Irish Standard
I.S. EN 723:2009

Copper and copper alloys - Combustion method for determination of the carbon content on the inner surface of copper tubes or fittings

I.S. EN 723:2009

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Supersedes EN 723:1996

English Version

Copper and copper alloys - Combustion method for determination of the carbon content on the inner surface of copper tubes or fittings

Cuivre et alliages de cuivre - Méthode de détermination par combustion de la teneur en carbone à la surface interne des tubes ou des raccords en cuivre

Kupfer und Kupferlegierungen - Verfahren zur Bestimmung des Kohlenstoffs auf der Innenoberfläche von Kupferrohren oder Fittings durch Verbrennen

This European Standard was approved by CEN on 19 March 2009.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 723:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

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.

This document supersedes EN 723:1996.

In comparison with the first edition of EN 723:1996, the following significant technical changes and one significant editorial change were made:

— improvement of the accuracy of the method;

— extension of the scope of the standard to fittings of copper alloys;

— simplification by limitation to only one method for carbon content determination, namely that of infrared absorption spectrometry:

  [Method using tetrabutylammonium hydroxide (HTBA) and Method of determination by measurement of differential electrical conductivity (coulometric) deleted];

— simplification by limitation to only one cutting method for tubes with diameters exceeding the furnace diameter by deletion of the "longitudinal cutting method";

— change of Clause 2 "Normative References" into "Bibliography" with renumbering.

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, 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 combustion method for determining the carbon content, if any, on the inner surface of tubes of copper or fittings of copper or copper alloys.

This standard applies only to seamless, round copper tubes as specified for example in EN 1057 and EN 13348 or fittings of copper or copper alloys as specified in EN 1254 (all parts).

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

2.1
residual carbon
C_R
carbon present in the chemical form of elemental carbon

2.2
potential carbon
C_P
carbon present in the chemical form of organic compounds

EXAMPLE Organic compounds: oils, greases, etc.

2.3
total carbon
C_T
sum of residual carbon and potential carbon

3 Principle

Combustion of the carbon present on the inner surface of a tube or fitting sample, carried out at a given temperature in an oxygen flow.

Determination, by infrared absorption spectrometry, of the residual or total carbon content, or both, by measurement of the carbon dioxide generated. Calculation of potential carbon content is by subtraction of the residual carbon content from the total carbon content.

4 Preparation of samples and test pieces

4.1 Preparatory procedures

4.1.1 General

Carry out the procedures in 4.1.2, 4.1.3 or 4.1.4 depending on the carbon to be determined and taking account of the following precautions:

a) metal cutting tool shall be free from protective paint;

b) clamps shall be flat and consist of copper, aluminium, steel or an alternative material. Alternative materials shall not be detrimental to their cleanliness;