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Leather and fur - Chemical tests - Determination of dimethylformamide content

皮革和毛皮 化学试验 二甲基甲酰胺含量的测定

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by the China Light Industry Federation. This standard is under the jurisdiction of the National Leather Industry Standardization Technical Committee (SAC/TC252). This standard was drafted. National Leather Quality Supervision and Inspection Center (Zhejiang), Zhejiang Tongtianxing Group Co., Ltd., Jiaxing College, Jia Xingshi Bag Industry Association, Zhejiang Shenghui Chemical Co., Ltd., China Leather Shoes Research Institute Co., Ltd., Guangdong Xinhuwei Industrial Investment Co., Ltd. the company. The main drafters of this standard. Sun Xia, Xu Xiangjin, Ma Hewei, Sun Dong, Bu Qiaoqiao, Zhu Anfu, Shi Jihong, Jiang Deyun, Zheng Jiantang. Leather and fur chemical tests Determination of dimethylformamide content

1 Scope

China's national method for determining dimethylformamide in leather, fur and their products by gas chromatography-mass spectrometry. DMF is the solvent of the synthetic leather industry: polyurethane is dissolved in it, coated onto a fabric base, and coagulated in water to give the microporous structure that makes synthetic leather breathable and leather-like. Almost all of it is recovered, but some remains in the finished material and migrates out over the following months. It is classified as toxic for reproduction and is readily absorbed through skin, which matters for a material made into shoes, garments, gloves and upholstery. It is also present in genuine leather when DMF-based finishes have been used. The determination is by GC-MS because the quantities are low and the matrix is a polymer full of other volatiles, and the method has to extract the residue without dissolving the article being tested.

This standard specifies the gas chromatography-mass spectrometry method for dimethylformamide content in leather, fur and its products. This standard applies to the determination of dimethylformamide in various leathers, furs and their products.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 6682 Analytical laboratory water specifications and test methods QB/T 1267 Sampling site for fur chemical, physical and mechanical, color fastness test QB/T 1272 Preparation of fur chemical test samples QB/T 1273 Determination of volatile matter in fur chemical test QB/T 2706 Sampling site for leather chemical, physical, mechanical and color fastness tests QB/T 2716 Preparation of leather chemical test samples QB/T 2717 Determination of volatiles in leather chemical test

3 Principle

Under the action of ultrasound, the dimethylformamide in the sample was extracted with methanol, and the extract was filtered and purified through a membrane. Determination by spectrum-mass spectrometry, quantification by external standard method.

4 Reagents and materials

4.1 General requirements. Unless otherwise specified, the reagents used are analytical grade, and the test water should meet the requirements of Grade III water in GB/T 6682.

4.2 Methanol. chromatographically pure.

4.3 Dimethylformamide Standard (CASNo .. 68-12-2). Purity >=99.5%, see Appendix A.

4.4 Standard stock solution. Weigh an appropriate amount of dimethylformamide standard and prepare it with methanol (4.2) to a standard concentration of 100 μg/mL. Quasi-stock solution.

4.5 Standard working solution. Dilute the standard stock solution (4.4) with methanol (4.2) to a standard working solution of appropriate concentration as needed.

5 Instruments and equipment

5.1 Analytical balance. The accuracy is 0.1mg.

5.2 Ultrasonic generator. There is temperature control device.

5.3 Sealable extraction bottle. 100mL.

5.4 Organic filter. 0.45 μm.