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**ECONOMIC COMMISSION FOR EUROPE**

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Safety Committee and the  
Working Party on the Transport of Dangerous Goods  
(Geneva, 13-23 September 2005)

**STANDARDS**

**Reference to EN Standards in Chapter 6.9**

**Transmitted by the European Committee for Standardization (CEN)**

SUMMARY	
<b>Executive Summary:</b>	The proposal seeks to update the references to old EN standards in Chapter 6.9 that have been replaced with EN ISO Standards.
<b>Action to be taken:</b>	Submit this proposal to the WG Standards for review and recommendations to the Joint Meeting.

**Background**

At the October 2004 session of the Working Party on the Transport of Dangerous Goods, Finland (INF.26) mentioned that EN 61:1977 and EN 63:1977 in Chapter 6.9 were obsolete standards and should be replaced with more recent international standards (see TRANS/WP.15/181, paras.6-9). The Working Party recommended that the proposal to refer to more recent standards be submitted first to the Working Group on Standards of the Joint Meeting.

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**Proposal****Revised references to standards in Chapter 6.9**

6.9.2.10 The overlay laminates used in the joints, including the end joints, the joints of the surge plates and the partitions with the shell shall be capable of withstanding the static and dynamic stresses mentioned above. In order to avoid concentrations of stresses in the overlay lamination, the applied taper shall not be steeper than 1:6.

The shear strength between the overlay laminate and the tank components to which it is bonded shall not be less than:

$$\tau = \frac{Q}{l} \leq \frac{\tau_R}{K}$$

**where:**

$\tau_R$  is the bending shear strength according to **EN ISO 14125: 1998 [three points method]** with a minimum of

$\tau_R = 10 \text{ N/mm}^2$ , if no measured values are available;

Q is the load per unit width that the joint shall carry under the static and dynamic loads;

K is the factor calculated in accordance with 6.9.2.5 for the static and dynamic stresses;

l is the length of the overlay laminate.

6.9.4.2.1 The elongation at fracture according to **EN ISO 527-5:1997** and the heat distortion temperature according to ISO 75-1:1993 shall be determined for the resins to be used.

6.9.4.2.2 The following characteristics shall be determined for samples cut out of the shell. Samples manufactured in parallel may only be used, if it is not possible to use cutouts from the shell. Prior to testing, any liner shall be removed.

The tests shall cover:

- Thickness of the laminates of the central shell wall and the ends;
- Mass content and composition of glass, orientation and arrangement of reinforcement layers;
- Tensile strength, elongation at fracture and modulus of elasticity according to **EN ISO 527-5:1997** in the direction of stresses. In addition, the elongation at fracture of the resin shall be established by means of ultrasound;
- Bending strength and deflection established by the bending creep test according to **ISO 14125: 1998** for a period of 1000 hours using a sample with a minimum width of 50 mm and a support distance of at least 20 times

the wall thickness. In addition, the creep factor  $\alpha$  and the ageing factor  $\beta$  shall be determined by this test and according to EN 978:1997.

- 6.9.4.2.3 The interlaminar shear strength of the joints shall be measured by testing representative samples in the tensile test according to **EN ISO 14130:1997** .
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