

**Proposal for amendments to UN Regulation No. 43
document ECE/TRANS/WP.29/GRSG/2018/7 (Safety glazing)**

The aim of this proposal is to clarify the requirements specified in **ECE/TRANS/WP.29/GRSG/2018/7**.

Proposal

Paragraph 5.5.8., amend to read:

"5.5.8. XI In the case of a laminated-glass panes. In addition, the appropriate application will be signified by:

~~/D For panes, which are subject to the 2,260g ball test and the headform test~~ For exterior forward-facing glazing"

In paragraph 8.2.1.1, footnote ⁴ to the table, amend to read:

" ⁴ This test shall only be carried out on **exterior forward-facing** laminated-glass panes bearing the additional symbol /D."

Annex 7

In accordance with the structure dedicated for annexes (Definition of type, General, Tests, Test of resistance to the environment, Optical qualities, etc.), it is proposed to transfer headform test requirement from paragraph 3 of Annex 6 (but with samples size and test interpretation for laminated glass panes from paragraph 3.4.2 of Annex 12) into new paragraph 3 and amend paragraph 4.

Current paragraph 3 is renumbered to paragraph 4 (in this paragraph we will put requirements for headform test, this is for clarity and unification to test structure of other glazing types i.e. windscreens in accordance with Annex 6)

Current paragraph 4 is renumbered to 5

Current paragraph 5 is renumbered to 6

Insert new paragraph 3, to read:

"3. Headform Test

The provisions concerning headform test shall apply to exterior forward-facing laminated-glass panes bearing the additional symbol /D

3.1. Indices of difficulty of the secondary characteristics

No secondary characteristic is involved.

3.2. Number of test pieces

Six flat test pieces measuring (1,100 mm x 500 mm) +5mm/-2mm shall be subjected to testing.

3.3. Test method

3.3.1. The method used shall be that described in annex 3, paragraph 3.1.

3.3.2. The height of drop shall be 1.50 m \pm $\frac{0}{5}$ mm.

3.4. Interpretation of results

3.4.1. This test shall be deemed to have given a satisfactory result if the following conditions are met:

- 3.4.1.1. The test piece yields and breaks, displaying numerous circular cracks centred approximately on the point of impact,
- 3.4.1.2. Tears in the interlayer are allowed, but the manikin's head must not pass through,
- 3.4.1.3. No large fragments of glass shall become detached from the interlayer.
- 3.4.2. A set of test pieces submitted for approval shall be considered satisfactory from the point of view of the headform test if all the tests give a satisfactory result."

Paragraph 4, amend to read (the 2260g ball test is inserted into mechanical strength tests):

"4. Mechanical strength test

- 4.1. Indices of difficulty of the secondary characteristics

No secondary characteristic is involved.

4.2. 2,260 g ball test

The provisions concerning 2,260g ball test shall apply to exterior forward-facing laminated-glass panes bearing the additional symbol /D

- 4.2.1. Twelve square test pieces of 300 mm +10/-0 mm side shall be subjected to testing.

4.2.2. Test method

- 4.2.2.1. The method used shall be that described in Annex 3, paragraph 2.2.

- 4.2.2.2. The height of drop (from the underface of the ball to the upper face of the test piece) shall be 4 m +25/-0 mm.

4.2.3. Interpretation of results

- 4.2.3.1. The test shall be deemed to have given a satisfactory result if the ball does not pass through the glazing within five seconds after the moment of impact.

- 4.2.3.2. A set of test pieces submitted for approval shall be considered satisfactory from the point of view of the 2,260 g ball test if at least eleven of the twelve tests have given a satisfactory result.

4.3. 227 g ball test

- 4.3.1. Number of test pieces

Eight flat samples measuring 300 mm x 300 mm, specially made or cut from the flattest part of a pane shall be tested

- 4.3.1.1. Test pieces can alternatively be finished products that may be supported over the apparatus described in paragraphs 2.1.1. to 2.1.1.3. of Annex 3.

- 4.3.1.2. If the test pieces are curved, care should be taken to ensure adequate contact with the support.

4.3.2. Test method

- 4.3.2.1. The method used shall be that described in Annex 3, paragraph 2.1.

- 4.3.2.2. The height of drop from the underface of the ball to the upper face of the test piece or sample shall be 9 m +25/-0 mm.

4.3.4. Interpretation of results

- 4.3.4.1. The test shall be considered to have given a satisfactory result if the following conditions are met:

- (a) The ball does not pass through the test piece;
- (b) The laminate shall not break into separate pieces;

(c) At the point immediately opposite the point of impact, small fragments of glass may leave the specimen, but the small area thus affected shall expose less than 645 mm² of reinforcing or strengthening material, the surface of which shall always be well covered with tiny particles of tightly adhering glass. Total separation of glass from the reinforcing or strengthening material shall not exceed 1,935 mm² on either side. Spalling of the outer glass surface opposite the point of impact and adjacent to the area of impact is not to be considered a failure.

4.3.4.2. A set of test pieces submitted for approval shall be considered satisfactory from the point of view of the mechanical strength test if at least six of the eight tests have given a satisfactory result."

Annex 1 - Appendix 4, amend to read:

"Laminated-glass panes

(Principal and secondary characteristics as defined in Annex 7 or Annex 9 to Regulation No. 43)

Approval No. Extension No.

Principal characteristics:

Exterior forward-facing glazing with additional symbol /D (yes/no):

Number of layers of glass:

Number of layers of interlayer:

Thickness category:

Nominal thickness of interlayer(s):

Special treatment of glass:

Nature and type of interlayer(s):

Nature and type of plastics coating(s):

Nominal thickness of plastics coating(s):

Secondary characteristics:

Nature of the material (plate, float, sheet glass):

Colouring of interlayer (total/partial):

Colouring of glass:

Colouring of plastics coating(s):

Conductors incorporated (yes/no):

Opaque obscuration incorporated (yes/no):

Remarks:

(Alternative location) **Exterior forward-facing glazing with additional symbol /D (yes/no)**

..... "

Annex 23, paragraph 2.4.1, amend to read:

"2.4.1. 227 g ball test in accordance with the requirements of annex 7, ~~paragraph 4~~ **paragraph 4.3.**"

To align with the provisions in paragraph 2.4 "Ordinary laminated glass and glass-plastics panes", it is proposed to amend it. In paragraph 2.4.5 "*2.4.5. The above provisions shall be considered to be met if the corresponding tests have been carried out on a windscreen of the same composition.*" it is declared that above provisions shall be met and below in paragraph 2.4.6 another requirement is written which shall be met as well. We propose:

Paragraph 2.4.5. renumber as paragraph 2.4.6.

Insert new paragraph 2.4.5., to read:

"2.4.5. For exterior forward-facing laminated glass panes bearing symbol /D additional tests should be made:

2.4.5.1. 2260 g ball test in accordance with the requirements of Annex 7, paragraph 4.2.

2.4.5.2. Headform test in accordance with the requirements of Annex 7, paragraph 3."

Justification

In order to avoid any confusion of document ECE/TRANS/WP.29/GRSG/2018/7 submitted by Finland, the expert from Poland proposes to clarify these amendments to be in line with general structure of the content.
