

Plastics - Differential scanning calorimetry (DSC) -
Part 5: Determination of characteristic reaction-curve
temperatures and times, enthalpy of reaction and
degree of conversion (ISO 11357-5:2025)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN ISO 11357-5:2025 sisaldab Euroopa standardi EN ISO 11357-5:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 28.05.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN ISO 11357-5:2025 consists of the English text of the European standard EN ISO 11357-5:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 28.05.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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EUROPEAN STANDARD

EN ISO 11357-5

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English Version

Plastics - Differential scanning calorimetry (DSC) - Part 5:
Determination of characteristic reaction-curve
temperatures and times, enthalpy of reaction and degree
of conversion (ISO 11357-5:2025)

Plastiques - Analyse calorimétrique différentielle (DSC)
- Partie 5: Détermination des températures et temps
caractéristiques de la courbe de réaction, de l'enthalpie
de réaction et du degré de transformation (ISO 11357-
5:2025)

Kunststoffe - Dynamische Differenzkalorimetrie (DSC)
- Teil 5: Bestimmung von charakteristischen
Reaktionstemperaturen und -zeiten,
Reaktionsenthalpie und Umsatz (ISO 11357-5:2025)

This European Standard was approved by CEN on 24 May 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 11357-5:2025) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2025, and conflicting national standards shall be withdrawn at the latest by November 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 11357-5:2014.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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Endorsement notice

The text of ISO 11357-5:2025 has been approved by CEN as EN ISO 11357-5:2025 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*, 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 11357-5:2013), which has been technically revised.

The main changes are as follows:

- the scope has been limited to conventional DSC;
- in case of reactions overlapping with decomposition, the user is referred to fast DSC.

A list of all parts in the ISO 11357 series can be found on the ISO website.

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.

Plastics — Differential scanning calorimetry (DSC) —

Part 5: Determination of characteristic reaction-curve temperatures and times, enthalpy of reaction and degree of conversion

WARNING — Caution should be observed when working with materials which can give a runaway reaction or exhibit other dangerous behaviour.

1 Scope

This document specifies a method for the determination of reaction temperatures and times, enthalpies of reaction, and degrees of conversion using conventional differential scanning calorimetry (DSC) as specified in ISO 11357-1.

The method applies to monomers, prepolymers, and polymers in the solid or liquid state. The material can contain fillers and/or initiators in the solid or liquid state.

This document is not applicable to fast DSC as specified in ISO 23976.^[1]

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 amendments) applies.

ISO 11357-1, *Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11357-1 and the following 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/>

3.1 polymerization

process of converting a monomer or a mixture of monomers into a polymer

3.2 crosslinking

process of multiple intermolecular covalent or ionic bonding between polymer chains

3.3 degree of conversion

quantity of reacted product obtained during a reaction compared with the maximum possible quantity of the product

Note 1 to entry: The degree of conversion will depend on both time and temperature.