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Performance and determination of PVC slush skin of automotive instrument panel

汽车聚氯乙烯搪塑仪表板

表皮性能及检测

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Performance and determination of PVC slush skin of automotive instrument panel

1 Scope

This Standard specifies technical requirements and test methods for PVC slush skin of automotive instrument panel.

This Standard is applicable to PVC slush skin of automotive instrument panel mainly made of polyvinyl chloride powder (hereinafter referred to as the slush skin).

2 Normative references

The following referenced documents are indispensable for the application 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 250-2008, *Textiles - Tests for color fastness - Grey scale for assessing change in color*

GB/T 251-2008, *Textiles - Tests for color fastness - Grey scale for assessing staining*

GB/T 1040.1-2006, *Plastics - Determination of tensile properties - Part 1: General principles*

GB/T 1040.3-2006, *Plastics - Determination of tensile Properties - Part 3: Test Conditions for Films and Sheets*

GB/T 2411-2008, *Plastics and ebonite - Determination of indentation hardness by means of a durometer (shore hardness)*

GB/T 2918-1998, *Plastics - Standard atmospheres for conditioning and testing*

GB/T 3920-2008, *Textiles - Tests for color fastness - Color fastness to rubbing*

GB 8410, *Flammability of automotive interior materials*

GB/T 9754-2007, *Paints and varnishes - Determination of specular gloss of non-metallic paint films at 20° 60° and 85°*

GB/T 16422.1-2006, *Plastics - Methods of the exposure to laboratory light sources - Part 1: General guidance*

GB/T 16422.2-1999, *Plastics - Methods of exposure to laboratory light sources Part 2: Xenon - Arc sources*

ISO 105-B06:1998, *Textiles - Tests for color fastness -- Part B06: Color fastness and ageing to artificial light at high temperatures: Xenon arc fading lamp test*

ISO 105-B06 AMD 1: 2002, *Textiles - Tests for color fastness - Part B06: Color fastness and ageing to artificial light at high temperatures: Xenon arc fading lamp test*

ISO 6452:2000, *Rubber- or plastics-coated fabrics - Determination of fogging characteristics of trim materials in the interior of automobiles*

ISO 6721-1:2011, *Plastics - Determination of dynamic mechanical properties - Part 1: General principles*

ISO 6721-4:2012, *Plastics - Determination of dynamic mechanical properties - Part 4: Tensile vibration - Non-resonance method*

ISO 6721-11:2012, *Plastics - Determination of dynamic mechanical properties - Part 11: Glass transition temperature*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 slush skin of instrument panel

surface softening decorative piece that the polyvinyl chloride powder is attached to the surface of the preheated mold by rotating the uniform station, and the interior of the automobile produced by the molding process of "loading" the powdered material by plasticizing and cooling without pressure is decorative; the shape of the mold is consistent

3.2 positive skin

decorative surface after softening parts are made

3.3 negative skin

surface that is relative to the positive skin

Gloss meter: shall meet the requirements of GB/T 9754-2007.

5.2.2 Test steps

Take 3 samples according to GB/T 9754-2007. Determine the gloss of the positive skin of the sample by a single angle measurement (60°). The test results are expressed as the arithmetic mean of the three samples.

5.3 Color

5.3.1 Instruments

Color difference meter (also called spectrophotometer): can choose 45° / 0° or d/8° measurement method, generally agreed by both parties.

5.3.2 Test steps

At least perform 5 individual measurements, the measurement position is distributed over the entire surface. The results are generally agreed by both parties.

5.4 Thickness

5.4.1 Instruments

Thickness gauge: accuracy is not less than 0. 01 mm, thickness gauge load is 393 g, presser foot diameter is 10 mm. The thickness gauge load and the presser foot diameter can be agreed by the supplier and the purchaser.

