



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 19403-4:2020

Paints and varnishes - Wettability - Part 4: Determination of the polar and dispersive fractions of the surface tension of liquids from an interfacial tension (ISO 19403-4:2017)

**I.S. EN ISO 19403-4:2020**

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NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

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## National Foreword

I.S. EN ISO 19403-4:2020 is the adopted Irish version of the European Document EN ISO 19403-4:2020, Paints and varnishes - Wettability - Part 4: Determination of the polar and dispersive fractions of the surface tension of liquids from an interfacial tension (ISO 19403-4:2017)

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EUROPEAN STANDARD

**EN ISO 19403-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2020

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ICS 01.040.87

English Version

## Paints and varnishes - Wettability - Part 4: Determination of the polar and dispersive fractions of the surface tension of liquids from an interfacial tension (ISO 19403-4:2017)

Peintures et vernis - Mouillabilité - Partie 4:  
Détermination des fractions polaires et disperses de la  
tension de surface des liquides à partir de la tension  
interfaciable (ISO 19403-4:2017)

Beschichtungsstoffe - Benetzbarkeit - Teil 4:  
Bestimmung des polaren und dispersen Anteils der  
Oberflächenspannung von Flüssigkeiten aus einer  
Grenzflächenspannung (ISO 19403-4:2017)

This European Standard was approved by CEN on 4 November 2019.

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN ISO 19403-4:2020 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

The text of ISO 19403-4:2017 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 19403-4:2020 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 August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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

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## **Endorsement notice**

The text of ISO 19403-4:2017 has been approved by CEN as EN ISO 19403-4:2020 without any modification.

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**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*



Reference number  
ISO 19403-4:2017(E)

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**ISO 19403-4:2017(E)**



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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>1</b>
<b>5 Apparatus and materials</b> .....	<b>2</b>
<b>6 Sampling</b> .....	<b>4</b>
<b>7 Procedure</b> .....	<b>4</b>
7.1 General.....	4
7.1.1 Setting up the drop contour analysis device.....	4
7.1.2 Test conditions.....	4
7.1.3 Cleaning and conditioning of the reference liquid.....	4
7.2 Determination of the interfacial tension of the liquid.....	5
7.2.1 Preparations.....	5
7.2.2 Procedure.....	5
7.3 Determination of the surface tension of liquids.....	6
<b>8 Evaluation</b> .....	<b>6</b>
8.1 General.....	6
8.2 Calculation of the dispersive fraction of the surface tension in accordance with Owens-Wendt-Rabel-Kaelble.....	6
8.3 Calculation of the dispersive fraction of the surface tension in accordance with Wu.....	6
8.4 Calculation of the polar fraction of the surface tension of the liquid.....	7
<b>9 Precision</b> .....	<b>7</b>
<b>10 Test report</b> .....	<b>7</b>
<b>Bibliography</b> .....	<b>8</b>

## ISO 19403-4:2017(E)

### 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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://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 rheology<sup>1)</sup>.

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.

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