

Testing automotive glass safety R43 and GTR6

The safety of all glass pieces mounted in vehicles is consistently ensured by the uniform provisions of the United Nations Regulation GTR6¹ and R43². Over the last years, the automotive glass industry witnessed the introduction of new national certifications and marking in countries where ECE R43 tests and marking were considered sufficient to import automotive glass. **Glass for Europe notes that the vast majority of the new national schemes are only mirroring R43³ and do not substantially differ from the tests already performed to comply with the UN Regulation. However, their impact on the production costs and trade is substantial.** The obligation to retest and mark glazing, which has already proved compliant with ECE R43, generates additional production costs to the European glass manufacturers such as the financing of extra testing, audits, tooling changes for additional marking, licence fees, etc.

To Glass for Europe, the United Nations Regulations GTR6 and R43 have been instrumental to ensure the safety of glass pieces mounted in vehicles and create trust between trade partners. The United Nations forum has a long expertise in the field of automotive glass and proved flexible to adapt to evolutions in knowledge and technologies. Therefore, **the automotive glass industry calls on the national authorities to continue cooperating in the United Nations framework and reconsider the introduction of unilateral national schemes and trade barriers.**

Expertise in automotive safety

The United Nations regulations benefit from the expertise of countries' representatives and the support of automotive experts and stakeholders. Together, they produce the highest quality of regulations to include performance-oriented test requirements, as well as administrative procedures to ensure the safety of the glass pieces mounted in vehicles and tested under R43. The United Nations procedures give room for the introduction of new measures to adapt the regulation to an evolution in scientific knowledge, new technologies or to technical progresses to continue improving vehicles' safety. Glass for Europe regularly takes part with its member companies' experts to UN working groups meeting when required to support these regular updates.

The safety reference to automotive glass in the European Union and worldwide

Contracting parties such as the European Union, have decided to organize their internal legislation by way of a direct reference to the UN Regulations annexed to the 1958 Agreement⁴. Over sixty countries

¹ UN GTRs contain globally harmonized performance-related requirements and test procedures. They provide a predictable regulatory framework for the global automotive industry, consumers and their associations. They do not contain administrative provisions for type approvals and their mutual recognition.

² Regulation No 43 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of safety glazing materials and their installation on vehicles.

³ In terms of safety requirements, almost all national standards mirror UN R43 (e.g. Brasil, India, Indonesia, Thailand,...) with the exception of the US/Canada ANSI Z 26.1.

⁴ EC Directive 92/22, adapted by 2001/92/EC, safety glazing and glazing materials on motor vehicles and trailers; EC Directive 2009/144, windscreens and other glazing components as used on agricultural and forestry tractors.

are parties to the Agreement⁵ and benefit not only from the pooling of expertise, but also from a facilitated cross-border trade. Under this regulatory framework, a participating country recognises the approvals and certifications of vehicles systems, parts and their equipment issued by another country's approval authority. This facilitates the free movement of goods around the world and avoid trade barriers.

Tests and procedures to ensure automotive glass safety

The United Nations regulations focus on safety aspects and on the robustness of the glass as a critical component in any vehicle. A significant number of tests are performed on the glazing before being incorporated in vehicles or placed on the market as spare-parts. These tests include for instance:

- ▶ **Fragmentation test:** to verify that fragments produced by a fracture of the glass are such as to minimise the risk of injury;
- ▶ **Mechanical strength test:** to assess the penetration resistance of automotive safety glass (e.g. to avoid an object to penetrate in the vehicle through the windscreen);
- ▶ **The headform test:** to limit the injury in the event of impact of the head against the glass (e.g. windscreen in a car accident);
- ▶ **Multiple tests of resistance:** such as resistance to abrasion, high temperature, radiation, humidity, temperature changes, chemicals, etc.
- ▶ **Multiple tests to assess the optical qualities** and ensure perfect vision for the driver: such as light-transmission test, optical-distortion, etc.

Once the tests are realised, national approval authorities grant approvals for the commercialisation of the automotive glass. Glazing are marked and bear a UN/ECE Regulation N°43 number and other information such as the trademark of the manufacturer, the glass type or the country which gave the authorization (e.g. 1 for Germany or 43 for Japan).

Glass for Europe is the trade association for Europe's flat glass sector. Flat glass is the material that goes into a variety of end products, primarily in windows and facades for buildings, windscreens and windows for automotive and transport as well as solar energy equipment, furniture and appliances. Glass for Europe brings together multinational firms and thousands of SMEs across Europe, to represent the entire building glass value-chain. It is composed of flat glass manufacturers, AGC Glass Europe, Guardian, NSG-Group and Saint-Gobain Glass Industry, and works in association with Carlex and national partners gathering building glass processors all over Europe.

⁵ The 1958 Agreement counts to date 64 countries parties, including the European Union and its member states, Russia, Turkey, Japan, South Korea, South Africa or Australia (E/ECE/TRANS/505/Rev.3).