



Designation: A 818 – 91 (Reapproved 1996)<sup>€1</sup>

## Standard Specification for Coppered Carbon Steel Wire<sup>1</sup>

This standard is issued under the fixed designation A 818; 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 (€) indicates an editorial change since the last revision or reapproval.

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

€<sup>1</sup> NOTE—Section 14, Keywords, was added editorially in 1996.

### 1. Scope

1.1 This specification covers coppered carbon steel wire supplied in coils for general use. It may be produced hard drawn, annealed in process, or annealed at finish size. The coating is very thin and is not designed for protection against corrosion.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products<sup>2</sup>

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel<sup>2</sup>

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment<sup>3</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specification<sup>4</sup>

#### 2.2 U.S. Federal Standard:

Fed. Std. No. 123 Marking for Shipments (Civil Agencies)<sup>5</sup>

#### 2.3 U.S. Military Standards:

MIL-STD-129 Marking for Shipment and Storage<sup>5</sup>

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage<sup>5</sup>

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *annealed coppered wire*—wire that may be either

3.1.2 *annealed-in-process wire*—at some stage before application of the copper, the steel wire is thermally treated and subsequently coated with copper and redrawn. coated with

copper, drawn, and annealed at finish size, or drawn, annealed at finish size and then coppered.

3.1.3 *carbon steel*—steel that has no minimum content specified or required for aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium, or zirconium or any other element added to obtain a desired alloying effect; steel that has the specified minimum copper content that does not exceed 0.40 %; or the maximum content for any of the following elements that does not exceed these percentages: manganese 1.65, silicon 0.60, or copper 0.60.

3.1.4 *coppered steel wire*—produced by cold drawing rod or wire that has been immersed in a copper sulfate solution.

3.1.5 *hard drawn wire*—wire that is coppered and drawn without the use of thermal treatment.

### 4. Ordering Information

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

4.1.1 Quantity (weight in pounds),

4.1.2 Coated wire diameter, in inches, to the third decimal point,

4.1.3 Name of material (coppered carbon steel wire),

4.1.4 Grade of steel,

4.1.5 Condition (hard drawn, annealed in process, or annealed at finished size),

4.1.6 Finish (lustrous or matte),

4.1.7 Packaging requirements, and

4.1.8 ASTM designation and year of issue.

NOTE 1—A typical ordering description is as follows: 40 000 lb, 0.148-in. coppered carbon steel wire, Grade 1008, hard drawn, lustrous finish in 600-lb catch-weight coils on tubular carriers to ASTM A818 – .

### 5. Materials and Manufacture

5.1 The steel rod from which the wire is drawn shall be manufactured by the open-hearth, electric-furnace, or basic-oxygen process.

5.2 Coppered wire may be supplied in any of the following conditions: hard-drawn, annealed-in-process, or annealed.

### 6. Mechanical Properties

6.1 The coppered steel wire shall meet the tensile strength requirements shown in Table 1 when tested in accordance with

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A-5 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.12 on Wire Specifications.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 01.03.

<sup>3</sup> Annual Book of ASTM Standards, Vol 01.05.

<sup>4</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>5</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.