
Paints and varnishes — Wettability —
Part 7:
Measurement of the contact angle on a
tilt stage (roll-off angle)

Peintures et vernis — Mouillabilité —

Partie 7: Mesurage de l'angle de contact sur un plan incliné (angle d'écroulement)



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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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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.

Introduction

Dynamic contact angles describe the processes on the interface liquid/solid during volume increase (advancing angle) or volume decrease (receding angle) of a drop in horizontal position. As an alternative to the static method (see ISO 19403-2), for the advancing angle always a surface area is wetted, which was previously unwetted. For the receding angle, the contact angle during dewetting is observed. From the difference between advancing angle and receding angle, information on chemical homogeneity and roughness can be concluded. The receding angle is not suitable for the determination of the surface energy.

Paints and varnishes — Wettability —

Part 7:

Measurement of the contact angle on a tilt stage (roll-off angle)

1 Scope

This document specifies a method for the dynamic measurement of the roll-off angle of a liquid drop on a solid surface. From the dynamic measurement, the advancing and receding angles of the drop rolling off can also be determined. The roll-off angle plays a role when evaluating, for example, easy-to-clean or anti-adherent surfaces.

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 4618, *Paints and varnishes — Terms and definitions*

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

3 Terms and definitions

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

3.1

roll-off angle

α_s

tipping of the surface of the solid body, due to which a liquid drop put down onto this surface rolls off

3.2

advancing angle

θ_a

contact angle, which is measured during advancing of the three-phase point

Note 1 to entry: Generally, the advancing angle is used for the determination of the interface energy, in which case the measurement should be carried out close to the thermodynamic equilibrium. This is approximately reached if there is no influence of, for example, the dosing speed on the contact angle.

[SOURCE: ISO 19403-6:2017, 3.2]