Current Status of Discussion on New Standards for High-Pressure Hydrogen Containers in Japan

Japan Automobile Standards Internationalization Center (JASIC)
24-26 September, 2008
UN/ECE/WP29/AC3 GRSP HFCV-SGS 4th meeting
Current Status of Discussion on New Standards for Containers

* Japan has been discussing the new standards according to the original schedule.

In future, Japan plans
* To develop the draft Japanese standards by Oct. 2008 by focusing on standardization in Japan, with a view to issuing the standards in Mar. 2010 (a change to be made to the standards: from the current 35 MPa to 70 MPa);

* To shift the focus of activities on international harmonization after completion of development of the draft Japanese standards in Oct. 2008 so that Japan can contribute to development of the draft GTR during 2009 in collaboration with ISO, SAE, etc.
Outline of New Standard for Containers

Current (JARI S 001)

- Maximum Working Pressure 35 MPa
- Strength guaranteed in a brand-new cylinder = Independent Loading Tests
- Burst Pressure > Working Pressure x 2.25
- Fatigue Life > 11,250 Cycles
- Materials Designated (A6061-T6, SUS316L)

New Standard

- Maximum Working Pressure 70 MPa
- Durability strength guaranteed in consideration of Vehicles Usage and Lifetime.
  = Sequential Loading Test (scratch/over fill/low and high temperatures/stress rupture/chemical exposure/fatigue/proof pressure/burst)
- Burst Pressure
  Working Pressure reduced (After Durability Test)
- Fatigue Life cycles reduced

Current standard applied

New standard applied (Inner volume the same; CFRP reduced)

- Safety guaranteed
- Lighter weight and Lower cost (reduced CFRP and used lower grade)
# Draft Schedule with International Harmonization

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Acquisition for container@JARI</td>
<td>Deliberations</td>
<td>Draft</td>
<td>Issue(Step-1)</td>
<td></td>
<td></td>
<td>Technical Norms for material</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Proposals</td>
<td>Data Acquisition @PLI</td>
<td>TIR</td>
<td>Deliberations</td>
<td>Issue</td>
<td></td>
<td>Collaborate with SAE using each data-based</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2\textsuperscript{nd} DIS Rejected</td>
<td>3\textsuperscript{rd} DIS Rejected</td>
<td>Issue?</td>
<td></td>
<td></td>
<td></td>
<td>Harmonization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of gtr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Issue</td>
</tr>
</tbody>
</table>