
Resistance welding — Materials for electrodes and ancillary equipment

*Soudage par résistance — Matériaux pour électrodes et
équipements annexes*



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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	1
4.1 Group A — Copper and copper alloys	1
4.2 Group B — Sintered materials	1
4.3 Group C — Dispersion-strengthened copper (DSC) alloys	2
5 Specifications	2
5.1 Requirements	2
5.2 Chemical composition	2
5.3 Mechanical properties	2
5.4 Electrical properties	2
6 Methods of test	2
6.1 Vickers hardness test	2
6.2 Electrical properties	2
6.3 Softening temperature test	3
7 Designation	3
8 Application	3
9 Hardness conversions	3
Annex A (informative) Typical applications	6
Annex B (informative) Hardness conversion	9
Annex C (informative) Corresponding national designations	10
Bibliography	11

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining*.

This fourth edition cancels and replaces the third edition (ISO 5182:2008), which has been technically revised.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

Resistance welding — Materials for electrodes and ancillary equipment

1 Scope

This International Standard specifies the characteristics of materials for resistance welding electrodes and ancillary equipment which are used for carrying current and transmitting force to the work.

2 Normative references

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

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ASTM E1004, *Standard practice for determining electrical conductivity using the electromagnetic (eddy-current) method*

3 Terms and definitions

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

3.1

softening temperature

maximum temperature that, if maintained for 2 h, will result in a reduction in ambient temperature hardness of a maximum of 15 % of the “as received” value

4 Classification

4.1 Group A — Copper and copper alloys

This group defines four types of material in accordance with [Table 1](#).

Table 1 — Group A — Classification of copper and copper alloys

Type	Description
1	Non-heat-treatable alloys of high conductivity and medium hardness, the wrought forms of which are given their strengths by cold working during manufacture.
2	Alloys which are harder than type 1 and in which the mechanical properties have been developed by heat treatment during manufacture or by a combination of heat treatment and cold working.
3	Heat-treated alloys which have superior mechanical properties to type 2 but a lower electrical conductivity than either type 1 or type 2.
4	Alloys having certain specialised properties which may, in some cases, be obtained either by cold working or by heat treatment. Alloys of this type are not necessarily interchangeable with each other.

4.2 Group B — Sintered materials

This group comprises six types of material based upon the constituents used in accordance with [Table 2](#).