
**Paints and varnishes — Determination of
density —**

Part 4:
Pressure cup method

Peintures et vernis — Détermination de la masse volumique —

Partie 4: Méthode du cylindre sous pression



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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 2811-4 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 2811-4:1997), which has been technically revised.

The main changes are:

- a) The unit for the density has been changed from grams per millilitre to grams per cubic centimetre, because this is the more common SI unit.
- b) The determination in duplicate has been changed to a single determination.
- c) The normative references have been updated.

ISO 2811 consists of the following parts, under the general title *Paints and varnishes — Determination of density*:

- *Part 1: Pycnometer method*
- *Part 2: Immersed body (plummet) method*
- *Part 3: Oscillation method*
- *Part 4: Pressure cup method*

Paints and varnishes — Determination of density —

Part 4: Pressure cup method

1 Scope

This part of ISO 2811 specifies a method for determining the density of paints, varnishes and related products using a pressure cup.

The method is suitable for products which are aerated. Emulsion paints, for example, often trap small air bubbles, and these might still be present when the density is measured.

It is not, however, suitable for textured paints which contain coarse particles.

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 test samples*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

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

3 Terms and definitions

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

3.1

density

ρ

mass divided by the volume of a portion of a material

NOTE This is expressed in grams per cubic centimetre.

4 Principle

The product under test is compressed in a cylindrical pressure cup to reduce any error due to air bubbles which have not been eliminated. The density is calculated from the mass of the product and the volume of the cylinder.

NOTE Air is more soluble at higher pressures, and it is thought that the main mechanism of bubble removal is by dissolving. Any undissolved bubbles are compressed to a fraction of their original size.