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Metallic coatings - Measurement of coating thickness - X-ray spectrometric methods

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 3497:2001 sisaldab Euroopa standardi EN ISO 3497:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 3497:2001 consists of the English text of the European standard EN ISO 3497:2000.</p> <p>This document is endorsed on 18.05.2001 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This standard specifies methods for measuring the thickness of metallic coatings by the use of X-ray spectrometric methods.</p>	<p>Scope: This standard specifies methods for measuring the thickness of metallic coatings by the use of X-ray spectrometric methods.</p>
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ICS 25.220.40

Võtmesõnad: coating thickness, measurement, metal coatings, metal films, spectrometry, testing, tests, thickness measurement, x-ray fluorescence, x-ray fluorescence spectrometry, x-ray spectrometry

ICS 25.220.40

English version

Metallic coatings

Measurement of coating thickness –
X-ray spectrometric methods

(ISO 3497 : 2000)

Revêtements métalliques – Mesurage
de l'épaisseur du revêtement – Métho-
des par spectrométrie de rayons X
(ISO 3497 : 2000)

Metallische Schichten – Schicht-
dickenmessung – Röntgenfluores-
zenz-Verfahren (ISO 3497 : 2000)

This European Standard was approved by CEN on 2000-12-15.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

International Standard

ISO 3497 : 2000 Metallic coatings – Measurement of coating thickness – X-ray spectrometric methods, which was prepared by ISO/TC 107 'Metallic and other inorganic coatings' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 262 'Metallic and other inorganic coatings', the Secretariat of which is held by BSI, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by June 2001 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 3497 : 2000 was approved by CEN as a European Standard without any modification.

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1 Scope

WARNING Problems concerning protection of personnel against X-rays are not covered by this International Standard. For information on this important aspect, reference should be made to current international and national standards, and to local regulations, where these exist.

1.1 This International Standard specifies methods for measuring the thickness of metallic coatings by the use of X-ray spectrometric methods.

1.2 The measuring methods to which this International Standard applies are fundamentally those that determine the mass per unit area. Using a knowledge of the density of the coating material, the results of measurements can also be expressed as linear thickness of the coating.

1.3 The measuring methods permit simultaneous measurement of coating systems with up to three layers, or simultaneous measurement of thickness and compositions of layers with up to three components.

1.4 The practical measurement ranges of given coating materials are largely determined by the energy of the characteristic X-ray fluorescence to be analysed and by the acceptable measurement uncertainty and can differ depending upon the instrument system and operating procedure used.

2 Terms and definitions

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

2.1

X-ray fluorescence XRF

secondary radiation occurring when a high intensity incident X-ray beam impinges upon a material placed in the path of the incident beam

NOTE The secondary emission has wavelengths and energies characteristic of that material.

2.2

intensity of fluorescent radiation

radiation intensity, x , measured by the instrument, expressed in counts (radiation pulses) per second

2.3

saturation thickness

thickness that, if exceeded, does not produce any detectable change in fluorescent intensity

NOTE Saturation thickness depends upon the energy or wavelength of the fluorescent radiation, density and atomic number of the material and on the angle of incident and fluorescent radiation with respect to the surface of the material.