
Paints and varnishes — Wettability —

Part 4:

**Determination of the polar and
dispersive fractions of the surface
tension of liquids from an interfacial
tension**

Peintures et vernis — Mouillabilité —

*Partie 4: Détermination des fractions polaires et disperses de la
tension de surface des liquides à partir de la tension interfaciale*



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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 on 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 the following URL: www.iso.org/iso/foreword.html.

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

A list of all parts in the ISO 19403 series can be found on the ISO website.

Paints and varnishes — Wettability —

Part 4:

Determination of the polar and dispersive fractions of the surface tension of liquids from an interfacial tension

1 Scope

This document specifies a test method to determine the polar and dispersive fraction of the surface tension of liquids with optical methods. The method can be applied for the characterization of liquid coating materials, especially when drying effects occur during measurement. The applicability can be restricted for liquids with non-Newtonian rheology¹⁾.

This document assumes that the information of surface tension of the liquid to be tested, as well as at least one suitable reference liquid, is known.

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 1409, *Plastics/rubber — Polymer dispersions and rubber latices (natural and synthetic) — Determination of surface tension by the ring method*

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

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

ISO 19403-1, *Paints and varnishes — Wettability — Part 1: Terminology and general principles*

ISO 19403-3, *Paints and varnishes — Wettability — Part 3: Determination of the surface tension of liquids using the pendant drop method*

EN 14370, *Surface active agents — Determination of surface tension*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and ISO 19403-1 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

One drop of the respective liquid to be tested is reproduced within an optical cell, which is completely filled with a reference liquid, hanging from or ascending from a needle. The reproduced drop shall deviate significantly from the spherical shape due to its mass difference from the reference liquid.

1) This term is defined in DIN 1342-1.