

ICS 43.040.60

QC

**AUTOMOTIVE INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

QC/T 1166-2022

**Streaming rear-view mirror for vehicle
(English Translation)**

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1 Scope

This document primarily specifies the technical requirements, inspection rules, packaging, labeling, transportation, storage of modified polypropylene (PP) automotive door panels; describes the product structure and test methods.

This document applies to the production, inspection, sale, use of automotive door panels made from modified polypropylene plastic through injection molding and composite molding.

2 Normative references

The following documents, through normative references herein, constitute essential provisions of this document. For dated references, only the edition cited applies; for undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1033.1-2008 Plastics - Methods for determining the density of non-cellular plastics - Part 1.Immersion method, liquid pycnometer method and titration method

GB/T 1036 Test method for coefficient of linear thermal expansion of plastics between -30 °C and 30 °C with a vitreous silica dilatometer

GB/T 1040.1 Plastics - Determination of tensile properties - Part 1.General principles

GB/T 1040.2-2022 Plastics - Determination of tensile properties - Part 2.Test conditions for molding and extrusion plastics

GB/T 1043.1-2008 Plastics - Determination of Charpy impact properties - Part 1.

Non-instrumented impact test

GB/T 1634.2-2019 Plastics - Determination of temperature of deflection under load

- Part 2. Plastics and ebonite

GB/T 2918-2018 Plastics - Standard atmospheres for conditioning and testing

GB/T 7124 Adhesives - Determination of tensile lap-shear strength of rigid-to-rigid bonded assemblies

GB/T 9341-2008 Plastics - Determination of flexural properties

GB/T 9345.1-2008 Plastics - Determination of ash - Part 1. General methods

GB/T 17037.4 Plastic - Injection molding of test specimens of thermoplastic materials - Part 4. Determination of molding shrinkage

QC/T 15-1992 General test methods for automotive plastic products

3 Terms and definitions

This document does not contain any terms or definitions that need to be defined.

4 Product structure

The product structure is shown in Figure 1.

5.1 Dimensional requirements

Dimensions shall conform to the requirements of the drawings or relevant technical documents.

5.2 Paint performance

Paint performance shall conform to the requirements of the drawings or relevant technical documents.

6.1 Test environment

The test environment for the material specimens shall conform to the standard environment specified in GB/T 2918-2018, with a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and a relative humidity of $(50 \pm 10)\%$.

6.2 Conditioning

The material specimens shall be conditioned in the standard environment specified in 6.1 for at least 16 hours before testing.

6.3.1 Density

Perform the test according to Method A in GB/T 1033.1-2008.

6.3.2 Ash content

Perform the test according to Method A in GB/T 9345.1-2008, with a calcination temperature of 850 °C and a calcination time of 3 hours.

6.3.3 Tensile strength and yield elongation

Comply with the provisions of 1A/50 in GB/T 1040.1 and GB/T 1040.2-2022.

6.3.4 Notched impact strength of simply supported b

Perform the test according to the 1eA requirement in GB/T 1043.1-2008.

6.3.5 Flexural modulus

Perform the test according to GB/T 9341-2008. Specimen size. (80 ± 2) mm x (10.0 ± 0.2) mm x (4.0 ± 0.2) mm; test span. $64 \text{ mm} \pm 1 \text{ mm}$; indenter radius. $5.0 \text{ mm} \pm 0.1 \text{ mm}$; test speed. $2.0 \text{ mm/min} \pm 0.4 \text{ mm/min}$.

6.3.6 Load deformation temperature

Perform the test according to GB/T 1634.2-2019. Specimen dimensions. (80 ± 2) mm x (10.0 ± 0.2) mm x (4.0 ± 0.2) mm; Test span. $64 \text{ mm} \pm 1 \text{ mm}$; During the test, the specimen is placed horizontally, the static bending stress is 0.45 MPa, the heating rate is $12 \text{ }^{\circ}\text{C/6 min} \pm 1 \text{ }^{\circ}\text{C/6 min}$, constant heating rate; the deflection is 0.34 mm.

6.3.7 Linear expansion coefficient

It is performed according to GB/T 1036.

6.3.8 Shrinkage rate

It is performed according to GB/T 17037.4.

6.3.9.1 Specimen preparation

Each specimen is prepared by bonding an outer layer material strip and an inner layer material strip together with adhesive and curing for 7 days. The outer and inner layer strips are 100 mm x 25 mm x 3 mm in size, with an adhesive bonding area of 12.5 mm x 25 mm and a uniform adhesive thickness of 1.5 mm.

6.3.9.2 Normal shear strength

The test is conducted according to GB/T 7124. The tensile speed is 50 mm/min.

6.3.9.3 Heat resistance

The specimens are placed in a constant temperature oven at $90\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 300 h.

After removal, they are placed in an environment of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 0.5 h, then tested according to the provisions of 6.3.9.2.

6.3.9.4 Resistance to damp heat

Place the specimen in a test chamber at $70\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and relative humidity of $(95 \pm 5)\%$ for 300 h. After removal, place it in an environment of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 0.5 h; then conduct the test according to the provisions of 6.3.9.2.

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