Roostevabade teraste interkristallilisele korrosioonile vastupidavuse määramine. Osa 2: Roostevabad ferriitterased, austeniitterased ja ferriit-austeniitterased (dupleksprotsessil sulatatud terased). Korrosiooniteim väävelhapet sisaldavas keskkonnas

Determination of resistance to intergranular corrosion of stainless steels - Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in media containing sulfuric acid

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 3651-2:2000 sisaldab Euroopa standardi EN ISO 3651-2:1998 ingliskeelset teksti. Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 3651-2:2000 consists of the English text of the European standard EN ISO 3651-2:1998. This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: See EN ISO 3651 standardi osa määrab kindlaks meetodi roostevabade ferriitteraste, austeniitteraste ja ferriit-austeniitteraste (dupleksmeetodil sulatatud teraste) korrosioonikindluse määramiseks väävelhapet sisaldavas keskkonnas.	**Scope:**

ICS 77.060

Võtmesõnad: austeniitterased, interkristallilise korrosiooni teimid, korrosioonikindlus, korrosiooniteimid, määramine, raud- ja terastooted, roostevabad terased, teimid

EUROPEAN STANDARD
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EN ISO 3651-2

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Descriptors: Stainless steel, corrosion resistance, testing.

English version

Determination of resistance to intergranular corrosion of stainless steels

Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in media containing sulfuric acid
(ISO 3651-2 : 1998)

Détermination de la résistance à la corrosion intergranulaire des aciers inoxydables – Partie 2: Aciers inoxydables ferritiques, austénitiques et austéno-ferritiques (duplex) – Essai de corrosion en milieux contenant de l'acide sulfurique
(ISO 3651-2 : 1998)

Ermittlung der Beständigkeit nichtrostender Stähle gegen interkristalline Korrosion – Teil 2: Nichtrostende ferritische, austenitische und ferritisch-austenitische (Duplex-) Stähle – Korrosionsversuch in schwefelsäurehaltigen Medien
(ISO 3651-2 : 1998)

This European Standard was approved by CEN on 1998-03-26.

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.

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 Central Secretariat has the same status as the official versions.

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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 3651-2 : 1998 Determination of resistance to intergranular corrosion of stainless steels – Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in media containing sulfuric acid,

which was prepared by ISO/TC 17 'Steel' of the International Organization for Standardization (ISO), has been adopted by ECISS/TC 1 'Steel testing' 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 November 1998 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 3651-2 : 1998 was approved by CEN as a European Standard without any modification.

Contents

Introduction

The term "intergranular corrosion test" denotes the corrosion test carried out by means of preferential attack of the grain boundaries.

Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels may be subject to such an attack when they are held at a temperature between about 500 °C and 1 000 °C. This heat cycle, which may provoke sensitization to intergranular corrosion, may occur during hot-forming (forging, rolling) as the result of incorrect solution treatment or during a welding operation.

NOTE — In the field of application of this test, intergranular corrosion may be connected with the presence along the grain boundaries of a chromium-depleted region due to precipitation of chromium carbides, sigma phase or other intermetallic phases.

1 Scope

This part of ISO 3651 specifies methods for the determination of the resistance to intergranular corrosion of ferritic, austenitic and ferritic-austenitic (duplex) stainless steels in media containing sulfuric acid. It also specifies the purposes which may be assigned to the test. The test methods included are:

— **method A:** the 16 % sulfuric acid/copper sulfate test (Monypenny Strauss test);

— **method B**: the 35 % sulfuric acid/copper sulfate test;

— **method C**: the 40 % sulfuric acid/ferric sulfate test.

The methods are applicable to stainless steels supplied in the form of cast, rolled or forged products and tubes and intended for use in a mildly oxidizing acid medium (for example, sulfuric acid, phosphoric acid).

Unless specified in the product standard, the method to be used, A, B or C, shall form the subject of an agreement between the interested parties.

Annex A gives examples of application of the three methods on stainless steels.

NOTE — It is important to note that the result of the corrosion test is only strictly valid for the corrosive medium used in the test. It constitutes a basis for estimating the resistance to intergranular corrosion but may not be used to check resistance to other forms of corrosion (general corrosion, pitting, stress corrosion, etc.). It is necessary for the user to adapt the specified corrosion test to the use which will be made of the alloy. These test should, in no case, be considered as an absolute criterion of the quality of the metal.

2 Purpose of the test

This intergranular corrosion test may have either of the purposes given in 2.1 and 2.2.

2.1 Verification of the intrinsic resistance of the steel to intergranular corrosion

This verification applies only to low carbon steels ($C \leqslant 0{,}03$ %) and stabilized steels specified for resistance to intergranular corrosion. The metal is inspected after having undergone a heat treatment for sensitization which can be a heat treatment or welding for sensitization (see clause 3).