

**Metallide ja sulamite korrosioon.
Kontaktkorrosiooni määramine
korrosioonikatsel välistingimustes**

Corrosion of metals and alloys - Determination of
bimetallic corrosion in outdoor exposure corrosion
tests

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 7441:2000 sisaldab Euroopa standardi EN ISO 7441:1995 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 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 7441:2000 consists of the English text of the European standard EN ISO 7441:1995.</p> <p>This document is endorsed on 11.01.2000 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:</p> <p>Standard määrab kindlaks meetodid metallide ja sulamite ning metalliliste ja mittemetalliliste anorgaaniliste pinnakatetega metallide ja sulamite kontaktkorrosiooni määramiseks korrosioonikatsel välistingimustes.</p>	<p>Scope:</p>
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ICS 77.060

Võtmesõnad: atmosfäärikorrosioon, galvaanilise korrosiooni katsed, kahjustus, katsed, korrosioon, korrosioonikindlus, metallid, määramine, sulamid

ICS 77.060

Descriptors: Metal coatings, corrosion test, bimetallic corrosion.

English version

Corrosion of metals and alloys

**Determination of bimetallic corrosion in outdoor exposure corrosion tests
(ISO 7441:1984)**

Corrosion des métaux et alliages; détermination de la corrosion bimétalliques par des essais de corrosion en milieu extérieur (ISO 7441:1984)

Korrosion von Metallen und Legierungen; Bestimmung der Kontaktkorrosion durch Freibewitterungsversuche (ISO 7441:1984)

This European Standard was approved by CEN on 1994-10-03 and is identical to the ISO Standard as referred to.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CEN

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

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 7441:1984 Corrosion of metals and alloys; determination of bimetallic corrosion in outdoor exposure corrosion tests 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 'Protection of metallic materials against corrosion' as a European Standard.

This document was submitted for Formal Vote and adopted 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 July 1995 at the latest.

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

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

Endorsement notice

The text of the International Standard ISO 7441:1984 was approved by CEN as a European Standard without any modification.

1 Scope and field of application

This International Standard specifies methods for the determination of bimetallic corrosion of metals and alloys, and metals and alloys with metallic and non-metallic non-organic coatings, in outdoor exposure corrosion tests.

NOTE — In the text of this International Standard, the term "metal" is used for both metals and alloys, and the term "coated metal" for metals and alloys with metallic and non-metallic non-organic coatings.

The methods are intended for the determination of the amount and type of corrosion effect, arising in natural atmospheres, caused by contact with different metals (coated metals), and for the evaluation of the effectiveness of bimetallic corrosion protection treatments.

2 References

ISO 1456, *Metallic coatings — Electroplated coatings of nickel plus chromium.*

ISO 2081, *Metallic coatings — Electroplated coatings of zinc on iron or steel.*¹⁾

ISO 2082, *Metallic coatings — Electroplated coatings of cadmium on iron or steel.*²⁾

ISO 4540, *Metallic coatings — Coatings cathodic to the substrate — Rating of electroplated test specimens subjected to corrosion tests.*

ISO 4542, *Metallic and other non-organic coatings — General rules for stationary outdoor exposure corrosion tests.*

ISO 6892, *Metallic materials — Tensile testing.*

3 General principles

3.1 The test consists of simultaneous exposure of test specimens and reference specimens at atmospheric field stations and subsequent comparative evaluation of their corrosion resistance.

The test specimens are assemblies in which one plate of metal (coated metal) may act as the anode and two plates of a different metal (coated metal) as the cathode, thereby producing an electrochemical cell in the presence of an electrolyte. (See figures 1 and 2.)

Reference specimens are anodic plates exposed with the test specimens.

Control specimens are anodic plates which are kept under conditions which prevent corrosion during the test period.

The amount and type of corrosion effect is evaluated on the basis of:

- changes in surface appearance;
- depth and area of corrosion effect;
- changes in mechanical properties;
- loss in mass;
- other characteristics resulting from bimetallic corrosion.

The effectiveness of corrosion protection treatments may be evaluated by applying coatings to the anodic or cathodic plates or to the test specimen assembly, with the exception that electrodeposited coatings shall not be applied to the test specimen assembly.

Coated specimens should be tested simultaneously with specimens without protective coatings.

3.2 The test conditions (macroclimatic region, type of atmosphere and conditions for the location and exposure of specimens at the atmospheric field stations) should be chosen according to the expected conditions of service of articles, joints and parts in which the contacted metals (coated metals) will be used.

3.3 Atmospheric field stations should be suitably equipped and the equipment should comply with the requirements of relevant International Standards. (See, for example, ISO 4542.)

1) At present at the stage of draft. (Revision of ISO 2081-1973.)

2) At present at the stage of draft. (Revision of ISO 2082-1973.)