

Plastics - Poly(vinyl chloride) - Determination of residual vinyl chloride monomer using gas-chromatographic method (ISO 6401:2022)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 6401:2022 sisaldab Euroopa standardi EN ISO 6401:2022 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 6401:2022 consists of the English text of the European standard EN ISO 6401:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
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English Version

Plastics - Poly(vinyl chloride) - Determination of residual
vinyl chloride monomer using gas-chromatographic
method (ISO 6401:2022)

Plastiques - Poly(chlorure de vinyle) - Détermination
du chlorure de vinyle monomère résiduel par la
méthode de chromatographie en phase gazeuse (ISO
6401:2022)

Kunststoffe - Polyvinylchlorid - Bestimmung des
Restgehaltes an Vinylchlorid-Monomer -
Gaschromatographisches Verfahren (ISO 6401:2022)

This European Standard was approved by CEN on 6 December 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 6401:2022) 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 NBN.

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of an identical text or by endorsement, at the latest by June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

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 6401:2008.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 6401:2022 has been approved by CEN as EN ISO 6401:2022 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 documents 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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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 6401:2008), which has been technically revised.

The main changes are as follows:

- a reference for the density of *N,N'*-dimethylacetamide has been added;
- the condition for storing vinyl chloride standard solutions has been specified more precisely;
- the formula for the expression of the vinyl chloride content in relation to the amount of resin has been corrected;
- the test report has been extended.

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 — Poly(vinyl chloride) — Determination of residual vinyl chloride monomer using gas-chromatographic method

SAFETY PRECAUTIONS — 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 to determine applicability of any regulatory requirements.

1 Scope

This document specifies a method for the determination of vinyl chloride monomer in homopolymer and copolymer resins of vinyl chloride and compounded materials. The method is based on sample dissolution and headspace gas chromatography. Concentrations of vinyl chloride in the range 0,1 mg/kg to 3,0 mg/kg can be determined.

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 472, *Plastics — Vocabulary*

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 Principle

The level of vinyl chloride monomer is determined by headspace gas chromatography of the polymer test sample dissolved or swollen in *N,N'*-dimethylacetamide.

5 Sampling

A concentration gradient can form in stored resin samples due to the volatility of vinyl chloride. Cooling of the sample prior to sampling is advisable but condensation of humidity shall be avoided. Sample preparation shall be carried out as quickly as possible to minimize losses of residual monomer. When exchanging samples between laboratories or when storage is necessary, samples should be sealed in completely-filled glass bottles or vials (e.g. 6.5, 6.6).

6 Apparatus

Standard laboratory apparatus and the following: