



Standard Specification for Seamless Copper Tube, Bright Annealed¹

This standard is issued under the fixed designation B 68; 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 Department of Defense.

1. Scope *

1.1 This specification establishes the requirements for bright annealed seamless copper tube suitable for use in refrigeration, oil lines, gasoline lines, and so forth, where tube with an interior surface essentially free from scale and dirt is required.

1.1.1 Tubes made from any of the following Copper UNS No. designations shall be supplied, unless otherwise specified in the contract or purchase order:

Copper UNS No. ²	Type of Copper
C10200	Oxygen-free without residual deoxidants
C10300	Oxygen-free, extra low phosphorus
C10800	Oxygen-free, low phosphorus
C12000	Phosphorus deoxidized, low residual phosphorus
C12200	Phosphorus deoxidized, high residual phosphorus

1.2 Values stated in inch-pound units are the standard except for grain size, which is given in SI units.

1.3 This specification is the companion to SI Specification B 68M; therefore, no SI equivalents are presented in this specification.

1.4 The following hazard statement pertains only to the test method described in Sections 20.5 and 21.2.6 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.*

2. Referenced Documents

2.1 ASTM Standards:

- B 68M Specification for Seamless Copper Tube, Bright Annealed [Metric]³
- B 153 Test Method for Expansion (Pin Test) of Copper and Copper-Alloy Pipe and Tubing³
- B 251 Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube³
- B 577 Test Methods for Detection of Cuprous Oxide (Hy-

- drogen Embrittlement Susceptibility) in Copper³
- B 601 Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast³
- B 846 Terminology for Copper and Copper Alloys³
- E 3 Guide for Preparation of Metallographic Specimens⁴
- E 8 Test Methods for Tension Testing of Metallic Material⁴
- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁵
- E 53 Test Methods for Determination of Copper in Unalloyed Copper by Gravimetry⁶
- E 62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods)⁶
- E 112 Test Methods for Determining the Average Grain Size⁴
- E 243 Practice for Electromagnetic (Eddy-Current) Examination of Copper and Copper-Alloy Tubes⁷
- E 255 Practice for Sampling Copper and Copper Alloys for Determination of Chemical Composition⁶
- E 527 Practice for Numbering Metals and Alloys (UNS)⁸

3. Terminology

3.1 Definitions:

3.1.1 See Terminology B 846 for definitions of terms related to copper and copper alloys.

3.1.2 *bright anneal, n*—a thermal treatment carried out in a controlled atmosphere so that surface oxidation is reduced to a minimum and the surface remains relatively bright.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *capable of*—the test need not be performed by the producer of the material. However, if subsequent testing by the purchaser establishes that the material does not meet these requirements, the material shall be subject to rejection.

4. Ordering Information

4.1 Include the following information in orders for products:

4.1.1 ASTM designation and year of issue (for example, B 68 – 95),

¹ This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.04 on Pipe and Tube.

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² Refer to Practice E 527 for explanation of unified numbering system (UNS).

³ *Annual Book of ASTM Standards*, Vol 02.01.

⁴ *Annual Book of ASTM Standards*, Vol 03.01.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ *Annual Book of ASTM Standards*, Vol 03.06.

⁷ *Annual Book of ASTM Standards*, Vol 03.03.

⁸ *Annual Book of ASTM Standards*, Vol 01.01.