



Standard Specification for Nickel-Coated Soft or Annealed Copper Wire¹

This standard is issued under the fixed designation B355; 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 nickel-coated, soft or annealed, round copper wire for use in electrical equipment.

1.2 Five classes of wire are covered as follows:

1.2.1 *Class 2*—Wire whose nickel coating is at least 2 % of the total weight of the coated wire.

1.2.2 *Class 4*—Wire whose nickel coating is at least 4 % of the total weight of the coated wire.

1.2.3 *Class 7*—Wire whose nickel coating is at least 7 % of the total weight of the coated wire.

1.2.4 *Class 10*—Wire whose nickel coating is at least 10 % of the total weight of the coated wire.

1.2.5 *Class 27*—Wire whose nickel coating is at least 27 % of the total weight of the coated wire.

NOTE 1—For information purposes, the thickness of coating in micro-inches provided by the percentages listed in 1.2 is shown in Table 2.

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

1.3.1 *Exceptions*—The SI values for density, resistivity, and volume are to be regarded as standard.

1.4 This hazard statement applies only to Section 7, Test Methods, and to the Appendix of this specification. *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.*

3. Referenced Documents

3.1 The following documents of the issue in effect at the time of reference form a part of these methods to the extent referenced herein:

¹ This specification is under the jurisdiction of ASTM Committee B01 on Electrical Conductors and is the direct responsibility of B01.04 on Conductors of Copper and Copper Alloys.

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3.2 ASTM Standards:²

B49 Specification for Copper Rod for Electrical Purposes

B193 Test Method for Resistivity of Electrical Conductor Materials

B258 Specification for Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical Conductors

E75 Test Methods for Chemical Analysis of Copper-Nickel and Copper-Nickel-Zinc Alloys (Withdrawn 2010)³

3.3 NIST:

NBS Handbook 100—Copper Wire Tables⁴

4. Ordering Information

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

4.1.1 Quantity of each size,

4.1.2 Wire size, diameter in inches (see 6.3 and Table 2),

4.1.3 Class of coating (Section 1 and Table 2),

4.1.4 Type of copper, if special (see 5.2),

4.1.5 Package size (Section 11),

4.1.6 Special packaging marking, if required, and

4.1.7 Place of inspection (see 10.1).

5. Material

5.1 The material shall be nickel-coated wire (Explanatory Note 1), of such quality and purity that the finished product shall have the properties and characteristics prescribed in this specification.

NOTE 2—Specification B49 defines copper suitable for use:

5.2 Copper of special qualities, forms, or types, as may be agreed upon between the manufacturer and the purchaser, and which will conform to the requirements prescribed in this specification may also be used.

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.