

Specification for

Materials for resistance welding electrodes and ancillary equipment

Co-operating organizations

The Non-ferrous Metals Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations.

- Aluminium Federation
- Association of Bronze and Brass Founders
- Association of Consulting Engineers
- Board of Trade
- British Bronze and Brass Ingot Manufacturers' Association
- British Electrical and Allied Manufacturers' Association*
- British Lead Manufacturers' Association
- British Non-ferrous Metals Federation
- British Non-ferrous Metals Federation High Conductivity Copper Group
- British Non-ferrous Metals Research Association*
- Copper Development Association*
- Crown Agents for Oversea Governments and Administrations
- Electric Cable Makers' Confederation
- Institute of British Foundrymen
- Institute of Metals
- Institution of Mechanical Engineers (Automobile Division)
- Institution of Mining and Metallurgy
- Institution of Production Engineers
- Institution of Structural Engineers
- Lead Development Association
- Light Metal-Founders' Association
- London Metal Exchange
- Magnesium Industry Council
- Ministry of Defence, Army Department
- Ministry of Defence, Navy Department
- National Brassfoundry Association
- Non-ferrous metal stockists
- Post Office
- Royal Institute of British Architects
- Society of British Aerospace Companies
- Society of Motor Manufacturers and Traders Ltd.*
- Tin Research Institute
- Zinc Development Association
- Individual manufacturers*

The scientific and industrial organizations marked with an asterisk in the above list, together with the following were directly represented on the committee entrusted with the preparation of this British Standard:

Welding Institute

This British Standard, having been approved by the Non-ferrous Metals Industry Standards Committee, was published under the authority of the Executive Board on 20 March 1970

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Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
1 Scope	1
1.1 Scope	1
2 General requirements	1
2.1 General	1
2.2 Definitions	1
2.3 Information to be supplied by the purchaser	1
2.4 Material availability	1
2.5 Freedom from defects	1
2.6 Defects revealed after delivery	1
2.7 Selection of test samples	2
2.8 Mechanical tests	2
2.9 Electrical tests	2
2.10 Retests	2
2.11 Certificate of compliance	2
2.12 Inspection	2
2.13 Marking	2
3 Specific requirements for group “A” — Copper alloys	2
3.1 Introduction	2
3.2 General	3
3.3 Nominal composition	3
3.4 Electrical conductivity	3
3.5 Mechanical tests	3
4 Specific requirements for group “B” — Sintered materials	3
4.1 Introduction	3
4.2 General	3
4.3 Nominal composition	3
4.4 Electrical conductivity	3
4.5 Mechanical tests	3
Appendix A Recommended applications	7
Appendix B Stress unit conversions	8
Appendix C Approximate comparison of hardness scales	9
Table 1 — Group “A” — Copper alloys	4
Table 2 — Group “B” — Sintered materials	6

Foreword

This standard makes reference to the following British Standards:

BS 18, *Methods for tensile testing of metals*.

BS 240, *Method for Brinell hardness test*.

BS 427, *Method for Vickers hardness test*.

BS 891, *Method for Rockwell hardness test*.

BS 1420, *Glossary of terms applicable to wrought products in copper, zinc and their alloys*.

BS 3239, *Determination of resistivity of metallic electrical conductor materials*.

This British Standard, authorized by the Non-Ferrous Metals Industry Standards Committee, specifies the requirements for materials for resistance welding equipment.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

1.1 Scope

This British Standard specifies requirements for wrought, sintered and cast metal products associated with resistance welding electrodes and ancillary equipment, i.e. materials for equipment which can generally be considered as consumable and which are used for carrying current and transmitting force to the work.

2 General requirements

2.1 General

The materials shall comply with the general requirements set out in the following clauses and the specific requirements in 3 or 4, as appropriate.

2.2 Definitions

For the purposes of this British Standard, the following definitions apply:

2.2.1 rod¹⁾

a round, square or polygonal solid product usually supplied in straight lengths

2.2.2 bar¹⁾

rod of rectangular cross section over 10.0 mm thick and up to and including 300 mm wide

2.2.3 rolled flat product¹⁾

flat material brought to final thickness by rolling. It may be supplied in straight lengths or coiled. The edges may be unsheared or finished by shearing, slitting, sawing, machining, or rolling

2.2.4 drawn flat product¹⁾

flat material with square or rounded corners or edges obtained by drawing through a die with or without subsequent rolling. It may be supplied in straight lengths, or coiled

2.2.5 section¹⁾

a solid product with cross section other than round, hexagonal, square or rectangular, such as angle or channel supplied in straight lengths

2.2.6 forging¹⁾

a shape produced by hammering or pressing, usually when hot, between open or closed dies

2.2.7

sintered product

a material manufactured by one of the established methods of powder metallurgy

2.3 Information to be supplied by the purchaser

The purchaser shall state on his enquiry and order the following information:

- 1) Material specification in 3 or 4 with which the material shall comply.
- 2) The condition of the material, i.e. drawn, rolled, forged, cast or sintered.
- 3) Whether a certificate of compliance is required.
- 4) Whether the material is to be inspected and tested in the presence of the purchaser or his representative.
- 5) In the case of castings, whether radiological examination is required.
- 6) Any special dimensional tolerances.

2.4 Material availability

Materials are available as shown in Table 1 and Table 2.

2.5 Freedom from defects

2.5.1 Rod, bar, rolled or drawn flat product, section, forging. The material shall be clean, smooth, sound and free from harmful defects.

2.5.2 Casting. The casting shall be clean and free from harmful defects. Castings shall not be repaired unless permission in writing has been obtained previously from the purchaser or his representative.

2.5.3 Sintered products. The metallic sintered products, as delivered to the purchaser, shall be free from harmful defects.

2.5.4 General. All materials shall meet any dimensional requirements specified by the purchaser and agreed with the supplier.

2.6 Defects revealed after delivery

In the event of any material proving defective during subsequent manufacturing operations, such materials shall be deemed not to comply with the requirements of this British Standard, notwithstanding any previous certificate of satisfactory testing, provided the materials have not been improperly treated after delivery.

¹⁾ Extracted from BS 1420, "Glossary of terms applicable to wrought products in copper, zinc and their alloys".