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**ECONOMIC COMMISSION FOR EUROPE**

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Lighting and Light-Signalling (GRE)

(Fifty-sixth session, 4-7 April 2006,  
agenda item 9.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 104

(Retro-reflective markings for heavy and long vehicles and their trailers)

Transmitted by the expert from the European Association of Automobile Suppliers (CLEPA)

Note: The text reproduced below was prepared by the expert from CLEPA in order to insert into the Regulation flexing test requirements. This is an additional test to the adhesion strength and resistance to power washing tests, proposed by CLEPA and discussed at the GRE during its fifty-fifth session (TRANS/WP.29/GRE/55, para. 38). The modifications to the current text of the Regulation (Supplement 2 to the original version of the Regulation as well as ECE/TRANS/WP.29/GRE/2006/2) are marked in **bold** characters.

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Note: This document is distributed to the Experts on Lighting and Light-Signalling only.

**A. PROPOSAL**

Annex 8,

Insert a new paragraph 9., to read:

**"9. Flexing**

**9.1. For samples that are to be adhered to a flexible substrate, i.e. tarpaulin, the following shall apply:**

**9.1.1. A specimen of the sample unit that measures 50 by 300 mm shall be bent in 1 s, around a 3.2 mm mandrel with adhesive contacting the mandrel in an interval of 1 second.**

**The test temperature shall be  $23 \pm 2$  °C.**

**Note: For ease of testing, spread talcum powder on the adhesive to prevent sticking to the mandrel.**

**9.1.2. After this test, specimen shall not have cracking of the surface and shall not show any visible change that would reduce its effective performance."**

**B. JUSTIFICATION**

The flexing test is based upon the ASTM D 4956-05 "Standard Specification for Retro reflective Sheeting for Traffic Control", point 7. Test Methods, paragraph 7.9. Flexibility.

The figures have been adapted to conform to European standard values. (The standard is written referring to inches-pounds units) The width and length of the test sample is changed to dimensions commercially available.

The ASTM D 4956-05 is the only standard known dealing with the testing of the flexibility of retro reflective material used on flexible substrate.

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