

Transmitted by the expert from Germany

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agenda item 5)

Proposal for draft amendments to Regulation No.43 (Safety Glazing)

Note: This document amends documents ECE/TRANS/WP.29/GRSG/2009/8 and GRSG-97-22

As agreed at the last GRSG Session the Federal Ministry of Transport, Building and Urban Development invited experts to a meeting on plastic glazing for windscreens and laminated windows other than windscreens on February 9th 2010 in Bonn, Germany.

The basis for this meeting was the proposal for amendments to Regulation No. 43 which was presented by Germany at the 96th GRSG session in May 2009 (ECE/TRANS/WP.29/GRSG/2009/8) and an informal document transmitted by Germany at the 97th GRSG session in October 2009 (GRSG-97-22).

The aim of the meeting was the exchange of information and experience between all interested parties including the plastic industry about several topics on plastic glazing:

1. Experience with Approvals on Plastic Glazing

- Since 1988, national approvals for plastic windscreens in Germany for special vehicles, which by design cannot exceed 40 km/h, have been granted.
- Since 2001, approval and equipment of plastic glazing for German police cars without speed limit (10.000 windscreens, 40.000 side and rear windows).
 - The basis for the approvals of side and rear windows are tests covered by Regulation No. 43 and German Technical Requirements No. 29 and for windscreens individual certification tests.

2. Advantages of Plastic Glazing

- weight savings up to 50% vs. glass
 - lower center of gravity
 - reduction of CO₂ emission (1kg polycarbonate saves about 14-22 kg CO₂ emissions along a total life cycle)
- styling and design
 - design freedom
 - functional integration
- safety and security
 - high impact toughness

3. Proposed approval tests and requirements

According to Regulation 43 requirements on the following categories have to be fulfilled for glazing:

- weathering test
- humidity test
- cross cut test for measuring adhesion properties of coatings
- chemical resistance test
- high temperature test
- fire resistance test
- radiation resistance test
- optical qualities

At the meeting on 9 Febr. 2010, experts mainly discussed about:

- a mechanical strength test, fracture behavior (drop height, sample temperature),
 - a headform test (contact possibility, for windscreens the height of drop is the same as for partitions as in annex 14 of Regulation No. 43, no breakage, HIC measurement) and
 - abrasion resistance test requirements
- for plastic glazing.

Experts find it reasonable to discuss about a new abrasion resistance test for plastic glazing, e.g. a “windscreen wiper test” or a “car wash test”. The Amtec-Kistler test according to ISO 20566 simulates a “car wash test” and is a possible example for an abrasion test.

4. Conclusion at the meeting of experts on 9 Febr. 2010

- Document ECE/TRANS/WP.29/GRSG/2009/8 is a good basis
- For plastic glazing further discussions are needed on the following topics
 - suitable abrasion resistance test
 - weathering resistance
 - UV resistance
 - pedestrian safety

Recommendation

- Experts explained that it is worth to go on with the activity on plastic glazing.
- In order to find solutions for the open questions they recommend to ask WP.29 for a mandate to set up an informal working group to work on this topic.
- Germany proposes to be the sponsor of that informal group.
