
**Binders for paints and varnishes —
Determination of softening point —**

**Part 1:
Ring-and-ball method**

Liants pour peintures et vernis — Détermination du point de ramollissement —

Partie 1: Méthode de l'anneau et de la bille



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Contents

Page

Foreword.....	iv
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Sampling and preparation of test pieces.....	2
6 Materials (heating-bath liquids).....	3
7 Manual ring-and-ball method	4
8 Automated ring-and-ball method	7
9 Expression of results.....	8
10 Precision and bias	8
11 Test report.....	10

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 4625-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

It cancels and replaces ISO 4625:1980, which has been technically and editorially revised to harmonize it with ASTM E 28-99, *Standard Test Methods for Softening Point of Resins Derived from Naval Stores by Ring-and-Ball Apparatus*. The main changes are the introduction of an automated procedure and the splitting of the softening point values into four ranges: less than 35 °C, 35 °C to less than 80 °C, 80 °C to 150 °C and greater than 150 °C. The moulding method for the preparation of test pieces has been deleted.

ISO 4625 consists of the following parts, under the general title *Binders for paints and varnishes — Determination of softening point*:

- Part 1: *Ring-and-ball method*
- Part 2: *Cup-and-ball method*

Binders for paints and varnishes — Determination of softening point —

Part 1: Ring-and-ball method

1 Scope

This part of ISO 4625 specifies methods of determining the softening point of resins (including rosin) and similar materials by means of the ring-and-ball apparatus.

Both manual and automatic methods are specified.

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 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*

IEC 60751, *Industrial platinum resistance thermometer sensors*

ASTM E 691, *Standard Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

softening point

temperature at which a disc of sample held within a horizontal ring is forced downward a distance of 25,4 mm under the weight of a steel ball as the disc is heated at a prescribed rate in a water, glycerol, silicone oil, ethylene glycol/water or glycerol/water bath

4 Principle

In general, with materials of the types mentioned in Clause 1, softening does not take place at a definite temperature. As the temperature rises, these materials gradually change from brittle or exceedingly thick and slow-flowing materials to softer and less viscous liquids. For this reason, the determination of the softening point must be made by a fixed, closely defined method if the results obtained are to be comparable.