INTERNATIONAL STANDARD

ISO 11337

Third edition
2023-01

Plastics — Polyamides — Determination of ε-caprolactam and ω-laurolactam by gas chromatography

Plastiques — Polyamides — Détermination du ε-caprolactame et du ω-laurolactame par chromatographie en phase gazeuse

Reference number
ISO 11337:2023(E)

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Published in Switzerland

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Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Method A: Extraction method ... **1**
4.1 Principle ... 1
4.2 Reagents ... 1
4.3 Apparatus and materials ... 2
4.4 Preparation of test sample ... 3
4.5 Procedure ... 4
4.5.1 Test portion ... 4
4.5.2 Extraction ... 4
4.5.3 Preparation of internal-standard solution ... 4
4.5.4 Preparation of sample solution ... 4
4.5.5 Preparation of calibration solution ... 4
4.5.6 Gas-chromatographic analysis of sample and calibration solutions ... 4
4.5.7 Evaluation of gas chromatographic peaks ... 5
4.6 Expression of results ... 5
4.7 Precision ... 5
4.8 Test report ... 6

5 Method B: Dissolution method ... **6**
5.1 Principle ... 6
5.2 Reagents ... 6
5.3 Apparatus ... 7
5.4 Preparation of internal-standard solutions ... 8
5.4.1 General ... 8
5.4.2 Internal standard for unextracted polyamide 6 ... 8
5.4.3 Internal standard for extracted polyamide 6 ... 8
5.4.4 Internal standard for polyamide 12 ... 8
5.4.5 Preparation of calibration solutions ... 9
5.4.6 Calibration ... 10
5.5 Procedure ... 10
5.5.1 Preparation and injection of sample solution ... 10
5.5.2 Evaluation of gas-chromatographic peaks ... 10
5.5.3 Solvent recovery ... 10
5.6 Expression of results ... 11
5.7 Precision ... 11
5.8 Test report ... 11

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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 11337:2010), which has been technically revised.

The main changes are as follows:

— isopropanol has been added as suitable internal standard for method A;

— the use of packed and capillary columns has been indicated specifically;

— the specification of suitable detectors has been opened.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Plastics — Polyamides — Determination of ε-caprolactam and ω-laurolactam by gas chromatography

SAFETY STATEMENT — Persons using this document should be familiar with normal laboratory practice, if applicable. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This document specifies a method for determining ε-caprolactam and ω-laurolactam in polyamides by gas chromatography. It is applicable particularly to the determination of ε-caprolactam in polyamide 6 and ω-laurolactam in polyamide 12.

Two variants of the basic method are specified.

— Method A is an extraction method with boiling methanol, and the extract is injected into a gas chromatograph.

— Method B is a method using a solvent, and the solution is injected into a gas chromatograph.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

ISO 472, *Plastics — Vocabulary*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Method A: Extraction method

4.1 Principle

A test portion is extracted with boiling methanol and a small volume of the extract is injected into a gas chromatograph equipped with a suitable detector to separate and detect the volatile components. The extract contains 1-dodecanol as an internal standard.

4.2 Reagents

During the analysis, use only reagents of recognized analytical grade.

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