



NSAI
Standards

Irish Standard
S.R. CEN ISO/TR 11811:2012

Nanotechnologies - Guidance on methods for nano- and microtribology measurements (ISO/TR 11811:2012)

© CEN 2012

No copying without NSAI permission except as permitted by copyright law.

S.R. CEN ISO/TR 11811:2012

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:

This document is based on:
CEN ISO/TR 11811:2012

Published:
4 September, 2012

This document was published under the authority of the NSAI and comes into effect on:
4 September, 2012

ICS number:

07.030

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

Údarás um Chaighdeáin Náisiúnta na hÉireann

ICS 07.030

English Version

Nanotechnologies - Guidance on methods for nano- and microtribology measurements (ISO/TR 11811:2012)

Nanotechnologies - Directives relatives aux méthodes de mesure en nano- et microtribologie (ISO/TR 11811:2012)

Nanotechnologien - Leitfaden für nano- und mikrotribologische Messverfahren (ISO/TR 11811:2012)

This Technical Report was approved by CEN on 9 August 2010. It has been drawn up by the Technical Committee CEN/TC 352.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....3

Foreword

This document (CEN ISO/TR 11811:2012) has been prepared by Technical Committee CEN/TC 352 "Nanotechnologies", the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 229 "Nanotechnologies".

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 page is intentionally left BLANK.

S.R. CEN ISO/TR 11811:2012
TECHNICAL
REPORT

ISO/TR
11811

First edition
2012-08-15

**Nanotechnologies — Guidance on
methods for nano- and microtribology
measurements**

*Nanotechnologies — Directives relatives aux méthodes de mesure en
nano- et microtribologie*



Reference number
ISO/TR 11811:2012(E)

© ISO 2012



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

| | |
|--|----|
| Foreword | iv |
| Introduction | v |
| 1 Scope | 1 |
| 2 Terms and definitions | 1 |
| 3 Significance and use | 1 |
| 4 Principle | 2 |
| 5 Apparatus and materials | 2 |
| 5.1 Test systems | 2 |
| 5.2 Test parameters | 4 |
| 6 Test procedure | 8 |
| 6.1 Different types of test | 8 |
| 6.2 Surface examination techniques | 11 |
| 7 Test reproducibility, repeatability and limits | 12 |
| 8 Test report | 12 |
| Bibliography | 13 |

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.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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/TR 11811 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 352, *Nanotechnologies*, in collaboration with ISO Technical Committee ISO/TC 229, *Nanotechnologies*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Introduction

Evaluation of wear and friction in systems where interactions occur in the nanoscale is becoming increasingly important. There are two main areas of application. The first is in MEMS and NEMS devices, where tribological issues can determine the overall performance of the device. It is also true that, in many cases, the tribological performance of macroscale contacts depends on the combination of what occurs at the micro- and nanoscale asperity contacts which actually take place when two surfaces come into contact.

The development of nanotribology testing provides a way of generating information and understanding these small-scale contacts. This understanding can then be used to model the performance of microscale devices and provide the basis for future models of sliding wear.

S.R. CEN ISO/TR 11811:2012

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-