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COPPER AND COPPER ALLOYS -

DETERMINATION OF ALUMINIUM CONTENT -

PART 2: FAAS METHOD

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Copper and copper alloys - Determination of aluminium content - Part 2: FAAS method

Cuivre et alliages de cuivre - Dosage de l'aluminium - Partie 2 : Méthode par spectrométrie d'absorption atomique dans la flamme (SAAF)

Kupfer und Kupferlegierungen - Bestimmung des Aluminiumgehaltes - Teil 2: Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

This European Standard was approved by CEN on 15 May 2006.

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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.

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Contents

Page

Foreword

This document (EN 14936-2:2006) 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of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

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

EN 14936-2, *Copper and copper alloys — Determination of aluminium content — Part 2: FAAS method*

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

EN 14936-1, *Copper and copper alloys — Determination of aluminium content — Part 1: Titrimetric method*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 United Kingdom.

1 Scope

This part of this European Standard specifies a flame atomic absorption spectrometric method (FAAS) for the determination of the aluminium content of copper and copper alloys in the form of unwrought, wrought and cast products.

The method is applicable to products having aluminium mass fractions between 0,010 % and 2,5 %.

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*

NOTE Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in the Bibliography.

3 Principle

Dissolution of a test portion in aqua regia followed, after suitable dilution, by aspiration into a nitrous oxide/acetylene flame of an atomic absorption spectrometer. Measurement of the absorption of the 309,3 nm line emitted by an aluminium hollow-cathode lamp.

4 Reagents and materials

4.1 General

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

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

4.3 **Hydrochloric acid solution,** 1 + 1

Dilute 500 ml of hydrochloric acid (4.2) in 500 ml of water.

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

4.5 **Nitric acid solution,** 1 + 1

Dilute 500 ml of nitric acid (4.4) in 500 ml of water.

4.6 **Aluminium stock solution,** 1,000 g/l Al

Weigh (1 ± 0,001) g of aluminium (Al ≥ 99,9 %) and dissolve it in 50 ml of the hydrochloric acid solution (4.3). Transfer the solution into a 1 000 ml one-mark volumetric flask. Dilute to the mark with water and mix well.

1 ml of this solution contains 1,000 mg of Al.