Roostevabade teraste interkristallilisele korrosioonile vastupidavuse määramine. Osa 1: Roostevabad austeniitterased ja ferriit-austeniitterased (dupleksprotsessil sulatatud terased). Korrosiooniteim lämmastikhappe keskkonnas massikao mõõtmise abil (Huey teim)

Determination of resistance to intergranular corrosion of stainless steels - Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in nitric acid medium by measurement of loss in mass (Huey test)

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 3651-1:2000 sisaldab Euroopa standardi EN ISO 3651-1:1998 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 3651-1:2000 consists of the English text of the European standard EN ISO 3651-1:1998. 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 austeniitteraste ja ferriit-austeniitteraste (dupleksmeetodil sulatatud teraste) korrosioonikindluse määramiseks lämmastikhappe keskkonnas massikao mõõtmise abil (Huey teim).	**Scope:**

ICS 77.060

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

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Descriptors: Stainless steel, corrosion resistance, testing.

English version

Determination of resistance to intergranular corrosion of stainless steels

Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in nitric acid medium by measurement of loss in mass (Huey test) (ISO 3651-1 : 1998)

Détermination de la résistance à la corrosion intergranulaire des aciers inoxydables – Partie 1: Aciers inoxydables austénitiques et austéno-ferritiques (duplex) – Essai de corrosion en milieu acide nitrique par mesurage de la perte de masse (essai de Huey) (ISO 3651-1 : 1998)

Ermittlung der Beständigkeit nichtrostender Stähle gegen interkristalline Korrosion – Teil 1: Nichtrostende austenitische und ferritisch-austenitische (Duplex-)Stähle – Korrosionsversuch in Salpetersäure durch Messung des Massenverlustes (Huey-Test) (ISO 3651-1 : 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.

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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 3651-1 : 1998 Determination of resistance to intergranular corrosion of stainless steels – Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in nitric acid medium by measurement of loss in mass (Huey test),

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 3651-1 : 1998 was approved by CEN as a European Standard without any modification.

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Introduction

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

Austenitic and ferritic-austenitic (duplex) stainless steels may be subject to such 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 — Intergranular corrosion in nitric acid may be associated with one or more of the following:

— precipitation of chromium carbides;

— precipitation of intermetallic compounds such as sigma phase, in molybdenum-bearing grades;

— segregation of impurity elements to the grain boundaries.

The interpretation of the result (for example, maximum rate of corrosion) shall form the subject of an agreement between the interested parties.

1 Scope

This part of ISO 3651 specifies a method for the determination of the resistance to intergranular corrosion of austenitic and ferritic-austenitic (duplex) stainless steels in a nitric acid medium by measurement of the loss in mass (Huey test). It also specifies the purpose which may be assigned to the test.

The method is applicable only to austenitic and ferritic-austenitic (duplex) stainless steels supplied in the form of rolled or forged products, tubes and cast products and intended for use in a strongly oxidizing medium (for example, relatively concentrated nitric acid). In general the Huey test should not be used for grades containing molybdenum unless the material tested is to be used in nitric acid service.

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. This test should, in no case, be considered as an absolute criterion of the quality of the alloy.

2 Purpose of the test

This intergranular corrosion test may have either of the purposes given in 2.1 or 2.2. If an order specifies this corrosion test, the purpose of the test shall be stated at the time of ordering.

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

This verification applies only to austenitic steel grades which are specially produced for resistance to intergranular corrosion in strongly oxidizing media. The specimen is inspected after having undergone a heat treatment for sensitization (see clause 3).

2.2 Inspection of the efficiency of the solution treatment

This inspection is only carried out on thin products for which the cooling speed may be made sufficiently rapid. The specimen is inspected in the state in which it is delivered to the user, without heat treatment for sensitization.