



**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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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**

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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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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

This document supersedes EN 1071-1:2003.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### **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

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## **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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**ISO 18452:2005(E)**

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Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
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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.

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 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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