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

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**Gel permeation chromatography (GPC) -- Tetrahydrofuran as  
elution solvent**

凝胶渗透色谱法(GPC) 用四氢呋喃做淋洗液

**(English Translation)**

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### Foreword

This standard is identical with the German Organization for Standardization DIN55672-1:2007 "gel permeation chromatography (GPC) - Part 1. tetrahydrocannabinol Furan (THF) as an elution solvent "(in German).

The Standard Appendix A, Appendix C is a normative appendix, Appendix B is an informative annex.

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

This standard was drafted. China Inspection and Quarantine Science Research Institute, the Chemical Institute of Standardization.

### 1 Scope

This standard specifies the molecular weight distribution by gel permeation chromatography (GPC) measurement was dissolved in tetrahydrofuran (THF) in the polymer, the number average Molecular weight  $M_n$  and weight average molecular weight  $M_w$  methods and test conditions.

If the sample/eluent/separation material system specific interactions (such as absorption), even if the individual polymer obtained chromatographed Away and there is good reproducibility of the method is not applicable.

Gel permeation chromatography (GPC) is a method of measuring a relative, a commercially available linear needed, using methods known absolute molecular weight of polystyrene standards Substance corrected. As a result, the polymer samples having different structures can only be used as a reference value of the same structure as the sample group.

This standard does not apply to determination of  $M$  is greater than 106g/mol of the polymer (see Appendix C).

This standard correction method can not be implemented (such as the elimination peak diffusion). If you need to determine the absolute molar mass, you should use the absolute method (Example such as. used to determine the M-shaped membrane osmotic pressure method, or M light scattering method).

## 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 3186-2006 Paints, varnishes and raw materials for paints and varnishes - Sampling (ISO 15528:2000, IDT) GB/T 6379.1 measurement methods and results of Accuracy (trueness and precision) - Part 1. General principles and definitions (GB/T 6379.1-2004, ISO 5725-1:1994, IDT) GB/T 20777-2006 Paints and varnishes examination and preparation of samples (ISO 1513:1992, IDT) DIN50014 climate and atmospheric pressure using standard techniques

## 3 Terms and Definitions

The following terms and definitions apply to this standard.

Gel permeation chromatography, is a special form of liquid chromatography, the polymer sample was dissolved in molecular dispersion in an eluent, based on the solute molecule Size fractionation volume, macromolecules elute first, followed by elution of small molecules, the molecular weight of the polymer was isolated according to the size. Elution volumes specified Under the test conditions are a function of a single polymer molecule.

## 4 Summary

Sample was dissolved in eluent to prepare a sample solution to be tested (concentration of less than 5g/L), and the sample solution was injected into the divisible part GPC system. Eluent solute elutes from the column, the detector is continuously detected, which corresponds to a concentration usually consists of a differential refractive index detector test Amount, thereby obtaining the corresponding chromatograms using a calibration curve of the system is determined to calculate the relative molecular weight distribution, the number average molecular weight and the weight average M-shaped and a weight average molecular weight M number than M/M shape.

## **5.1 General**

Gel permeation chromatography (GPC) instrument consists of the following parts (see Figure 1), these parts were described in detail hereinafter.