



NSAI
Standards

Irish Standard
I.S. EN ISO 18452:2016

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of thickness of ceramic films by contact-probe profilometer (ISO 18452:2005)

I.S. EN ISO 18452:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document is based on:

EN ISO 18452:2016

Published:

2016-04-20

This document was published under the authority of the NSAI and comes into effect on:

2016-05-08

ICS number:

81.060.30

NOTE: If blank see CEN/CENELEC cover page

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 18452:2016 is the adopted Irish version of the European Document EN ISO 18452:2016, Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of thickness of ceramic films by contact-probe profilometer (ISO 18452:2005)

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EUROPEAN STANDARD

EN ISO 18452

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 81.060.30

Supersedes EN 1071-1:2003

English Version

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of thickness of ceramic films by contact-probe profilometer (ISO 18452:2005)

Céramiques techniques - Détermination de l'épaisseur des films céramiques avec un profilomètre à contact (ISO 18452:2005)

Hochleistungskeramik - Bestimmung der Dicke keramischer Schichten mit einem Kontaktprofilometer (ISO 18452:2005)

This European Standard was approved by CEN on 25 March 2016.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN ISO 18452:2016 (E)

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European foreword

The text of ISO 18452:2005 has been prepared by Technical Committee ISO/TC 206 “Fine ceramics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 18452:2016 by Technical Committee CEN/TC 184 “Advanced technical ceramics” 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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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Endorsement notice

The text of ISO 18452:2005 has been approved by CEN as EN ISO 18452:2016 without any modification.

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INTERNATIONAL STANDARD

ISO
18452

First edition
2005-11-15

Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of thickness of ceramic films by contact-probe profilometer

*Céramiques techniques — Détermination de l'épaisseur des films
céramiques avec un profilomètre à contact*



Reference number
ISO 18452:2005(E)

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
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Published in Switzerland

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ISO 18452:2005(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.

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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.

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ISO 18452 was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of thickness of ceramic films by contact-probe profilometer

1 Scope

This International Standard specifies a method for the determination of the film thickness of a fine ceramic film and ceramic coatings by a contact-probe profilometer. The method is suitable for film thicknesses in the range of 10 nm to 10 000 nm.

NOTE The method requires a distinct and clearly formed boundary between coated and uncoated parts of the substrate.

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 3274, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Nominal characteristics of contact (stylus) instruments*

3 Terms and definitions

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

3.1

fine ceramic film

coating consisting of a fine ceramic material which thinly covers the substrate surface

EXAMPLE Typical materials are oxides, carbides, nitrides, etc., deposited by methods such as vacuum evaporating, sputtering, chemical vapour deposition, etc.

4 Principle of measurement

This International Standard concerns the measurement of the film thickness of fine ceramic coatings on a substrate using a contact-probe profilometer. The film thickness shall be calculated from the profile which is obtained by scanning the contact probe in the direction $C \rightarrow B \rightarrow A$, as shown in Figure 1. The profile is in proportion to the difference in height between the parts covered and not covered with the fine ceramic film.

5 Test environment

The test shall be carried out in an environment free from mechanical vibrations that may affect the measurement.

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