



NSAI
Standards

Irish Standard
I.S. EN ISO 3543:2001

Metallic and non-metallic coatings - Measurement of thickness - Beta backscatter method (ISO 3543:2000)

I.S. EN ISO 3543:2001

Incorporating amendments/corrigenda issued since publication:

EN ISO 3543:2000/AC:2006

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

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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:
EN ISO 3543:2000

Published:
6 July, 2001

This document was published
under the authority of the NSAI
and comes into effect on:
6 July, 2001

ICS number:
25.220.20
25.220.40

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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I.S. EN ISO 3543:2001

EUROPEAN STANDARD

EN ISO 3543:2000/AC

NORME EUROPÉENNE

April 2006

EUROPÄISCHE NORM

Avril 2006

April 2006

ICS 17.040.20; 25.220.40; 25.220.99

English version
Version Française
Deutsche Fassung

Metallic and non-metallic coatings - Measurement of thickness - Beta
backscatter method (ISO 3543:2000/Cor.1:2003)

Revêtements métalliques et non
métalliques - Mesurage de l'épaisseur -
Méthode par rétrodiffusion des rayons bêta
(ISO 3543:2000/Cor.1:2003)

Metallische und andere anorganische
Schichten - Dickenmessung -
Betarückstreu-Verfahren (ISO
3543:2000/Cor.1:2003)

This corrigendum becomes effective on 19 April 2006 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 19 avril 2006 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 19. April 2006 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

I.S. EN ISO 3543:2001
EN ISO 3543:2000/AC:2006 (E/F)

English version

Endorsement Notice

The text of ISO 3543:2000/Cor.1:2003 has been approved by CEN as EN ISO 3543:2000/AC:2006 without any modifications.

Version française

Notice d'entérinement

Le texte de l'ISO 3543:2000/Cor.1:2003 a été approuvé par le CEN comme EN ISO 3543:2000/AC:2006 sans aucune modification.



**I.S. EN ISO 3543:2001
INTERNATIONAL STANDARD ISO 3543:2000
TECHNICAL CORRIGENDUM 1**

Published 2003-12-01

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method

TECHNICAL CORRIGENDUM 1

Revêtements métalliques et non métalliques — Mesurage de l'épaisseur — Méthode par rétrodiffusion des rayons bêta

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO 3543:2000 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 2, *Test methods*.

Page 6

Subclause 5.1, paragraph 2, line 3 shall read

it is often helpful to express the standard deviation as a percentage of the count, that is $100\sqrt{X}/X$, or $100/\sqrt{X}$.

Page 14

Figure A.1: the isotopes shall be indicated against each curve; in descending order they are:

Ru-106

Sr-90

Bi-210

Ti-204

Pm-147

C-14

ICS 25.220.20; 25.220.40

Ref. No. ISO 3543:2000/Cor.1:2003(E)

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I.S. EN ISO 3543:2001

EUROPEAN STANDARD

EN ISO 3543

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2000

ICS 02.022.20

Supersedes EN ISO 3543:1994

English version

Metallic and non-metallic coatings - Measurement of thickness - Beta backscatter method (ISO 3543:2000)

Revêtements métalliques et non métalliques - Mesurage de
l'épaisseur - Méthode par rétrodiffusion des rayons bêta
(ISO 3543:2000)

Metallische und andere anorganische Schichten -
Dickenmessung - Betarückstreu-Verfahren (ISO
3543:2000)

This European Standard was approved by CEN on 15 December 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard ISO 3543:2000 has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 "Metallic and other inorganic coatings", the secretariat of which is held by BSI.

This European Standard supersedes EN ISO 3543:1994.

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 June 2001, and conflicting national standards shall be withdrawn at the latest by June 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC: The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of the International Standard ISO 3543:2000 was approved by CEN as a European Standard without any modification.

I.S. EN ISO 3543:2001

INTERNATIONAL STANDARD

ISO 3543

Second edition
2000-12-15

Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method

*Revêtements métalliques et non métalliques — Mesurage de l'épaisseur —
Méthode par rétrodiffusion des rayons beta*



Reference number
ISO 3543:2000(E)

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I.S. EN ISO 3543:2001

ISO 3543:2000(E)

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
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Printed in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3543 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 2, *Methods of inspection and coordination of test methods*.

This second edition cancels and replaces the first edition (ISO 3543:1981), which has been technically revised.

Annex A of this International Standard is for information only.

Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method

1 Scope

WARNING Beta backscatter instruments used for the measurement of coating thicknesses use a number of different radioactive sources. Although the activities of these sources are normally very low, they can present a hazard to health, if incorrectly handled. Therefore, reference should be made to current international and national standards, where these exist.

This International Standard specifies a method for the non-destructive measurement of coating thicknesses using beta backscatter gauges. It applies to both metallic and non-metallic coatings on both metallic and non-metallic substrates. To make use of this method, the atomic numbers or equivalent atomic numbers of the coating and the substrate need to differ by an appropriate amount.

NOTE Since the introduction of the X-ray fluorescence method (ISO 3497), the beta backscatter method has been used less and less for the measurement of coating thickness. However, because of its lower cost, it is still a very useful method of measurement for many applications. In addition it has a wider measuring range.

2 Terms and definitions

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

2.1

radioactive decay

spontaneous nuclear transformation in which particles or gamma radiation are emitted or X-radiation is emitted following orbital electron capture, or the nucleus undergoes spontaneous fission

[ISO 921:1997, definition 972]

2.2

beta particle

electron or positron which has been emitted by an atomic nucleus or neutron in a nuclear transformation

[ISO 921:1997, definition 81]

2.3

beta-emitting isotope

beta-emitting source

beta emitter

material, the nuclei of which emit beta particles

NOTE 1 It is possible to classify beta emitters by the maximum energy level of the particles that they release during their disintegration.

NOTE 2 Table A.1 lists some isotopes used with beta backscatter gauges.

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