

**Copper and copper alloys - Determination of silver content - Flame atomic absorption spectrometric method (FAAS)**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15915:2010 sisaldab Euroopa standardi EN 15915:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 28.07.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 15915:2010 consists of the English text of the European standard EN 15915:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 28.07.2010.

The standard is available from Estonian standardisation organisation.

ICS 77.040.30, 77.120.30

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ICS 77.040.30; 77.120.30

English Version

## Copper and copper alloys - Determination of silver content - Flame atomic absorption spectrometric method (FAAS)

Cuivre et alliages de cuivre - Détermination de l'argent -  
Méthode par spectrométrie d'absorption atomique dans la  
flamme (SAAF)

Kupfer und Kupferlegierungen - Bestimmung des  
Silbergehaltes -  
Flammenatomabsorptionsspektrometrisches Verfahren  
(FAAS)

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

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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 CEN Management Centre has the same status as the official versions.

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## Foreword

This document (EN 15915:2010) 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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.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 15915, *Copper and copper alloys — Determination of silver 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 two flame atomic absorption spectrometric methods (FAAS) for the determination of the silver content of copper and copper alloys in the form of unwrought, wrought and cast products.

The methods are applicable to products having silver mass fractions between 0,01 % and 2,0 %.

- a) Method A is applicable to copper and copper alloys having silver mass fractions between 0,01 % and 1,0 % and containing antimony or tin not greater than 0,005 0 % or silicon not greater than 0,010 %.
- b) Method B is applicable to copper and copper alloys having silver mass fractions between 0,01 % and 2,0 % and antimony or tin greater than 0,005 % and silicon greater than 0,010 %.

## 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 an appropriate acid solution followed, after suitable dilution, by aspiration into an air/acetylene flame of an atomic absorption spectrometer. Measurement of the absorption of the 328,1 nm line emitted by a silver hollow-cathode or electrodeless discharge lamp.

## 4 Reagents

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

**WARNING — Special care shall be taken to strictly exclude chlorine and chloride ions from all operations, reagents, equipment and the laboratory air. For that reason all reagents indicated hereafter shall be freshly prepared and not stored after analysis.**

4.1 **Nitric acid**, HNO<sub>3</sub> ( $\rho = 1,40$  g/ml).

4.2 **Nitric acid solution**, 1 + 1.

Add 500 ml of nitric acid (4.1) into 500 ml of water.

4.3 **Boric acid**, H<sub>3</sub>BO<sub>3</sub> (40 g/l solution).

4.4 **Hydrofluoric acid**, HF, 48 % ( $\rho = 1,14$  g/ml).

**WARNING — Hydrofluoric acid is a hazardous substance. Care shall be taken and it shall be used under an efficient fume hood.**

4.5 **Fluoroboric-nitric acid mixture**.