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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 27717-2011

Determination of dimethyl fumarate content in furniture

家具中富马酸二甲酯含量的测定

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Quarantine;
Standardization Administration of the PRC**

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. Please note that some of the content of this document may involve patents. Distribution of this document Institutions do not assume the responsibility to identify these patents. The standard proposed by China National Light Industry Council. This standard by the National Standardization Technical Committee furniture (SAC/TC480) centralized. This standard was drafted. Shanghai Institute of Quality Supervision, Inspection, Man Wah Furniture Manufacturing (Shenzhen) Co., Ltd., Yantai Gisborne furniture Group Co., Ltd. Goodbaby Child Products Co., Ltd., Hubei The Music Bedding Holdings Limited. The main drafters of this standard. Liu Yao country, Xu Jun, Zhang Xiaobo, Luoju Fen, Zhang Yuanyuan, Lu Qing, Ge Yu, Qian Ming Yuan, Wang Jin, Zou Yu, Song Zhuanjiang, Xiaxue Fei, Zhou German. Determination of furniture dimethyl fumarate content

1 Scope

China's national method for determining the dimethyl fumarate content of furniture. It specifies the principle, the reagents and materials, the apparatus, the specimen preparation, the procedure and the expression of results, and it applies to furniture products containing soft covering materials such as leather and textile fabrics. Dimethyl fumarate is a fungicide, and it entered furniture by a route nobody intended. Sachets of it were placed in packaging and inside upholstery to stop mould growing during long sea voyages and storage in humid climates, particularly on sofas and shoes shipped from Asia to Europe. It works extremely well as a biocide, and it is an extremely potent skin sensitiser: it migrates out of the sachet, through the covering material, and onto the skin of whoever sits on the furniture, producing severe and persistent eczema at concentrations of a few parts per million. The resulting wave of injuries in Europe led to an import ban and to the withdrawal of large quantities of furniture from the market. A method of determining it in a finished product is what makes such a restriction enforceable, and this standard is that method. The determination is by ultrasonic extraction of the sample with ethyl acetate, concentration and

filtration of the extract, and analysis by gas chromatography with mass spectrometric detection, quantified against an external standard. What the standard has to fix is everything that decides whether a low result means a clean product or a failed extraction: how the specimen is taken from a large upholstered article, how it is subdivided, the extraction conditions, and the chromatographic conditions under which the compound is identified and measured. Issued on 30 December 2011 and in force since 1 July 2012.

This standard specifies the method for the determination furniture dimethyl fumarate content. This standard applies to soft-containing coating material (such as leather, textile fabrics, etc.) furniture products. Principle

2 Using ethyl acetate sample of dimethyl fumarate (English title dimethylfumarate, abbreviated DMF) was subjected to ultrasonic extraction. After concentrated, volume and filtering the extract by gas chromatography - mass spectrometry (GC/MSD) determine the content of the external standard method.

3 Reagents and materials

Unless otherwise specified, the reagents used in this standard are the use of analytical chemical reagents in line with national standards.

3.1 ethyl acetate.

3.2 Dimethyl fumarate. purity $\geq 99.5\%$.

4 Equipment

4.1 Gas chromatography - mass spectrometry (GC/MSD). with EI source.

4.2 rotary evaporator.

4.3 Analytical balance. accurate to 0.1mg.

4.4 stoppered cylinders. 5mL.

4.5 ultrasonic cleaning.

4.6 Syringe. 2mL.

4.7 stoppered conical flask. 100mL.

4.8 micro-injector. 10 μ L.

4.9 round-bottomed flask. 250mL.

4.10 syringe filters. organic phase, 0.45 μ m.

5.1 Preparation of sample solution

5.1.1 Sampling Sample should be taken on the appearance of the material of the product.

Sampling sites should use the product when the body can reach the site as close as possible. Sample size. length (100 ± 1) mm, width (100 ± 1) mm. Number of samples. The number of samples is 3 ~ 5.

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