



Designation: **F1665–08 (Reapproved 2013) F1665 – 08 (Reapproved 2018)**

Standard Specification for Poly(Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used With Chain-Link Fence¹

This standard is issued under the fixed designation F1665; 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.

1. Scope

1.1 This specification covers PVC and other conforming organic polymer-coated steel barbed wire consisting of two polymer-coated strands, with four-point barbs of zinc-coated steel or aluminum alloy wire. PVC and other organic polymer coatings hereinafter will be designated as polymer coating.

1.2 Barbed wire strand wire, produced from three classes of wire coatings, is covered as follows:

1.2.1 *Class 1*, consisting of a polymer coating extruded over zinc-coated or aluminum-coated or zinc-5 % aluminum-mischmetal alloy-coated steel wire;

1.2.2 *Class 2a*, consisting of a polymer coating extruded and adhered to zinc-coated or aluminum-coated or zinc-5 % aluminum-mischmetal alloy-coated steel wire; and

1.2.3 *Class 2b*, consisting of a polymer coating fused and adhered to zinc-coated or aluminum-coated or zinc-5 % aluminum-mischmetal alloy-coated steel wire.

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

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 *ASTM Standards:*²

[A90/A90M Test Method for Weight \[Mass\] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings](#)

[A370 Test Methods and Definitions for Mechanical Testing of Steel Products](#)

[A428/A428M Test Method for Weight \[Mass\] of Coating on Aluminum-Coated Iron or Steel Articles](#)

[A700 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment](#)

[D1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics](#)

[F552 Terminology Relating to Chain Link Fencing](#)

[F934 Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials](#)

[G152 Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials](#)

[G153 Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials](#)

2.2 *Federal Standard:*³

[Fed. Std. No. 123 Marking for Shipments \(Civil Agencies\)](#)

2.3 *Military Standards:*³

[MIL-STD-129 Marking for Shipment and Storage](#)

[MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage](#)

¹ This specification is under the jurisdiction of ASTM Committee F14 on Fences and is the direct responsibility of Subcommittee F14.40 on Chain Link Fence and Wire Accessories.

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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 Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.

3. Terminology

3.1 *Definitions*—For definitions of terms such as fabric (chain-link fence), PVC, and polymer coating, see Terminology **F552**.

4. Classification

4.1 Polymer-coated steel barbed wire is supplied in a choice of two types as follows:

4.1.1 *Type I (Standard)*, with barbs spaced on 5-in. (127-mm) centers; and

4.1.2 *Type II (High Security)*, with barbs spaced on 3-in. (76-mm) centers.

5. Ordering Information

5.1 Orders for barbed wire purchased in accordance with this specification shall include the following information:

5.1.1 Quantity (expressed in number of spools);

5.1.2 Length of spools (1320 or 1000 ft (402 or 305 m); see **9.4**);

5.1.3 Class of a polymer coating to be applied to metallic-coated steel strand wire;

5.1.4 Color of coating;

5.1.5 Type of barbs (galvanized steel or aluminum alloy; see **6.3**);

5.1.6 Type of barbed wire (Type I or II; see **4.1.1** and **4.1.2**);

5.1.7 Selection of type of metallic coating on the steel strand wire substrate, which shall be the choice of the producer unless otherwise specified;

5.1.8 Packaging requirements;

5.1.9 ASTM designation and year of issue; and

5.1.10 Certification, if required;

5.2 Any tests required other than those covered specifically in this specification must be stipulated by the purchaser in the order or contract.

5.3 All spools of barbed wire accepted by the purchaser shall be billed on the basis of the number and original length.

NOTE 1—A typical ordering description is as follows: 20 spools polymer-coated steel barbed wire, 1000-ft (305-m) spools, Class 2b coating, olive green color, aluminum alloy barbs, Type II (high security), on pallets, certified this specification.

6. Materials

6.1 *Base Metal*—The base metal shall be steel of such quality and purity that, when drawn to the size of wire specified, it shall be of uniform quality and have properties and characteristics as prescribed in this specification.

6.2 Wire used for the manufacture of strand wire shall meet the requirements of this specification. The polymer coating shall be formulated and produced properly to conform to the requirements of this specification.

6.3 *Materials for Barbs*:

6.3.1 *Zinc-Coated Steel Wire*, if used for the barbs, shall be 14 gage, 0.080 in. (2.03 mm), having a Class 3 zinc coating, minimum 0.70 oz/ft (215 g/m) when tested in accordance with Test Method **A90/A90M**.

6.3.2 *Aluminum Alloy Wire*, if used for the barbs, shall be 14 gage, 0.080 in. (2.03 mm), Alloy 5000-H38, 6061-T94, or equal, as agreed upon between the manufacturer and the purchaser at the time of purchase.

6.3.3 The choice of either zinc-coated steel wire or aluminum alloy wire for the barbs shall be that of the manufacturer, unless otherwise specified by the purchaser.

7. Manufacture

7.1 Class 1 polymer-coated wire shall have the coating extruded onto the strand wire that conforms to the requirements as given in **Table 1**.

7.2 Class 2a polymer-coated wire shall have the coating extruded and adhered to the strand wire that conforms to the requirements as given in **Table 1**.

7.3 Class 2b polymer-coated wire shall have the coating fused and adhered to the strand wire that conforms to the requirements as given in **Table 1**.

TABLE 1 Weight of Strand Wire Metallic Coatings

Specified Core Diameter of Strand Wire, in. (mm)	Minimum Weight of Zinc Coating, oz/ft (g/m)	Minimum Weight of Aluminum Coating, oz/ft ² (g/m ²)	Minimum Weight of
			Zinc-5 % Aluminum-Mischmetal Coating, oz/ft (g/m)
0.080 (2.03)	0.25 (75)	0.20 (61)	0.25 (75)