
**Binders for paints and varnishes — Gel
permeation chromatography (GPC) —**

**Part 1:
Tetrahydrofuran (THF) as eluent**

*Liants pour peintures et vernis — Chromatographie par perméation de
gel (GPC) —*

Partie 1: Utilisation de tétrahydrofurane (THF) comme éluant



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 13885-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 13885-1:1998), which has been technically revised. In particular, the method has been brought into line with the current state of the art, especially as far as the software used is concerned, and the procedure for the manual evaluation of the results has been deleted.

ISO 13885 consists of the following parts, under the general title *Binders for paints and varnishes — Gel permeation chromatography (GPC)*:

— *Part 1: Tetrahydrofuran (THF) as eluent*

Binders for paints and varnishes — Gel permeation chromatography (GPC) —

Part 1: Tetrahydrofuran (THF) as eluent

WARNING — This part of ISO 13885 may 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. A specific hazard statement appears in Clause 6.

1 Scope

This part of ISO 13885 describes the determination of the molar-mass distribution, number-average molar mass M_n and mass-average molar mass M_w of polymers that are soluble in THF (tetrahydrofuran) by gel permeation chromatography (GPC)¹⁾.

It is possible that, in spite of the good repeatability obtained with this method, it cannot be used with certain polymer types because of specific interactions, such as adsorption within the sample/eluent/column system.

The method is not an absolute one and requires calibration with commercially available unbranched-polystyrene standards that have been characterized by absolute methods. The results for samples of polymers other than polystyrene are therefore only comparable within groups of samples of the same type.

The conditions specified in this part of ISO 13885 are not suitable for the GPC analysis of polymer samples with M_w values greater than 10^6 (see Annex C).

No correction methods, e.g. for the elimination of peak broadening, are included in this part of ISO 13885. If absolute molar-mass values are required, an absolute method, e.g. membrane osmometry for M_n or light scattering for M_w , must be used.

2 Normative references

The following referenced documents are indispensable for the application 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 1513, *Paints and varnishes — Examination and preparation of samples for testing*

ISO 5725-1, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*

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

1) Also known as size exclusion chromatography (SEC).