5.4.2 Test steps

Take 3 pieces of 50 mm × 50 mm samples. Place the patterned side of the sample face down on the gauge. Select two points, each point is not less than 5 mm from the edge of the sample, and the distance between the two points is not less than 10 mm. Determine the thickness of the sample, to the nearest of 0.0.1 mm. The test results are expressed as the arithmetic mean of 6 test points.

5.5 Areal density

5.5.1 Instruments

Analytical balance: to the nearest of 0.1 mg.

5.5.2 Test steps

Take 3 flat pieces of 100mm × 100mm samples. Weigh separately on the analytical balance, to the nearest of 0.1 mg. And convert the measurement results to grams per square meter. The test results are expressed as the arithmetic mean of 3 samples, in integer.

Reference material: DOP (dioctyl phthalate), requiring analytically pure DOP.

5.9.2 Test steps

The sample shall be dried in the dryer for at least 24 h before the test.

The test is carried out in accordance with the provisions of ISO 6452:2000. Take 2 samples with a diameter of 80 mm and place them in the glass of the atomizer (the front side of the skin is placed up). Press the sample with a metal ring. Take a glass at the same time and put in (10.0±0.2) g of DOP. Place the glass in the oil bath. Put the sealing ring, the weighed aluminum pin (G_0), the round glass plate, the filter paper and the cooling plate on the edge of the glass cup. The oil temperature is controlled at (100±0.5)°C, the temperature of the cooling plate is controlled at (21±1)°C, and is maintained (16±0.2) h. After removing the cooling plate, filter paper, and glass plate in turn, carefully remove the aluminum foil, and place the fogged side of the aluminum foil upward, and store it in the dryer for 3.5h ~ 4h. Weigh the aluminum foil (G_1) that has been fogged and store in the dryer. The difference between G_1 and G_0 is the test result. The sample results are expressed as the arithmetic mean of two samples.

It shall confirm whether the condensation value of DOP is between (4.9±0.25) mg (only when the oil temperature is 100°C). If the condensation value of DOP is not in this range, the test shall be invalid, the cause shall be analyzed, and the test shall be repeated.

In special cases, the test temperature and storage time can be negotiated between the supplier and the purchaser.

5.10 Resistance to Xenon aging

5.10.1 Equipment

Xenon lamp aging chamber: in accordance with GB/T 16422.1-2006.

The filter system uses a combination of a glazed glass inner filter and a uranium-calcium glass outer filter.

Reference material: No. 6 blue wool, in accordance with ISO 105-B06: 1998.

5.10.2 Test steps

According to the provisions of GB/T 16422.2-1999, take 3 pieces of 140mm × 70mm samples and 1 blue wool as reference material of the same size. Place the sample and reference material in a Xenon lamp aging chamber. The sample is facing the light source. Carry out 5 cycles of exposure tests under the conditions that the black mark temperature is (100±3)°C, the test chamber temperature (65±3)°C, the relative humidity is (20±10)%, and the spectral intensity of 420 nm is 1.2 W/m^2, without spray. The determination of the end

Level 1: feel no smell;

Level 2: feel the smell, but not irritating to people;

Level 3: obviously feel the smell, but not irritating to people;

Level 4: obviously feel the smell, irritating to people;

Level 5: the smell is very strong to people;

Level 6: the smell is very strong and unbearable.

5.15 Glass transition temperature

5.15.1 Equipment

Test equipment is in accordance with ISO 6721-1:2001.

5.15.2 Test steps

Test steps are in accordance with ISO 6721-11:2011. The sample shall be tested under tensile mode. Perform sampling according to ISO 6721-4:2011. Take the peak of the loss modulus as the glass transition temperature.

6 Inspection rules

6.1 Slush skin testing shall determine the testing frequency and project according to quality control requirements.

6.2 When one of the following conditions occurs, it shall be fully tested in accordance with this Standard.

a) continuous production for more than half a year;

b) technique conditions change;

c) raw material change;

d) formula adjustment;

e) suspension of production for more than 2 months and then put into production;

f) product identification.

7 Storage

Perform equilibrium tissue production, storage between processes is no more

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