

Gel permeation chromatography (GPC) - Part 3: Water
as eluent (ISO 13885-3:2020)

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 13885-3:2021 sisaldab Euroopa standardi EN ISO 13885-3:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 13885-3:2021 consists of the English text of the European standard EN ISO 13885-3:2021.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.09.2021.	Date of Availability of the European standard is 01.09.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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EUROPEAN STANDARD

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Chromatographie par perméation de gel (GPC) - Partie 3: Eluant à l'eau (ISO 13885-3:2020)

Gelpermeationschromatographie (GPC) - Teil 3: Wasser als Elutionsmittel (ISO 13885-3:2020)

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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

The text of ISO 13885-3:2020 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13885-3:2021 by Technical Committee CEN/TC 139 "Paints and varnishes" the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by March 2022, and conflicting national standards shall be withdrawn at the latest by March 2022.

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Endorsement notice

The text of ISO 13885-3:2020 has been approved by CEN as EN ISO 13885-3:2021 without any modification.

Contents

	Page
Foreword.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Principle.....	2
5 Apparatus.....	2
5.1 Eluent supply.....	3
5.2 Pump.....	3
5.3 Injection system.....	3
5.4 Separation columns.....	3
5.5 Column temperature control.....	5
5.6 Detector.....	6
6 Reagents.....	6
7 Calibration of the apparatus.....	6
7.1 General.....	6
7.2 Specification for the calibration standard.....	6
7.3 Preparation of the calibration solutions for injection.....	7
7.4 Conditions for calibration runs.....	7
7.5 Measurement of elution volume.....	7
7.6 Plotting the calibration curve.....	7
8 Sampling.....	8
9 Preparation for the test.....	8
9.1 Preparation of the injection solution.....	8
9.2 Preparation of the apparatus.....	9
10 Analytical parameters.....	9
11 Data acquisition and evaluation.....	9
11.1 General.....	9
11.2 Calculation of the net chromatogram from the raw data.....	10
11.2.1 Determination of the baseline.....	10
11.2.2 Correction of the measured values and of the net chromatogram.....	10
11.2.3 Evaluation limits.....	10
11.3 Calculation of the average values.....	10
11.4 Calculation of the distribution curves.....	11
12 Precision.....	12
12.1 General.....	12
12.2 Repeatability.....	12
12.3 Reproducibility.....	12
13 Test report.....	13
13.1 General.....	13
13.2 General data on the equipment and settings.....	13
13.2.1 Data on the equipment used.....	13
13.2.2 Calibration.....	13
13.2.3 Evaluation.....	14
13.3 Special data on the sample.....	14
Annex A (informative) Conversion of experimental parameters for variant column sizes.....	15
Annex B (informative) Example of a data sheet for a polymer standard.....	16
Annex C (informative) Explanations.....	18

Bibliography 23

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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 35, *Paints and varnishes*.

A list of all parts in the ISO 13885 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.

Gel permeation chromatography (GPC) —

Part 3: Water as eluent

WARNING — This document can involve hazardous materials, operations or equipment. It does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This document specifies the determination of the molar-mass distribution and the average molar mass values M_n (number average) and M_w (weight average) of polymers that are soluble in water by gel permeation chromatography (GPC).

NOTE Also known as size exclusion chromatography (SEC).

This method is applicable to neutral polymers and polyanions (e.g. polycarboxylates, polysaccharides, fully hydrolyzed polyvinyl alcohols and high-molecular polyethylene oxides). It is not applicable to polycations [e.g. polyvinylpyrrolidone, polyvinylpyridine, salts of poly(diallyl-N,N-dimethyl-azacyclopentane), chitosan].

Despite good solubility in the mobile phase and even though the chromatograms obtained show good repeatability, it is possible that this method cannot be used with certain polymer types because of specific interactions (e.g. adsorption) within the sample/eluent/column system (see also [Clause 12](#)).

The conditions specified in this document are not applicable to the GPC analysis of polymer samples with M_w values greater than 10^6 g/mol and/or polymers with elution limits outside the calibration range (see [7.6](#) and [Annex C](#)).

This document includes no correction methods (e.g. for the elimination of peak broadening). If absolute molar mass values are required, an absolute method (e.g. membrane osmometry for M_n or light scattering for M_w) can be used.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and the following apply.

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

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