This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: B49 – 17

Standard Specification for Copper Rod for Electrical Purposes[1]

This standard is issued under the fixed designation B49; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This specification covers the requirements for rod in diameters from ¼ to 1⅜ in. (6.4 to 35 mm) produced from high conductivity coppers listed in Table 1, namely, electrolytic tough-pitch, oxygen-free, or fire-refined high conductivity coppers, and are suitable for further fabrication into electrical conductors.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 The following safety hazards caveat pertains only to Section 13. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 The following documents in the current issue of the Book of Standards form a part of this specification to the extent referenced herein and define materials suitable for use in rod manufacture:

2.2 *ASTM Standards:*[2]

B5 Specification for High Conductivity Tough-Pitch Copper Refinery Shapes

B115 Specification for Electrolytic Copper Cathode

B170 Specification for Oxygen-Free Electrolytic Copper—Refinery Shapes

B193 Test Method for Resistivity of Electrical Conductor Materials

B224 Classification of Coppers

B577 Test Methods for Detection of Cuprous Oxide (Hydrogen Embrittlement Susceptibility) in Copper

B846 Terminology for Copper and Copper Alloys

E8/E8M Test Methods for Tension Testing of Metallic Materials

E18 Test Methods for Rockwell Hardness of Metallic Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E53 Test Method for Determination of Copper in Unalloyed Copper by Gravimetry

E478 Test Methods for Chemical Analysis of Copper Alloys

E1606 Practice for Electromagnetic (Eddy Current) Examination of Copper and Aluminum Redraw Rod for Electrical Purposes

E2575 Standard Test Method for Determination of Oxygen in Copper and Copper Alloys (Withdrawn 2017)[3]

2.3 *Other Document:*[4]

NBS Handbook 100 *Copper Wire Tables*

3. Terminology

3.1 For definitions of general terms relating to copper and copper alloys refer to Terminology B846.

4. Ordering Information

4.1 Orders for rod under this specification shall include the following information:

4.1.1 ASTM designation and year of issue,

4.1.2 Quantity of each size,

4.1.3 UNS designation and requirements of copper (Sections 5 – 10),

4.1.4 Finish (Sections 9 and 10),

[1] This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.07 on Refined Copper.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from National Technical Information Service (NTIS), 5301 Shawnee Rd., Alexandria, VA 22312, http://www.ntis.gov.

***A Summary of Changes section appears at the end of this standard**

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