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

GB/T 27843-2011

**Chemicals -- Determination of the low molecular weight content
of a polymer using -- Gel permeation chromatography (GPC)**

化学品 聚合物低分子量组分含量测定 凝胶渗透色谱法 (GPC)

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

The technical content of this standard and the Organization for Economic Cooperation and Development (OECD) chemical testing methods No.119 (1996 Nian) "gel permeation chromatography Spectroscopy (GPC) determination of low molecular weight component polymer "(in English) the same.

The editorial changes made the following standard.

--- Increasing the scope section;

--- Rearrange the page;

--- Of the original re-numbered.

This standard is managed by the National Standardization Technical Committee chemicals dangerous (SAC/TC251) and focal points.

This standard was drafted. Chinese Academy of Inspection and Quarantine, China Chemical Technology Development Center of Jiangsu Coal Chemical Engineering Research Institute Limited, the Chemical Institute of Standardization.

Introduction

This method is included in the original proposal of the European Commission (EC) working paper on the characteristics of the polymer method. The proposal in 1993 April was submitted to the Committee of Experts on the OECD held in Japan, and is recommended as a basis for the development of OECD test method. In 1994, the proposal by the Secretariat formatting OECD test methods to be distributed to Member States to EC text. Then in 1994, OECD/EC Joint Meeting of Experts on the proposal test methods were discussed and proposed modifications. The modified proposal no longer be distributed to

the Member States for further discussion. After two rounds of discussions, the draft test method in its current form is completed.

The method is based on DIN55672-1:2007. Specific measurement methods and data processing methods in DIN standards are introduced. In real Intertemporal changes in measurement conditions shall be adjusted accordingly. If there are other complete reference method may be used. This method describes the use of Polystyrene samples of known polydispersity do a calibration curve. This method can do the corresponding modification to suit the particular polymer, such as a water-soluble polymer and long-chain branched polymers.

Determination of low molecular weight polymer component content of chemicals Gel permeation chromatography (GPC)

1 Scope

This standard specifies the determination of low molecular weight polymers using gel permeation chromatography (gelpermeationchromatography, GPC) the method of component content.

This standard applies to the determination of low molecular weight components of the polymer. Since the diverse nature of the polymer material, also contained low molecular weight material Different, because some polymers having a particularly complex structure is not suitable to determine the content of the low molecular weight using gel chromatography, may be employed other parties Determination, when measured in accordance with the details of the polymeric material, select the appropriate measurement instrument.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

DIN55672-1:2007 gel permeation chromatography (GPC) - Part 1. as an elution solvent (Gelper- with tetrahydrofuran (THF) meationchromatography (GPC) -Part 1. Tetrahydrofuran (THF) aselutionsolvent).

3 Terms and Definitions

The following terms and definitions apply to this document.

Polymer has a number average molecular weight (M_n) and weight average molecular weight (M_w) thenumber-averagemolecularweight M_n andthe weight-averagemolecularweight M_w $M_n = \sum_{i=1}^n H_i$ $M_w = \sum_{i=1}^n H_i \times M_i$ $M_i = \sum_{i=1}^n H_i$

where.

H_i --- elution volume V_i baseline to the height detection signal;

M_i --- elution volume V_i molecular weight polymers;

n --- The number of measured data obtained.

Molecular weight distribution width the breadth of the molecular weight distribution Measure the degree of dispersion of the molecular weight of the polymer, the weight average molecular weight and number average molecular weight ratio M_w/M_n expressed.

Low molecular weight Molecular weight less than 1000Da ($1\text{Da} = 1\text{u} = 1.66054 \times 10^{-27}\text{kg}$).

4 Reference substance

The average molecular weight of the polymer measured by GPC is a relative method, calibration curve correction required. Usually known number average molecular weight