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Restriction of hazardous materials in polyvinyl chloride artificial leather

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Foreword

Clause 3 of this Standard is mandatory; the rest are recommendatory.

Polyvinyl chloride artificial leather is mainly used in automotive interiors, architectural decoration, soft furniture, clothing, medical equipment, home appliances decoration and other areas closely related to human life. The implementation of this Standard is conducive to limit the content of harmful substances, improve the living environment and protect human health. After 6 months since the date of implementation of this Standard, products which do not comply with this Standard shall not be sold on the market.

This Standard was proposed by China Light Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee on Plastic Products of Standardization Administration of China.

Main drafting organization of this Standard: Shanghai Yan Chang Plastic Co., Ltd.

The drafting organizations of this Standard: National Plastic Products Quality Supervision and Inspection Center (Beijing), Foshan Plastic Group Co., Ltd. Ssangyong Branch.

Main drafters of this Standard: Bian Zhengyin, Lu Xiaoli, Li Jietao, Yang Baohong, Shen Shihua, Zhang Huaihai.

Restriction of hazardous materials in polyvinyl chloride artificial leather

1 Scope

This Standard specifies the restriction, test methods, sampling and inspection rules for vinyl chloride monomer, soluble lead, soluble cadmium and other volatiles in polyvinyl chloride artificial leather.

This Standard applies to polyvinyl chloride artificial leather (hereinafter referred to as artificial leather) of which takes polyvinyl chloride resin as the main raw material and is added with the appropriate additives, with or without substrate, foam or non-foaming, processed by coating, calendering, composite production process.

2 Normative references

The following standards contain the provisions which, through reference in this Standard, constitute the provisions of this Standard. For dated references, subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, the parties who enter into agreement based on this Standard are encouraged to investigate whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Standard.

GB/T 2918-1998 *Plastics -- Standard atmospheres for conditioning and testing* (idt ISO 291:1997)

GB/T 4615-1984 *Determination method of residual vinyl chloride monomer contents in polyvinyl chloride*

3 Requirements

3.1 Restriction of vinyl chloride monomer

The vinyl chloride monomer content in the polyvinyl chloride layer of artificial leather shall not exceed 5 mg/kg.

3.2 Restriction of soluble heavy metals

The content of soluble lead in artificial leather shall not exceed 90 mg/kg.

5.4.6 Drawing of cadmium standard curve

5.4.6.1 0.1 mg/mL cadmium standard stock solution

Weigh 0.2371 g of cadmium acetate (5.4.2.3). Use hydrochloric acid solution (5.4.2.5) to dissolve it into 1 L volumetric flask. Dilute it to scale. Shake it well. 0.1 mg of cadmium shall be contained in 1 mL of this solution.

5.4.6.2 Cadmium standard solution

Respectively pipette 0 mL, 0.5 mL, 1.0 mL, 2.0 mL, 5.0 mL of cadmium standard stock solution (5.4.6.1) into 100 mL volumetric flask. Use hydrochloric acid solution (5.4.2.5) to dilute to scale. Prepare standard solutions of which the cadmium contents are 0 mg/L, 0.5 mg/L, 1.0 mg/L, 2.0 mg/L and 5.0 mg/L.

5.4.6.3 Drawing of standard curve

Adjust the atomic absorption spectrophotometer to the best condition. Determine the absorbance values of the cadmium standard solution (5.4.6.2) in turn. Take the cadmium content of the standard solution as abscissa, the absorbance value of the blank test solution subtracted from the corresponding absorbance value as ordinates to draw the cadmium standard curve.

5.4.7 Determination

Use the same conditions as for the standard curve to determine the absorbance of sample soaking solution.

5.4.8 Calculation

Calculate the contents of heavy metals in the specimen according to equation (1):

$$X_1 = \frac{(c_1 - c_0) \times V}{m} \dots\dots\dots(1)$$

where,

X_1 - Heavy metal content in the specimen, in milligrams per kilogram (mg/kg);

c_1 - The content of heavy metals in the sample soak solution obtained from the standard curve, in milligrams per milliliter (mg/mL);

c_0 - The content of heavy metals in the blank solution, in milligrams per milliliter (mg/mL);

V - The total volume of sample soaking solution, in milliliters (mL).

Take the arithmetic mean value of the measurement results of the three specimens to represent, 2 significant digits remained.

6 Inspection rules

6.1 The inspections on the restriction of hazardous materials specified in this Standard are type inspection items.

6.2 Under normal production conditions, the type inspection shall be carried out at least once a year.

6.3 The type inspection should be conducted in one the following cases:

- for trial stereotype of new product;
- great changes on production process and raw materials;
- production is resumed after 6 months of discontinued production.

6.4 When all items of the test results meet the requirements of this Standard, this product shall be determined as qualified. If one inspection result fails to meet the requirements of this Standard, this product shall be determined as unqualified.

_____ **END** _____

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