Designation: F668 – 17 (Reapproved 2022)

Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric[1]

This standard is issued under the fixed designation F668; 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 polyvinyl chloride and other conforming organic polymer-coated steel chain-link fabric, coated before weaving. Polyvinyl chloride, polyolefin, and other organic polymer coating hereinafter will be designated as polymer coating.

1.2 Fabric produced from three classes of wire coatings are covered as follows:

1.2.1 *Class I* consists of polymer coatings extruded over zinc-coated, aluminum-coated, or zinc-5 % aluminum-mischmetal alloy-coated, or zinc-5 % aluminum-mischmetal alloy-coated steel wire.

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

1.2.3 *Class 2b* consists of polymer coating fused and adhered to zinc-coated, 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 provided for information only.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *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

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

G155 Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials

2.2 *U.S. Federal Standard:*[3]

Fed. Std. No. 123 Marking for Shipments (Civil Agencies)

2.3 *U.S. Military Standards:*[3]

MIL-STD-129 Marking for Shipment and Storage

3. Terminology

3.1 *Definitions*—For definitions of terms such as chain-link fence fabric, selvage, knuckle, twist, and diamond count, see Terminology F552.

4. Ordering Information

4.1 Orders for chain-link fence fabric purchased to this specification shall include the following information:

4.1.1 Quantity.

4.1.2 Class of polymer coating to be applied to the metallic-coated core wire.

[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 the procuring activity or as directed by the contracting office or from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

4.1.3 Color of coating (see 16.5.1).
4.1.4 Size of mesh (see Table 1).
4.1.5 Diameter of metallic-coated core wire or minimum breaking strength, or both (see Tables 1-3).
4.1.6 Height of fabric.
4.1.7 Type of selvage if nonstandard (see 12.1 and 12.2).
4.1.8 Diamond count if nonstandard (see 9.1 and Table 2).
4.1.9 Certification, if required.

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

4.3 All rolls of fabric accepted by the purchaser shall be billed to him on the basis of the original footage of the rolls before sampling, unless changed by contractual agreement.

5. Materials

5.1 *Base Metal*—The base metal shall be steel of such quality and purity that, when drawn to the size of wire specified and coated with an organic polymer, the finished fencing shall be of uniform quality and have properties and characteristics as prescribed in the specification.

5.2 Wire used for the manufacture of fabric shall meet the requirements of this specification and shall be capable of being woven into fabric without the polymer coating cracking or peeling. The polymer coating shall be formulated and produced properly to conform to the requirements of this specification.

6. Manufacture

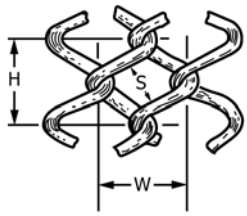
6.1 Class 1 polymer-coated wire shall have the polymer coating extruded onto wire that conforms to the requirements as shown in Table 3.

TABLE 1 Sizes of Wire and Mesh[A]

NOTE 1—For custom fabric heights, see Section 11.

Specified Diameter of Core Wire, in.	Size Core Wire Gauge	Size of Mesh, in.	Height of Fence Fabric, in.
0.192	6	2	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.192	6	1¾	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	2	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	1¾	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148[B]	9	1¼	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	1	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	2⅛	36, 42, 48, 60, 72,
0.120	11	2	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	1¾	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120[B]	11	1¼	36, 42, 48, 60, 72, 84, 96, 108, 120, 144,
0.120	11	1	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	⅝	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	½	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	⅜	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.105[C]	12	⅝	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.105[C]	12	½	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.105[C]	12	⅜	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.080[C]	14	⅝	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.080[C]	14	½	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.080[C]	14	⅜	36, 42, 48, 60, 72, 84, 96, 108, 120, 144

[A] See Table X1.1 for metric equivalents.
[B] This mesh size and smaller is recommended for swimming pools.
[C] These wire sizes should only be used on ⅝ in., ½ in., and ⅜ in. mesh fabrics. See Fig. 1 for criteria on mesh dimensions.



S	H	W
3/8 in. MESH	3/4 in.	3/4 in.
1/2 in. MESH	15/16 in.	15/16 in.
5/8 in. MESH	1 1/8 in.	1 1/8 in.

FIG. 1 Mesh Dimensions for ⅝-in., ½-in., and ⅜-in. Fabric

6.2 Class 2a polymer-coated wire shall have the polymer coating extruded and adhered to wire that is zinc-coated by the hot-dip method, zinc-coated by the electrolytic process, or aluminum-coated by the hot-dip method.

6.3 Class 2b polymer-coated wire shall have the polymer coating fused and adhered to wire that is zinc-coated by the hot-dip method, zinc-coated by the electrolytic process, or aluminum-coated by the hot-dip method. The use of a primer prior to the application of a polymer coating may be recommended by the polymer manufacturer.

NOTE 1—Under current practice, the process for producing a Class 2b PVC coating requires the use of a primer to attain chemical bonding to the substrate. In any event, the polymer manufacturer's recommendation should be followed.

6.4 Type of metallic coating on the steel wire substrate shall be the choice of the producer unless otherwise specified.

7. Weave

7.1 The wire shall be woven throughout in the form of approximately uniform square mesh, having parallel sides and horizontal and vertical diagonals of approximately uniform dimensions. The top and bottom of the fabric shall be knuckled or twisted as specified in Section 12.

8. Size of Mesh

8.1 The size of mesh shall conform to the requirements as shown in Table 1.

8.2 The permissible variation from the specified size of mesh shall be ±⅛ in. (3.2 mm) for all mesh sizes over 1 in. (25 mm) and ±1/16 in. (1.6 mm) for all mesh sizes 1 in. (25 mm) and under.

8.3 Size of mesh shall be determined by unrolling a roll of fabric on a flat surface and exerting tension in accordance with the requirements of 18.2, then measuring the minimum clear distance between the wires forming the parallel sides of the mesh.

9. Diamond Count

9.1 Typical diamond count for each standard height is shown in Table 2. Other diamond counts are permissible, provided that they are consistent within a lot. The purchaser has the option to specify the typical diamond count of 4.1.8.

10. Size of Wire

10.1 Chain-link fabric shall be fabricated from wire diameters as necessary to meet the requirements of Table 1. The diameter shall be determined as the average of two readings

TABLE X1.1 Approximate Metric Equivalents for Tables 1 and 2

Size of Wire and Mesh, in. (mm)	Height of Fence Fabric, in. (mm)
Wire	
0.192 (4.88)	36 (910)
0.148 (3.76)	42 (1070)
0.120 (3.05)	48 (1220)
0.105 (2.67)	60 (1520)
0.080 (2.03)	72 (1830)
	84 (2130)
Mesh	96 (2440)
⅜ (10)	108 (2740)
½ (13)	120 (3050)
⅝ (16)	144 (3660)
1 (25)	
1¼ (32)	
1¾ (44)	
2 (50)	
2⅛ (54)	