Irish Standard
I.S. EN 15916-2:2010

Copper and copper alloys - Determination of tellurium content - Part 2: Medium tellurium content - Flame atomic absorption spectrometric method (FAAS)

I.S. EN 15916-2:2010

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:	*This document is based on:* EN 15916-2:2010	*Published:* 13 October, 2010

This document was published under the authority of the NSAI and comes into effect on:
21 May, 2011

ICS number:
77.040.30
77.120.30

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I.S. EN 15916-2:2010

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15916-2

July 2010

ICS 77.040.30; 77.120.30

English Version

Copper and copper alloys - Determination of tellurium content - Part 2: Medium tellurium content - Flame atomic absorption spectrometric method (FAAS)

Cuivre et alliages de cuivre - Détermination du tellure - Partie 2: Tellure en moyenne teneur - Méthode par spectrométrie d'absorption atomique dans la flamme (SAAF)

Kupfer und Kupferlegierungen - Bestimmung von Tellurgehalten - Teil 2: Mittlerer Tellurgehalt - Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

This European Standard was approved by CEN on 19 June 2010.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 15916-2:2010: E

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Foreword

This document (EN 15916-2:2010) has been prepared by Technical Committee CEN/TC 133 “Copper and copper alloys”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 10 "Methods of analysis" to prepare the following document:

EN 15916-2, *Copper and copper alloys — Determination of tellurium content — Part 2: Medium tellurium content — Flame atomic absorption spectrometric method (FAAS)*.

This is one of two parts of the standard for the determination of tellurium content in copper and copper alloys. The other standard is:

FprCEN/TS 15916-1, *Copper and copper alloys — Determination of tellurium content — Part 1: Low tellurium content — Flame atomic absorption spectrometric method (FAAS)*.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a flame atomic absorption spectrometric method (FAAS) for the determination of the tellurium content of copper and copper alloys in form of castings or unwrought or wrought products.

The method is applicable to products having tellurium mass fractions between 0,20 % and 1,00 %.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1811-1, *Copper and copper alloys — Selection and preparation of samples for chemical analysis — Part 1: Sampling of cast unwrought products*

ISO 1811-2, *Copper and copper alloys — Selection and preparation of samples for chemical analysis — Part 2: Sampling of wrought products and castings*

3 Principle

Dissolution of a test portion in nitric acid followed, after suitable dilution, by aspiration into an air/acetylene flame of an atomic absorption spectrometer. Measurement of the absorption of the 214,3 nm line emitted by a tellurium hollow-cathode lamp.

4 Reagents

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

4.1 Nitric acid, HNO_3 (ρ = 1,40 g/ml).

4.2 Hydrochloric acid, HCl (ρ = 1,19 g/ml).

4.3 Nitric acid solution, 2 + 1.

Add 200 ml of nitric acid (4.1) to 100 ml of water.

4.4 Hydrochloric acid solution, HCl (2 mol/l).

In a 1 000 ml one-mark volumetric flask containing about 500 ml of water, add 165 ml of hydrochloric acid (4.2). Dilute to the mark with water and mix well.

4.5 Tellurium stock solution, 1 g/l Te.

Weigh (0,5 $\pm$ 0,001) g of tellurium (Te > 99,9 %) and transfer it into a 250 ml beaker. Add 10 ml of nitric acid solution (4.3) and dissolve on a water bath. Evaporate to a wet residue, and then dissolve in 10 ml of hydrochloric acid solution (4.4). Transfer to a 500 ml one-mark volumetric flask, dilute to the mark with hydrochloric acid solution (4.4) and mix well.

1 ml of this solution contains 1,0 mg of Te.