

# INTERNATIONAL STANDARD

ISO  
1811-1

First edition  
1988-10-01



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION  
ORGANISATION INTERNATIONALE DE NORMALISATION  
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

## **Copper and copper alloys — Selection and preparation of samples for chemical analysis —**

### **Part 1 :**

### **Sampling of cast unwrought products**

*Cuivre et alliages de cuivre — Sélection et préparation des échantillons pour l'analyse chimique —*

*Partie 1 : Échantillonnage des formes brutes de coulée*

Reference number  
ISO 1811-1 : 1988 (E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 1811-1 was prepared by Technical Committee ISO/TC 26, *Copper and copper alloys*.

Together with ISO 1811-2 and 1811-3, it cancels and replaces ISO Recommendation R 1811 : 1971, of which it constitutes a technical revision.

ISO 1811 consists of the following parts, under the general title *Copper and copper alloys — Selection and preparation of samples for chemical analysis* :

- *Part 1 : Sampling of cast unwrought products*
- *Part 2 : Sampling of wrought products and castings*
- *Part 3 : Sampling of cathodes*

Annex A forms an integral part of this part of ISO 1811.

# Copper and copper alloys — Selection and preparation of samples for chemical analysis —

## Part 1 : Sampling of cast unwrought products

### 1 Scope

This part of ISO 1811 specifies methods for the selection and preparation of samples for chemical analysis of copper and copper alloys in the form of cast unwrought products, except cathodes.<sup>1) 2)</sup>

The methods specified in this part of ISO 1811 apply to copper and copper alloys in the form of cast unwrought products (refinery shapes), such as cakes, billets, wire bars and ingots, and are intended to determine compliance with the requirements for chemical composition.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 1811. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 1811 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 197-1 : 1983, *Copper and copper alloys — Terms and definitions — Part 1 : Materials*.

ISO 197-2 : 1983, *Copper and copper alloys — Terms and definitions — Part 2 : Unwrought products*.

ISO 1811-2 : 1988, *Copper and copper alloys — Selection and preparation of samples for chemical analysis — Part 2 : Sampling of wrought products and castings*.

### 3 Definitions

For the purpose of this part of ISO 1811, the definitions for copper and copper alloys in ISO 197-1 and for cast unwrought products in ISO 197-2 apply.

In addition, the following definitions apply.

**3.1 lot of cast unwrought products** (except cathodes)<sup>2)</sup> : Unless otherwise agreed between producer and purchaser, for the purpose of sampling, a lot of cast unwrought products shall be defined as material of a particular form, such as cakes, billets, wire bars or ingots, that is produced from a single melting furnace charge or from a 24 h cycle of a continuous melting furnace.

Materials of different forms, or of different sizes, and/or cast from different furnaces, shall be considered as separate lots.

**3.2 sampling unit** : An individual cast unwrought product selected from a lot.

**3.3 gross sample** : The total amount of all sampling units selected from a lot.

**3.4 test sample** : A sample prepared from the gross sample and from which the test portions will be taken.

**3.5 test portion** : The quantity of material taken from the test sample and on which the analysis is actually carried out.

### 4 Selection of sampling units

Unless otherwise agreed between producer and purchaser, the following number of sampling units shall be selected from a single lot.

#### 4.1 Single furnace charges

Three sampling units, taken at the beginning, the middle and the end of the casting period, respectively, shall represent one lot of cast unwrought products from a single furnace charge.

1) Sampling theory is explained in annex A of this part of ISO 1811.

2) Methods for the sampling of copper cathodes are specified in ISO 1811-3 (to be published).