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GB/T 41489-2022

Plastics - Polyamides - Determination of epsilon-caprolactam and omega-laurolactam by gas chromatography

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules of Standardization Documents"

drafted.

This document is modified using ISO 11337.2010 "Determination of epsilon-caprolactam and omega-laurolactam by gas chromatography on plastic polyamides

amine".

This document has the following structural adjustments compared to ISO 11337.2010.

--- Added informative appendix A "Typical chromatograms of epsilon-caprolactam and omega-laurolactam in polyamides", the ISO 11337.2010

The chromatogram in 5.8 is adjusted to Appendix A.

The technical differences between this document and ISO 11337.2010 and their reasons are as follows.

--- Added the normative reference document GB/T 6682 to adapt to the technical conditions of our country (see Chapter 2, 4.2, 5.2);

--- Added the normative reference document GB/T 9722 to adapt to my country's technical conditions (see Chapter 2, 4.3.7, 5.3.1);

--- In order to adapt to the actual situation in my country, the description of the detector and chromatographic column has been adjusted (see 4.3.7, 5.3.1, Table 1, Table 3);

--- In order to adapt to the actual situation in my country, the accuracy of the addition amount of the internal standard solution is modified to 0.01mL (see Chapter 4 and Chapter 5);

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--- In order to adapt to the actual situation in my country, the number of parallel measurements has been increased (see 4.5.6, 5.4.6).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies a method for the determination of epsilon-caprolactam and omega-laurolactam in polyamides by gas chromatography.

This document applies to the determination of epsilon-caprolactam and omega-laurolactam content in polyamides.

This document describes methods for the determination of epsilon-caprolactam and omega-laurolactam by methanol extraction and solvent dissolution.

--- Method A is the methanol extraction method, take an appropriate amount of the extract and inject it into the gas chromatograph;

--- Method B is the solvent dissolution method, take an appropriate amount of dissolved solution and inject it into the gas chromatograph.

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2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

GB/T 2035 Plastic Terms and Definitions (GB/T 2035-2008, ISO 472.1999, IDT)

GB/T 6005 Test sieve wire mesh, perforated plate and basic size of electroformed sheet mesh (GB/T 6005-

2008, ISO 565.1990, MOD)

GB/T 6682 Analysis Laboratory Water Specifications and Test Methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 9722 General Rules for Gas Chromatography of Chemical Reagents

3 Terms and Definitions

Terms and definitions defined in GB/T 2035 apply to this document.

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4.1 Overview

The test sample was extracted with boiling methanol, and a small amount of the extract was injected into a gas chromatograph equipped with a hydrogen flame ionization detector for separation and detection.

Measure volatile components. 1-Lauryl alcohol was added to the extract as an internal standard.

4.2 Reagents

Unless otherwise stated, all reagents are of analytical grade and first-grade water in accordance with GB/T 6682.

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