

Metallic coatings - Review of methods of measurement
of ductility (ISO 8401:2017)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 8401:2017 sisaldab Euroopa standardi EN ISO 8401:2017 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 8401:2017 consists of the English text of the European standard EN ISO 8401:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Metallic coatings - Review of methods of measurement of ductility (ISO 8401:2017)

Revêtements métalliques - Vue d'ensemble sur les méthodes de mesurage de la ductilité (ISO 8401:2017)

Metallische Schutzschichten - Überblick über Verfahren zur Messung der Duktilität (ISO 8401:2017)

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European Foreword

This document (EN ISO 8401:2017) 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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017 and conflicting national standards shall be withdrawn at the latest by August 2017.

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 ISO 8401:1994.

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Endorsement notice

The text of ISO 8401:2017 has been approved by CEN as EN ISO 8401:2017 without any modification.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

This second edition cancels and replaces the first edition (ISO 8401:1986), of which it constitutes a minor revision. The following changes have been made:

- [Formula \(C.10\)](#) has been corrected;
- changes have been made in line with the 2016 edition of the ISO/IEC Directives, Part 2.

Metallic coatings — Review of methods of measurement of ductility

1 Scope

This document specifies general methods for measuring the ductility of metallic coatings of thickness below 200 µm prepared by electroplating, autocatalytic deposition or other processes.

It is applicable to the following methods:

- tests on unsupported foils (separated from the substrate);
- tests of coatings on substrates.

It does not apply to International Standards that include specific methods of testing for individual coatings. In these cases, the methods specified are used in preference to the methods described in this document and are agreed upon beforehand by the supplier and the purchaser.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

ductility

ability of a metallic or other coating to undergo plastic or elastic deformation, or both, without fracture or cracking

3.2

linear elongation

ratio of the elongation, Δl , to a definite initial length, l_0 , of the test piece

Note 1 to entry: This is taken as a measure of ductility.

Note 2 to entry: Often, this ratio is expressed as a percentage.

Note 3 to entry: Normally, the test pieces are elongated [see [Figure 1 a\)](#)]. With some bending tests, the outer layer of the test piece, i.e. the plating, is elongated. In bulge tests, however, the surface of the foil is enlarged, requiring calculation of linear elongation from the reduction in the thickness. Using the component of deformation (stretching) in only one axis would give false information about the ductility of the material [see [Figure 1 b\)](#)]. In those cases, the thinning of the foil, as calculated from the increase in the surface area, is a better measure of the ductility of the material (see [Annex B](#)).