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

GB/T 21783-2008

**Plastic capillary tube and polarizing microscope method of
partially crystalline polymer melting behavior (melting
temperature or melting range)**

塑料毛细管法和偏光显微镜法测定部分：结晶聚合物的熔融行为(熔融温度或熔融
范围)

(English Translation)

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Foreword

This standard is identical with ISO 3146:2000 (E) "Determination of partially crystalline polymer plastic capillary tube and polarizing microscopy melt Behavior (melting temperature or melting range), "including Technical Corrigendum ISO 3146:2000/Cor. 1.2002 (E).

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

This standard was drafted. Guangdong Entry-Exit Inspection and Quarantine, Ningbo, the State Quality Supervision, Inspection synthetic resin center.

Introduction

Melting behavior of crystalline or partially crystalline polymers exhibit a structure-sensitive properties.

Polymers that typically do not have a definite melting point low molecular weight substances, can be observed only when heated from a solid to a change of the start High viscosity or viscoelastic liquid crystal phase and is accompanied by the disappearance of the melting temperature range. Melting range, such as molecular weight and molecular weight distribution, crystallinity, and Many parameters of thermodynamic properties and so on.

Melting range may also be related to the thermal history of the sample. Melting range lower limit or upper limit or the average, sometimes referred to as the habit "Melting temperature." GB/T 21783-2008/ISO 3146:2000 Plastic capillary tube and polarizing microscope assay Melting behavior of the partially crystalline polymer (Melting temperature or melting range)

1 Scope

This standard specifies the evaluation of a partially crystalline polymer melting behavior of two ways.

Different methods of measuring the melting temperature is usually a few degrees difference, in the introduction to this explanation has been made.

Method A. capillary method the method is based on determination of the melting temperature of the polymer into a shape-based, apply to all parts of the crystalline polymer and mix.

Note 1: A method can also be used to evaluate the softening behavior of non-crystalline solid.

Method B. polarizing microscopy the method is based on changes in the optical properties of the polymer melt temperature measurement method based for birefringent crystalline phase of the polymer containing the determination of the melting temperature, there is not applicable to interfere with the melting temperature of the birefringent pigments and/or additives in polymer crystalline regions measured.

Note 2: Another method is suitable for partially crystalline polymers can be found in the standard. GB/T 19466.3-2004 "plastic differential scanning calorimeter (DSC) method Part 3. melting or crystallization temperature and enthalpy measurement "(ISO 11357-3:1999, IDT).

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 2918 standard plastic sample conditioning and environmental tests (idtGB/T 2918-1998, ISO 291:1997)

3 Terms and Definitions

This standard uses the following terms and definitions.

Crystalline phase and amorphous phase-containing polymer.

Crystalline or partially crystalline polymer crystallization when heated or particle shape characteristics disappearance temperature range.

Note: The definition of methods A and B measured "melting temperature" see 4.1 and 5.1 respectively.

4.1 Principle

In the case of controlling the heating rate of the sample in the capillary heating. Record the temperature and specimen sample starts to deform when the last vestiges Temperature crystal phase disappears.

A first temperature called the melting temperature of the sample is said to range between two temperatures for the melting range of the sample.

NOTE: According to the relevant regulations or agreed upon by the parties, this standard is also applicable to non-crystalline polymer.

GB/T 21783-2008/ISO 3146:2000