EVS Draft-GTR – Venting/Gas Emissions

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Serving society
Stimulating innovation
Supporting legislation
## Interpretation of R100.02 from various certified EU testing bodies

### Testing body A

<table>
<thead>
<tr>
<th>Tests</th>
<th>thermal shock, vibration, external short circuit, overcharge/overdischarge, overtemperature</th>
<th>mechanical shock, mechanical integrity, fire resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venting</td>
<td>Not expected the batteries run into the specified working parameters (normal use)</td>
<td>May occur (foreseeable misuse will be tested)</td>
</tr>
</tbody>
</table>

**If the battery vents under these tests**

FAIL. Battery should be protected enough by electronics and mechanical design to withstand the requirements without any problems

PASS unless flammability level is reached, which might lead to FIRE/EXPLOSION, then it would be a FAIL

### Means of detection

- IR camera
- High speed camera
- Temperature measurement
- Source of ignition is present to evaluate the FIRE/EXPLOSION requirement

### Concerns raised by the Testing body

- Venting should be defined and it should be clearly specified whether it should be allowed or not during the course of each test.
## Testing body B

<table>
<thead>
<tr>
<th><strong>Venting</strong></th>
<th>To allow the generic battery function &quot;venting, the effect of venting shall not lead in general to failure of the test.</th>
</tr>
</thead>
</table>
| **If the battery vents under these tests** | FAIL: If the venting leaking gas does include liquid or solid parts of electrolyte.*  
PASS: If the venting leaking gas does not include liquid or solid parts of electrolyte.* |
| **Means of detection** | High speed camera |

* Waiting for further clarification
<table>
<thead>
<tr>
<th>Tests</th>
<th>NORMAL: thermal shock, vibration, Overcharge/overdischarge, overtemperature</th>
<th>ABNORMAL: mechanical shock, mechanical integrity, short circuit, fire resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venting</strong></td>
<td>As such, venting itself would not constitute failure, unless it would also classify as &quot;Rupture&quot; or &quot;Explosion&quot;.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the vent remains open once activated, this would presumably be considered a failure mode.</td>
<td></td>
</tr>
<tr>
<td><strong>If the battery vents under these tests</strong></td>
<td>PASS: If the safety vent closes back</td>
<td>PASS: If the safety vent remains open</td>
</tr>
</tbody>
</table>

Different testing bodies have different interpretation
Should be avoided for GTR
Informal Group to decide how to treat venting
Evaluation of vehicle design against immersive gases:
Here we cannot follow the statements of the Japanese proposal. It is practical impossible to do an serious construction review for this issue only by visual inspection and / or drawing. How do you check minimal gaps in reason of production tolerances, minimal assembly mistakes etc.? This has to be tested in the end application, but unfortunately we also have no real idea how this could be tested there.