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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on General Safety Provisions

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Item 4 of the provisional agenda
Regulation No. 43 (Safety glazing)

Proposal for Supplement 3 to the 01 series of amendments to Regulation No. 43 (Safety glazing)

Submitted by the expert from Germany [*]

The text reproduced below was prepared by the expert from Germany to cope with the difficulties of technical services located at high altitudes to fulfil the barometric pressure conditions required for the impact test. It is based on informal document GRSG-105-24 (see report ECE/TRANS/WP.29/GRSG/84, para. 22). The modifications to the current text of UN Regulation No. 43 are marked in bold for new characters.

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[*] In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate

I. Proposal

Annex 3, paragraph 5.1., amend to read:

"5.1.   Procedure

Heat to 100 °C …… each such sample shall be part of an edge of the windscreen.

Note

If boiling water at 100 °C is used for performing the test at sea level, it shall be considered that the barometric formula indicates that the boiling of water at higher elevation will occur at lower temperatures because it depends on the pressure which decreases with increasing elevation.

For calculating the dependency of the pressure on elevation, the following barometric formula shall be used:

$$p(h) = p(0) \cdot e^{-\frac{h}{7.99}}$$

where:

h = elevation (in kilometres)

$p(h)$ = barometric pressure at elevation h

e = the mathematical constant e (2.71828…)

The boiling point for the relevant pressure value is given from the table of the pressure of saturated water steam:

Temperature T(°C)	0	10	20	30	40	50	60	70	80	90	100
Pressure p(mbar)	6.1	12.2	23.3	42.3	73.5	123	198.7	310.8	472.3	700	1010

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II. Justification

Atmospheric pressure is altitude-dependant which influences the temperature at which water boils.

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