems, by definition, cannot emit gases under normal operating conditions.

*Therefore, the provisions in Point 5.1.X by Japan on "Management of the gases emitted from REESS" diverge from the current system in Regulation No. 100.02, as they allow for the emission of hazardous gases under **normal operation**, on condition they are not emitted directly into the passenger compartment and the luggage compartment.*

*Under the current wording in Point 6.10 of Regulation No. 100.02, **under normal operation** there should be **no emissions at all** from systems with a closed chemical process, regardless of whether they are emitted or not into the passenger and/or luggage compartment.*

Operation with a failure or after a crash/accident (i.e. scenarios other than normal use) is another matter, which does not seem to be covered by UNECE Regulation No. 100.02

As a result we have different testing authorities having different interpretations of R100.02 with respect to venting for closed systems.

Suggestions to amend proposal on gas management submitted by Japan (based on R100.02)

6.10. Emissions

Possible gases emitted by the REESS during both normal and abnormal use shall be considered.

N.B. Definitions for normal and abnormal use in the context of the GTR shall be agreed and included

*6.10.1. Open type traction batteries shall meet the requirements of paragraph 5.4. of this Regulation with regard to hydrogen emissions. Systems with a closed chemical process shall be considered as emission-free under normal **use** (e.g. lithium-ion battery).*

*The closed chemical process shall be described and documented by the battery manufacturer in Annex X. Other technologies shall be evaluated by the manufacturer and the Technical Service regarding any possible emissions under normal and abnormal **use**.*

6.10.2. Acceptance criteria

- For hydrogen emissions (open type batteries) see paragraph 5.X.Y of the GTR.

- Possible emission from venting for systems with closed chemical process shall be taken into consideration for both normal and abnormal use. In the case of closed chemical processes where the safety vent/valve opens, the system is no longer considered a closed chemical process.

During a test representative of normal use, closed chemical processes shall not emit gas (eg. Vent).

6.10.3. Hazard prevention

*To prevent explosion, fire or toxicity hazards, vehicle manufacturer shall ensure that no danger of hazardous gases emitted from REESS in the passenger compartment or the luggage compartment in case of the abnormal **use** of REESS.*

The vehicle is designed as to prevent such gases from being emitted directly into the passenger compartment and the luggage compartment (not relevant for post-crash scenarios).

Compliance to this requirement shall be verified by e.g.

- Russian standard known as GOST R 51206-2004 - CONTENT OF POLLUTANTS IN THE AIR OF PASSENGER COMPARTMENT AND CABIN, as suggested by an OEM.

This same procedure shall be used for verification of compliance to normal use requirements (i.e. venting is considered fail)



In the post-crash scenario, ... TBD