

Steel - Determination of aluminium content - Flame atomic absorption spectrometric method

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 29658:2003 sisaldab Euroopa standardi EN 29658:1991 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.08.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 29658:2003 consists of the English text of the European standard EN 29658:1991.</p> <p>This document is endorsed on 14.08.2003 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 International Standard specifies a flame atomic absorption spectrometric method for the determination of acid-soluble and/or total aluminium in non-alloyed steel</p>	<p>Scope: This International Standard specifies a flame atomic absorption spectrometric method for the determination of acid-soluble and/or total aluminium in non-alloyed steel</p>
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ICS 77.140

Võtmesõnad:

UDC 669.14 : 620.1 : 543.422.4/.6 : 546.62

Descriptors: Steel, unalloyed steel, chemical analysis, determination of aluminium content, atomic absorption spectrophotometry, flame photometry.

English version

Steel

Determination of aluminium content
Flame atomic absorption spectrometric method
(ISO 9658 : 1990)

Aciers; dosage de l'aluminium; méthode
par spectrométrie d'absorption atomique
dans la flamme (ISO 9658 : 1990)

Stahl; Bestimmung des Aluminiumge-
halts; spektralfotometrische Atomab-
sorptionsmethode (ISO 9658 : 1990)

This European Standard was approved by CEN on 1991-12-20 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

On the proposal of Technical Committee TC 20, the Coordinating Commission (COCOR) of the European Committee for Iron and Steel Standardization (ECISS) decided in May 1991 to submit International Standard

ISO 9658 : 1990 Steel - Determination of aluminium content - Flame atomic absorption spectrometric method
to Formal Vote.

This European Standard was approved by CEN on 1991-12-20.

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 International Standard ISO 9658 : 1990 was approved by CEN as a European Standard without any modifications.

1 Scope

This International Standard specifies a flame atomic absorption spectrometric method for the determination of acid-soluble and/or total aluminium in non-alloyed steel.

The method is applicable to aluminium contents between 0,005 % (m/m) and 0,20 % (m/m).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 377:1989, *Selection and preparation of samples and test pieces of wrought steels — Part 1: Samples and test pieces for mechanical test.*

ISO 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements.*

ISO 648:1977, *Laboratory glassware — One-mark pipettes.*

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 5725:1986, *Precision of test methods — Determination of repeatability and reproducibility for a standard test method by inter-laboratory tests.*

3 Definition

For the purposes of this International Standard, the following definition applies.

acid-soluble aluminium: Aluminium dissolved in the acid mixture as specified in 8.3.1.1.

4 Principle

Dissolution of a test portion in dilute hydrochloric and nitric acids.

Fusion of the acid-insoluble material with a mixture of orthoboric acid and potassium carbonate.

Spraying of the solution into a dinitrogen monoxide-acetylene flame.

Spectrometric measurement of the atomic absorption of the 309,3 nm spectral line emitted by an aluminium hollow cathode lamp.

5 Reagents

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 Pure iron, containing less than 0,000 1 % (m/m) of aluminium, or of low known aluminium content.

5.2 Hydrofluoric acid, ρ about 1,15 g/ml.

5.3 Hydrochloric acid, ρ about 1,19 g/ml, diluted 1 + 1.

5.4 Hydrochloric acid, ρ about 1,19 g/ml, diluted 2 + 100.

5.5 Sulfuric acid, ρ about 1,84 g/ml, diluted 1 + 1.

5.6 Acid mixture.

Mix 3 parts by volume of hydrochloric acid (ρ about 1,19 g/ml), 1 part by volume of nitric acid (ρ about 1,40 g/ml) and 2 parts by volume of water.