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**ECONOMIC COMMISSION FOR EUROPE**

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World Forum for Harmonization of Vehicle Regulations

Working Party on Passive Safety

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Item 10(a) of the provisional agenda

**REGULATION No. 16**  
**(Safety-belts)**

Proposal for draft amendments

Proposal submitted by the European Association of Automotive Suppliers (CLEPA) <sup>\*/</sup>

The text reproduced below was prepared by the expert from CLEPA in order to align the current text of the Regulation with alternative standards ISO 139 and ISO 105-B02. It is a revision based on ECE/TRANS/WP.29/GRSP/2006/15 distributed during the fortieth session of the Working Party on Passive Safety (GRSP). The additions to the existing text of the Regulation are marked in **bold** characters, and the deleted parts in ~~double-strikethrough~~.

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<sup>\*/</sup> In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles with respect to passive safety. The present document is submitted in conformity with that mandate.

A. PROPOSAL

Paragraph 6.3.1.2., insert the reference to a new footnote 4/ and footnote 4/ and amend to read:

"6.3.1.2. The width of the strap under load of 980 daN + **100 daN** shall be not less than 46 mm. This dimension shall be measured ~~during the breaking strength~~ **according to the test prescribed in Paragraph 7.4.23. and without with** stopping the machine **at the above mentioned load. 4/**

4/ **The test has not to be performed for woven straps in twill construction with high-tenacity polyester yarns as those webbings are getting wider under load. In that case the width without load shall be  $\geq 46\text{mm}$ .**"

Paragraph 7.4.1.1., amend to read:

"7.4.1.1. Temperature-conditioning and Hygrometrics

The strap shall be ~~kept for at least 24 hours in an atmosphere having a temperature of  $20 \pm 5^\circ\text{C}$  and a relative humidity of  $65 \pm 5$  per cent~~ **conditioned in accordance with ISO 139 (2005), using the alternative standard atmosphere.** If the test is not carried out immediately after conditioning, the specimen shall be placed in a hermetically-closed receptacle until the test begins. The breaking load shall be determined within 5 minutes after removal of the strap from the conditioning atmosphere or from the receptacle."

Paragraph 7.4.1.2.1., amend to read:

"7.4.1.2.1. The provisions of Recommendation ISO 105-B02 (~~1978~~ **2002**) shall apply. The strap shall be exposed to light for the time necessary to produce a contrast equal to Grade 4 on the grey scale on Standard Blue Dye No. 7."

Paragraph 7.4.2.3., should be deleted.

Paragraph 7.4.2.4., renumber as 7.4.2.3.

Paragraph 7.4.2.5., renumber as 7.4.2.4.

Insert new paragraphs 7.4.3. to 7.4.3.3., to read:

"7.4.3. **Width under load**

7.4.3.1. **The test shall be carried out each time on two new samples of strap, of sufficient length conditioned in conformity with the provisions of paragraph 7.4.1.**

7.4.3.2. **Each strap shall be gripped between the clamps of a tensile-testing machine. The clamps shall be so designed as to avoid breaking of the strap at or near them. The speed of traverse shall be about 100 mm/min. The free length of the**

**specimen between the clamps of the machine at the start of the test shall be 200 mm ± 40 mm.**

**7.4.3.3. When the load reaches 980 daN + 100 daN, the machine shall be stopped and the measurement shall be completed within 5 seconds. The test has do be performed separately from the tensile test."**

Paragraph 7.6.2.2., the reference to footnote 4/ and footnote 4/, renumber as footnote 5/.

## B. JUSTIFICATION

Ad paragraph 6.3.1.2.:

Exact measurement of width under load is not feasible without tolerance of reference force (980 daN). In addition the width-under-load-measurement for safety reasons should not be performed during a breaking strength test but in a separate test rather which is respected by reference to a new paragraph 7.4.3. (see below).

Furthermore, and more importantly, certain woven textile are getting slightly wider under load due to binding structure and therefore this requirement is of no use for these kind of textiles and should not be applied to on them, which is reflected in the footnote added to this paragraph.

Ad paragraph 7.4.1.1.:

Currently, the Regulation requires 24 hours duration for conditioning of the samples. This requirement does not take into consideration the real behaviour of materials with respect to how long it takes to reach a maximum degree of saturation with water. For example for Polyethersulphone Fiber (PES), the nature of which is not to absorb a significant amount of water, conditioning is completed when the sample fabric is in balance with surrounding atmosphere. Balance is reached if subsequent weight measurements at 2 hours interval do not show difference in weight of more than 0.25 per cent. ISO 139 (2005) takes advantage of this when for the conditioning mass change of the specimen is constantly checked. Due to this conditioning in accordance with ISO 139 (2005), using the alternative standard atmosphere is current practice of most Technical Services. Hence, the amendment proposed will align today's practice with the Regulation.

The table below gives examples for duration of conditioning to reach the balance mentioned above for some webbing types.

| Webbing type<br>Sample length ~20 cm | Weight new state<br>[g] | Weight after<br>conditioning<br>at 23 °C / 50 per cent<br>[g] | Duration of<br>conditioning<br>[h] |
|--------------------------------------|-------------------------|---|------------------------------------|
|                                      |                         |   |                                    |
| piece dyed                           | 10.02                   | 10.02   | 2                                  |
| spun dyed                            | 10.04                   | 10.04   | 2                                  |
|                                      |                         |   |                                    |

|            |       |       |   |
|------------|-------|-------|---|
| piece dyed | 10.03 | 10.03 | 1 |
| spun dyed  | 10.56 | 10.56 | 1 |

Ad paragraph 7.4.1.2.1.:

The revision of ISO 105-B02 (1978) referred to in the current text of the Regulation is out of date and not even available for purchase anymore. The latest revision is ISO 105-B02 (2002)

Ad paragraphs 7.4.2.3., 7.4.2.4. and 7.4.2.5.:

For safety and practical reasons the measurement of the width under load shall not be performed during the tensile test without stopping the tensile testing machine at a specific load level. As mentioned above "ad paragraph 6.3.1.2.", width-under-load-measurement is suggested in a new paragraph 7.4.3.. Subsequently paragraph 7.4.2.3. should be deleted and paragraphs 7.4.2.4 and 7.4.2.5. should be renumbered accordingly.

Ad paragraph 7.4.3.:

As mentioned above a separate test is suggested for the width-under-load-measurement which is reflected in the new paragraph 7.4.3. and subsequent sub-paragraphs