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PEOPLE'S REPUBLIC OF CHINA**

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Safety glass for railway rolling stock

铁路车辆用安全玻璃

(English Translation)

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Foreword

This Standard equivalently adopts Japanese standard JIS R 3213.1998 "Safety Glass for Railway Rolling Stock", which is equivalent to this Standard in terms of technical contents. As JIS R3213.1998 imposes somewhat lower requirements on the performance of 3.2mm tempered glass, and the 3.2mm tempered glass has not yet been used for railway rolling stock in China, this Standard deletes the series of this thickness; in considering the service environment and process characteristics of tempered glass and laminated glass, this Standard adds the performance requirements of transmittance and optical distortion of tempered glass as well as the requirements of radiation resistance and penetration resistance of laminated glass; as the thermal performance index of insulated glass depends on its structural composition rather than its safety performance, this Standard has no such provisions. This Standard makes references to the relevant national standards for some of its performance test methods, which are equivalent to international standards and consistent with the provisions of the Japanese standard JIS R 3213-1998.

This Standard was proposed by the State Bureau of Building Materials Industry.

This Standard shall be under the jurisdiction of the Glass Science and Special Glass Fiber Institute of China Building Materials Academy.

Drafting organizations of this Standard. Railway Ministry Sifang Rolling Stock Research Institute AND Qinghuangdao Yaohua Industrial and Technical Glass Co., Ltd.

1 Scope

This Standard specifies the type and requirements of safety glass for railway rolling stock. This Standard is applicable to safety glass for windows of railway rolling stock and locomotives.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute the provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision. The parties who enter into agreement based on this Standard are encouraged to investigate the possibility of applying the latest editions of the standards indicated below.

GB/T 531-1992 Rubber, Vulcanized - Determination of Shore A Hardness (neq ISO 7691.1986)

GB 1216-1985 Micrometers (neq ISO 3611.1978)

GB/T 5137.1-1996 Road Vehicles - Safety Glazing Materials - Test Methods for Mechanical Properties (eqv ISO 3537.1991)

GB/T 5137.2-1996 Road Vehicles - Safety Glasses - Test Methods for Optical Properties

3 Definitions

This Standard adopts the definitions given in JC/T 632 and the following.

3.1 Tempered Laminated Glass

When the laminated glass product that is composed of more than two glass plates has at least one tempered glass, it is called tempered laminated glass.

3.2 Insulated Safety Glass

The product, that is made of two or more sheets of laminated or tempered glass, juxtaposed with uniform clearance which is filled inside with dry air close to air pressure

outside or other gases, and sealed along its perimeter.

3.4 Datum Edge

The lower edge of the glass fitted to a vehicle.

5 Requirements

Safety glass shall, based on their different types, comply with the applicable provisions as shown in Table 2.

5.1.1 Thickness

The thickness of tempered glass and its allowable tolerance shall comply with Table 3.

5.1.2.1 The allowable dimensional tolerance of rectangular or square tempered flat glass

is shown in Table 4; however, it shall be negotiated by both the buyer and the seller in case that it complies with any of the provisions 1) ~4).

5.1.2.2 The allowable dimensional tolerance of tempered flat and bent glass of other

shapes but rectangles and squares is shown in Table 5; however, it shall be negotiated by both the buyer and the seller in case that it complies with any of the provisions 1) ~3).

5.1.5 Appearance

The appearance quality of tempered glass is shown in Table 7.

5.1.6 Transmittance

Three test pieces shall be taken for test. The transmittance of every test piece must be more than 50%. The transmittance of colored glass shall be negotiated between the buyer and the seller.

in a 100mmx100mm square with this part included must be more than 160.

5.2.1 Thickness

The nominal thickness of laminated glass is the sum of the nominal thickness of both pane glass and the interlayer, and shall be agreed on by the buyer and the seller.

The thickness of laminated glass and its allowable tolerance are shown in Table 9. However, for the bent laminated glass, the laminated glass made up of more than 3 panes, the tempered laminated glass and the laminated glass with a nominal thickness more than 13mm, the thickness and their allowable tolerance shall be agreed upon by the buyer and the seller.

5.2.2.2 The allowable dimensional tolerance of flat and bend laminated glass of the shape

other than rectangles and squares is shown in Table 11. However, the allowable dimensional tolerance of the laminated glass made up of more than 3 panes, the laminated glass with a nominal thickness more than 13mm and the laminated glass with the length of its one side over 2400mm shall be agreed upon by the buyer and the seller.

5.2.11 Penetration Resistance

Six test pieces are taken for the test. The falling ball shall be 4m high and shall not penetrate the test pieces within 5s after the impact. If the 6 test pieces comply, then it is qualified; if 4 or less comply, then it is not qualified.

If 5 test pieces comply, another 6 fresh test pieces shall be taken for the test. If all of the 6 fresh test pieces comply, then it is qualified.

5.3.1 Thickness

The thickness of insulated safety glass is the sum of the nominal thickness of both pane glass and the air layer, and shall be agreed on by the buyer and the seller.

The allowable thickness tolerance of insulated safety glass is shown in Table 14. However, for the products with more than 2 air layers or the products whose pane glass is 15mm in one sheet, the bent insulated glass and the products made up of more than 2 layers of laminated glass, then their allowable thickness tolerance shall be agreed upon by the buyer and the seller.

5.3.2.2 The allowable dimensional tolerance of insulated safety glass of the shape other

than rectangles and squares is shown in Table 16. However, the allowable dimensional