

## Technical Comments to Draft November 8, 2010-TF-Berlin

Request or	Ref. Clause No./ Annex	Text	Proposed change by the Requestor	Comment (justification for change)
JASIC	B.3.19	B.3.19 Service Life means the maximum time period for which service (usage) is qualified and /or authorized.	B.3.19 Service Life of container means the life time starting with the first day of Proof Pressure Test ( B.5.1.2.1/ B.6.2.3.1 ) and ending with the last day of operation.	/ Proof Pressure test day is appropriate as the starting day. This day will be same as the day of manufacture of the Label on container.
JASIC	B.3.20	B.3.20 Date of Removal from Service means the calendar date ( month and year ) specified for removal from service.	B.3.20 Date of Removal from Service means the calendar date ( <b>day</b> , month , and year ) specified for removal from service.	/ To make clear the day.
JASIC	B.5.1.1.1	<b>B.5.1.1.1 Baseline Initial Burst Pressure.</b> All containers tested must have a burst pressure within $\pm 10\%$ of $BP_0$ and greater than or equal to <b>180%</b> NWP. The midpoint $BP_0$ must be greater than 200% NWP to accommodate $\pm 10\%$ manufacturing variability.	All containers tested must have a burst pressure within $\pm 10\%$ of $BP_0$ and greater than or equal to <b>225%</b> NWP.	/ $BP_0$ of 200% $\pm 10\%$ is not enough even for CFRP vessel. / The criterion should exceed 2.1NWP. / 2.25NWP, traditional value (NGV) is appropriate as $BP_0$ . / 225% NWP is same as Japanese regulation.
JASIC	B.5.1.1.2	<b>B.5.1.1.2 Baseline Initial Pressure Cycle Life.</b> Three (3) randomly selected new container shall be hydraulically pressure cycled to 125% NWP without rupture for <b>22,000 cycles</b> or until leak occurs (B.6.2.2.2 test procedure). Leakage shall not occur within the initial number of cycles (#Cycles). For the 15 years service life, the required #Cycles cannot be greater than 11,000, and it could be set by the Contracting Party at a lower number but not lower than 5,500 cycles.	Three (3) randomly selected new container shall be hydraulically pressure cycled to 125% NWP without rupture for <b>four times of the initial number of cycles ( 4 X ( # Cycles ) )</b> or until leak occurs (B.6.2.2.2 test procedure).	/ Four times of the initial number of cycles is traditionally used as maximum number of cycles (ANSI/CSA NGV2-2000) / Four times of the initial number of cycles is same as Japanese regulation.

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<p>JASI C</p>	<p>B.5.3.1.2</p>	<p><b>B.5.3.1.2 Fueling port label:</b> A label shall be provided close to the receptacle, for example, inside a refilling hatch, showing the following information:</p> <p>a) For gaseous hydrogen: Fuel type, NWP, date of removal from service of containers.</p>	<p>a) For gaseous hydrogen: Fuel type, NWP, date of removal from service of containers. <b>Contracting parties may specify additional labeling requirements.</b></p>	<p>/ Additional sentence is same as B.5.1.5 ( Labeling)</p>
<p>JASI C</p>	<p>B.6.2.2.2</p>	<p>B.6.2.2.2 Pressure Cycling Test (Hydraulic). test shall be performed in accordance with the following procedure:</p> <p>a) Fill the container with a non-corrosive fluid.</p> <p>b) Stabilize the temperature of the container and fluid at the specified temperature and relative humidity at the start of testing; maintain the environment, fueling fluid and container skin at the specified temperature for the duration of the testing. The container temperature may vary from the environmental temperature during testing.</p> <p><b>c) Pressure cycle between less than 2 MPa and the target pressure at a rate not exceeding 10 cycles per minute for the specified number of cycles.</b></p> <p>d) Maintain and monitor the temperature of the hydraulic fluid within the container at the specified temperature.</p>	<p>c) <b>Pressure cycle between less than 2 MPa and the target pressure for the specified number of cycles. The target pressure shall be hold for 60 seconds or longer.</b></p>	<p>/ This is same as Japanese regulation.</p>

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<p>JASI C</p>	<p>B.6.2.3.2</p>	<p><b>B.6.2.3.2 Drop (Impact) Test (Unpressured).</b>                   Following the drop impact, the container that has been subjected to the 45° impacts should then be subjected to further testing as specified in B.5.2.2. The container(s) subjected to horizontal and vertical drop impacts, if different from the container subjected to a 45° drop impacts, should be subjected to <b>1000 hydraulic pressure cycles</b> at 20 (±5)°C per the test procedure defined in B.6.2.2.2.</p>	<p>The container(s) subjected to horizontal and vertical drop impacts, if different from the container subjected to a 45° drop impacts, should be subjected to <b>hydraulic pressure cycles same as the initial number of cycles ( # cycles )</b> at 20 (±5)°C per the test procedure defined in B.6.2.2.2.</p>	<p>/ The strength after horizontal and vertical drop impacts should be confirmed.                  / This is same as Japanese regulation.</p>
<p>JASI C</p>	<p>B.6.2.5.2</p>	<p><b>B.6.2.5.2 Engulfing fire test:</b>                   Use a uniform fire source that is 1.65 meters long (65 inches). Beginning five minutes after the fire is ignited, maintain an average flame temperature of not less than 430 degrees Celsius (800 degrees Fahrenheit) as determined by the average of the two thermocouples recording the highest temperatures over a 60 second interval</p>	<p>Please find attached file.</p>	<p>/ Description of the test procedure same as NGV</p>

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<p>JASI C</p>		<p><b>B.7.1.3 Verification Tests for Consistency of the Qualification Batch</b>                  If #Cycles (established in B.5.1.1.2) is less than 11000, then the pressure cycle life, PCL, (number of cycles until leak) of each container tested in B.5.1.1.2 shall be recorded. The manufacturer will supply documentation to establish the midpoint pressure cycle life of new storage containers, PCL<sub>0</sub>. If PCL<sub>0</sub> is less than 11,000, or if the PCL any of the three containers tested is less than 11,000 and not within ±25% of PCL<sub>0</sub>, then three (3) containers will be required to undergo the testing in B.5.1.2, the Durability Performance (Hydraulic) Tests. If the PCL of each container greater than 11,000 or is within ± 25% of PCL<sub>0</sub>, then one (1) containerl will be required to undergo testing according to B.5.1.2.</p>	<p>B.7.1.3 should be moved to a part of <b>B.5.1.2 (Hydraulic sequential tests)</b></p>	<p>This is not type approval requirements but a part of verification test.</p>
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		<p>B.6.2.1.5 Coating test. For containers with external environmental coatings, coatings shall be evaluated as follows:</p> <ul style="list-style-type: none"><li>a) adhesion strength based on ISO 4624; the coating shall exhibit an adhesion rating of 4.</li><li>b) flexibility based on ASTM D522 Method B with a 12.7 mm mandrel at the specified thickness at -20C; the coating shall exhibit no apparent cracks</li><li>c) impact resistance in accordance with ASTM D2792. The coating at room temperature shall pass a forward impact test of 18 J.</li><li>d) water exposure based on ASTM G154 using an exposure of 1000 hours. There shall be no evidence of blistering. The adhesion shall meet a rating of 3 when tested in accordance with ISO 4624.</li><li>e) salt spray exposure in accordance with ASTM B117 using an exposure of 500 hours. There shall be no evidence of blistering. The adhesion shall meet a rating of 3 when tested in accordance with ASTM D3359.</li></ul>		<p>It is necessary to define the applicable container. This test is expected to be applied to seamless steel containers.</p>
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