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BUILDING MATERIALS INDUSTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

JC/T 858-2000

**Specification for Cast Acrylic Sheet for
Baths and Shower Trays for Domestic Purposes**

住宅浴缸和淋浴底盘用浇铸丙烯酸板材

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Specification for Cast Acrylic Sheet for Baths and Shower Trays for Domestic Purposes

1 Scope

This Standard specifies the product classification, technical requirements, test methods, inspection rules, packaging, marking, transportation and storage of cast acrylic sheet (hereinafter referred to as acrylic sheet) for baths and shower trays for domestic purposes.

This Standard is applicable to the cast acrylic sheet for baths and shower trays for domestic purposes; other acrylic sheets can also use it for reference.

2 Normative References

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. At the time of publication, the editions indicated are valid. All standards are subject to revision. The parties who are using this Standard shall explore the possibility of using the latest version of the following standards.

GB 250-1995 Gray Scale for Assessing Change in Color

GB/T 1034-1986 Plastics – Determination of Water Absorption

GB/T 1040-1992 Plastics – Determination of Tensile Properties

GB 1633-1979 Plastics – Thermoplastic Materials – Softening Point (Vicat) Test

GB/T 9344-1988 Plastics - Methods of Exposure to Laboratory Light Sources (Xenon Arc Lamp)

3 Product Classification

3.1 Product specification

The thickness of the acrylic sheet shall be no less than 2.7mm; other dimensions shall be agreed between the supplier and the purchaser.

3.2 Product marking

4.7 Color fastness

4.7.1 Color fastness of resistance to UV light: it shall be tested as per 5.7.1; the color change (color fastness) of the acrylic sheet must not be lower than Level-3.

4.7.2 Color fastness of resistance to hot water: it shall be tested as per 5.7.2; the color change (color fastness) of the acrylic sheet must not be lower than Level-3.

4.8 Resistance to chemicals and stains

It shall be tested as per 5.8, the acrylic sheet shall be free of any permanent contamination or damage.

4.9 Resistance to hot water

It shall be tested as per 5.9; the acrylic sheet shall be free of any changes that affect the appearance, such as blistering, chaps, cracks and damages.

5 Test Methods

5.1 Appearance

Visual examination.

5.2 Thickness and size deviation

Use Vernier Caliper with accuracy of 0.02mm; separately measure the center points on four sides of the sheet; and take their average value.

5.3 Vicat softening point

The Vicat softening point shall be determined as per the provisions of GB/T 1633. Use the counterweight with temperature-rise speed of A: $(5 \pm 0.5) ^\circ\text{C}/6\text{min}$; static load of 5000g.

5.4 Water absorption

The water absorption shall be determined as per the provisions of Method-1 in 4.2 of GB/T 1034. The size of the specimen is the square with side-length of (50 ± 1) mm.

5.5 Tensile strength

The tensile strength shall be determined according to the provisions of GB/T 1040. The specimen is Type-I; the load speed is $5\text{mm}/\text{min} \pm 20\%$,

5.6 Thermal stability

5.8.2.1 Acetic acid: 10% (volume ratio)

5.8.2.2 Ethanol: 70% (volume ratio)

5.8.2.3 Methylene blue: 1% (weight ratio)

5.8.2.4 NaOH: 10% (weight ratio)

5.8.2.5 Sodium hypochlorite: 15% (weight ratio)

5.8.2.6 Saturated NaCl: saturated solution

5.8.2.7 Hot soapy water: 5% (weight ratio)

5.8.2.8 Detergent: general detergent containing borate

5.8.3 Apparatus

5.8.3.1 Borosilicate watch glasses: ϕ 40mm

5.8.3.2 Pipette

5.8.3.3 Cleaning tester: as shown in Figure 1. It comprises a synthetic flexible open cell foam disc of 75mm diameter and 15mm thick, which is fixed to a floater with the mass of 500g; such device is driven by a square shaft.

5.8.3.4 Test procedures

Each test can use one kind of reagent; before and after each test, the hot soapy water in 5.8.2.7 must be used to thoroughly wash the sample surface and wipe it.

On each sample with an equivalent diameter greater than 75mm, titrate about 1mL of reagent by a pipette in 5.8.3.2; use the watch glass in 5.8.3.1 to cover the droplet; maintain for 2h at $(23\pm 2)^\circ\text{C}$. Pay attention the specimen surface shall not be exposed to sunlight.

Immerse the foam disc in 5.8.3.3 into the distilled water; move it to the surface to be cleaned; and rotate it for 30 laps at the speed of 60r/min.

Observe the specimen surface after washing with clean water; if there is still damage and corrosion; clean it with the detergent in 5.8.2.8. If the damage and corrosion still can't be removed; then use the abrasive detergent (add 100g/12h of aluminum powder into the 100g of detergent) to wash.

Pay attention to whether the chemicals are contaminated and whether the contamination can be removed; if the contamination has been removed; use water, detergent, or abrasive detergent to wash. If the contamination can't be removed by the abrasive detergent, then it shall be recorded as the permanent contamination.

use a soft cloth to wipe; then place it into the (50 ± 2) °C oven to dry for 16h; repeat such procedures for 20 times against the same sample.

Place the sample through the repeated test into the eosin solution in 5.9.2.1; add the detergent in 5.8.2.8 at the ratio of 1cm³ per liter of solution. Maintain for 40h at (50 ± 2) °C; take the sample out of the solution. Use soft cloth to wipe the eosin solution off the sample surface; visually examine whether the surface has been changed (foam, chap, crack, etc.) through the residual situation of the eosin solution.

6 Inspection Rules

6.1 Inspection classification

The product inspection can be divided into type inspection and exit-factory inspection.

6.2 Type Inspection

6.2.1 Inspection conditions

Type inspection shall be carried out in one of the following cases of the acrylic sheet:

- a) When taking trial-production of new products or the trial-production-type appraisal for the old products transferring the factory;
- b) When it is for 6 months after the normal production;
- c) When there are major changes in the raw materials, formulas, and processes of the product, which may affect the product quality;
- d) When there is a significant difference between the exit-factory inspection results and the previous type inspection;
- e) When the national quality supervisions agency proposes to carry out the type inspection.

6.2.2 Inspection items

The inspection items of type inspection include all technical requirements specified in Clause 4.

6.2.3 Judgment rules

If each index meets the corresponding technical requirements, it is judged to be qualified; otherwise, it is judged to be unqualified.

6.3 Exit-factory inspection

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