SURFACE VEHICLE RECOMMENDED PRACTICE

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(R) Automotive Safety Glazing Materials

RATIONALE

This update considers new developments in safety glazing materials and clarifies scope and limitations, definitions, and dimensional tolerances.

1. SCOPE

This SAE Recommended Practice is a guidance document, which covers current safety glazing materials applicable for use in motor vehicles and motor vehicle equipment. Nominal specifications for thickness, flatness, curvature, size, and fabrication details are included.

This guidance document does not precede or replace customer specifications and requirements.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.2 ISO Publications

Copies of these documents are available online at http://webstore.ansi.org/.

ISO 3536 Road Vehicles - Safety Glazing Materials - Vocabulary

2.3 ANSI Accredited Publications

Copies of these documents are available online at http://webstore.ansi.org/.

SAE J3097/ANSI Z26.1 Standard for Safety Glazing Materials for Glazing Motor Vehicles and Motor Vehicle Equipment Operating on Land Highways - Safety Standard

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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https://www.sae.org/standards/content/J673_202107

3. DEFINITIONS

3.1 GLAZING

Glazing is the transparent material (such as glass) used for windows.

3.2 GLAZING MATERIAL

Transparent panes or sheets, made from glass, plastic, or combinations thereof, set in frames for use in vehicles and which comply with specified requirements for visibility, strength, and durability.

3.2.1 TOUGHENED GLASS

(Other terms such as “heat treated glass,” “tempered glass,” “case-hardened glass,” and “chemically tempered glass” are used also.) Glazing material consisting of a single layer of glass which has been subjected to special treatment to increase its mechanical strength and/or to condition its fragmentation after shattering.

3.2.2 CHEMICALLY STRENGTHENED GLASS

This refers to glass that has been subjected to a chemical process, which allows toughness requirements to be met at thinner thicknesses.

3.2.3 GLASS-PLASTIC GLAZING MATERIAL

Glazing material which may comprise one or more layers of glass and one or more layers of plastic in which a plastic surface faces inward toward the passenger compartment when installed in a vehicle.

3.2.4 PLASTIC GLAZING MATERIAL

Glazing material that contains as an essential ingredient one or more layers of organic polymeric substances.

NOTE: Two types are recognized:

- Rigid plastic: Organic polymeric material which maintains its structural stiffness over the intended use range.
- Flexible plastic: Organic polymeric material which remains conformable over the intended use range.

3.3 LAMINATED GLASS

Glazing consisting of two or more layers of glass bonded together by one or more interlayers.

NOTE: Two types are recognized:

- Ordinary: When none of the layers of glass, of which it is composed, has been treated.
- Treated: When at least one of the layers of glass, of which it is composed, is tempered safety glass or glass which has been treated in any controlled process in order to give it increased resistance to mechanical and thermal stress.

3.3.1 INTERLAYER

Any material used to hold together the component layers of laminated glass. An interlayer may also provide additional functionality.

3.3.2 OVERLAP

Overlap (or offset or slip) is the distance between the edges of glazing plies at a particular location.

3.4 SAFETY GLASS

Safety glazing materials are predominantly inorganic in composition, including (but not limited to) laminated glass and tempered glass, that meets the applicable requirements of SAE J3097/ANSI Z26.1.

3.4.1 SAFETY GLASS WITH PLASTICS

Either tempered safety glass or laminated safety glass with a layer of plastic on the inner side.

3.5 SAFETY GLAZING MATERIAL

A product consisting of organic and/or inorganic materials so constructed or treated to minimize the likelihood of injury to persons as a result of contact with these safety glazing materials when used in a vehicle, and which complies with specified requirements for visibility, strength, and durability.

3.5.1 SAFETY GLAZING PLASTICS

Any safety glazing material, predominantly synthetic organic in character, that meets the applicable requirements of SAE J3097/ANSI Z26.1, including single-ply and laminated products, whether rigid or flexible.

3.6 Dimensional Characteristics

3.6.1 CURVATURE

Curvature is the inverse of the radius of the surface’s osculating circle in a specified plane.

3.6.2 OVERALL SIZE

Overall size (or size) is generally defined by fabricators and customers as the greatest linear dimension in a specified direction.

3.6.3 THICKNESS

Nominal thickness, with acceptable commercial ranges above and below nominal.

4. SIZES

There are no standard sizes applicable to safety glasses for use in motor vehicles and motor vehicle equipment. The feasibility of proposed safety glass sizes developed by the motor vehicle/motor vehicle equipment manufacturer must be determined by conference with the glass manufacturer.

4.1 Thickness

A range of thicknesses are acceptable for use in motor vehicles and motor vehicle equipment provided they meet the requirements of all applicable laws, regulations, codes, and practices in effect at the time an automotive safety glass is manufactured. Typical glass thicknesses are between approximately 0.1 mm and 10 mm with the thinner thicknesses used in laminates.

5. USE OF DESCRIPTIVE TERMS

As the definition indicates, safety glazing materials, in comparison with annealed float glass, are intended to reduce the likelihood of injury or the severity of injury in the event of their breakage. Therefore, terms such as “nonbreakable,” “nonshatterable,” and “nonsplinterable” should not be interpreted by the driving public as meaning that absolute protection is afforded to the occupants of the vehicle by the safety glazing materials so described, as the descriptive terms might seem to warrant. No such terms are used in the safety standard.

Bullet-resistant glazing should not be termed “bullet-proof,” since no bullet-resistant glazing is completely resistant to penetration by all types of missiles fired from all types of armament.