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Standard Specification for Zinc-5 % Aluminum-Mischmetal Alloy-Coated Steel Chain-Link Fence Fabric[1]

This standard is issued under the fixed designation F1345; 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 zinc-5 % aluminum-mischmetal (Zn-5A1-MM) alloy-coated steel chain-link fence fabric, Zn-5A1-MM alloy-coated, before weaving.

1.2 The values stated in inch-pound units are to be regarded as the standard.

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

A491 Specification for Aluminum-Coated Steel Chain-Link Fence Fabric

A700 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment

A817 Specification for Metallic-Coated Steel Wire for Chain-Link Fence Fabric and Marcelled Tension Wire

2.2 *Federal Standard:*

Fed. Std. No. 123 Marking for Shipment, Civil Agencies[3]

2.3 *Military Standards:*

MIL-STD-129 Marking for Shipment and Storage[3]

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *chain link fence fabric*—a fencing material made from steel wire helically wound and interwoven in such a manner as to provide a continuous mesh without knots or ties except in the form of knuckling, or of twisting the ends of the wires to form the selvage of the fabric.

3.1.2 *diamond count*—the number of diamond openings from one edge of the fabric to the other. The diamond count of a given fabric shall begin at the first completed diamond at one edge and continue to the unfinished half or full opening at the other edge.

3.1.3 *knuckling*—a term used to describe the type of selvage obtained by interlocking adjacent pairs of wire ends and then bending the wire ends back into a loop. The loop shall be closed or nearly closed to a measurement less than the diameter of the wire.

3.1.4 *twisting*—a term used to describe the type of selvage obtained by twisting adjacent pairs of wire ends together in a close helix of 1½ machine turns, which is equivalent to three full twists, and cutting the wire ends at an angle. The wire ends beyond the twist shall be at least ¼ in. (6.4 mm) long. This type of selvage is not used on fabric with a mesh size of less than 2 in. (50.8 mm).

4. Ordering Information

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

4.1.1 Quantity (Section 13),

4.1.2 Size of mesh (Section 7),

4.1.3 Size of wire (Section 8),

4.1.4 Height of fabric (Section 9),

4.1.5 Diamond count, if specified (Section 6),

4.1.6 Type of selvage (Section 10),

4.1.7 Certification if required (Section 16),

4.1.8 Class of Coating (Section 11), and

4.1.9 ASTM designation and year of issue.

4.2 All rolls of fencing accepted by the purchaser shall be billed on the basis of the original footage of the rolls before sampling, unless changed by contractual arrangement.

NOTE 1—A typical ordering description is as follows: 25 rolls, 50 ft each, chain-link fence fabric, Zn-5A1-MM alloy-coated, 2 in. mesh, 0.148 in. wire, 60 in. high, knuckled both selvages, class 2 coating to Specification F1345.

[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.

TABLE 1 Typical Diamond Count[A]

NOTE 1—Other diamond counts are permitted (see 6.2).

NOTE 2—For fabric heights over 144 in., see 6.2.

NOTE 3—Variations to knuckled or twisted selvage may affect diamond count (see 6.2).

Nominal Diameter Coated Wire, in.	Size of Mesh, in.	Height of Fence Fabric, in.									
		36	42	48	60	72	84	96	108	120	144
0.192	2	10½	12½	13½	17½	20½	24½	27½	31½	34½	41½
0.148	2	10½	12½	13½	17½	20½	24½	27½	31½	34½	41½
0.148	1¼	...	...	23	29	35	41	46	52	58	70
0.148	1	20	23	27	33	39	45	53	61	67	79
0.120	2	10½	12½	14½	17½	20½	24½				
0.120	1¾							31½	35½	39½	47½
0.120	1	20	23	27	33	39	45	53	61	67	79
0.113	2⅛	9½	11½	13½	16½	19½					

[A]See Appendix X1 for SI equivalents and Fig. 1 for mesh sizes less than 1 in. (25.4 mm).

5. Materials

5.1 The wire from which the fabric is woven shall conform to all requirements of Specification A817 for Type III coating, in the class of coating specified (Class 1 or Class 2).

6. Weave

6.1 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 10.

6.2 Typical diamond count for each standard height is shown in Table 1. Other diamond counts are permissible provided that they are consistent within a lot. The purchaser has the option to specify the diamond count (4.1.5).

7. Size of Mesh

7.1 The size of mesh shall be as indicated in Table 2.

7.2 The permissible variation from the specified size of mesh shall be ±⅛ in. (±3.2 mm) for all mesh sizes except 1 in., and ±1⁄16 in. (±1.6 mm) for 1 in. mesh size and under.

7.3 The size of mesh shall be determined by measuring the minimum clear distance between the wires forming the parallel sides of the mesh and determined as the average of two readings taken at right angles to each other.

8. Size of Wire

8.1 Chain-link fabric shall be fabricated from wire diameters as listed in Specification A817, with a permissible variation from the specified diameter of the coated wire of ±0.005 in. (±0.13 mm).

9. Height of Fabric

9.1 Chain-link fabric shall be furnished in the standard heights shown in Table 2. The height of fabric shall be the overall dimension from ends of twists or knuckles. The permissible variation from the specified height shall be ±1 in. (±25 mm) for standard selvage.

TABLE 2 Sizes of Wire and Mesh[A]

NOTE 1—For fabrics heights over 144 in., see 9.1.

Specified Diameter of Coated Wire, in.	Size, Coated Wire Gage	Size of Mesh, in.	Height of Fence Fabric, in.
0.192	6	2	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	1¼	. . . . . 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	1	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	½	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.120	11	2	36, 42, 48, 60, 72, 84 . . . . .
0.120	11	1¾	. . . . . 96, 108, 120, 144
0.120	11	1¼	. . . . . 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	⅜	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	⅝	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.113	11½	2⅛	36, 42, 48, 60, 72 . . . . .

[A]See Appendix X1 for SI equivalents. See Fig. 1 for mesh dimensions for ⅜ in., ½ in., and ⅝ in. mesh.

10. Selvage

10.1 Unless otherwise specified by the purchaser, fabrics with 2- or 2⅛-in. (50- or 54-mm) mesh, in heights 60 in. (1520 mm) and under shall be knuckled at both selvages. Fabric 72 in. (1830 mm) high and over shall be knuckled at one selvage and twisted at the other.

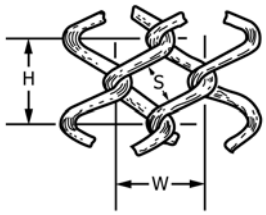
10.2 The selvages of fabrics with meshes of less than 2 in. (50 mm) shall be knuckled.

NOTE 2—**Caution:** Twisted selvages for fence fabric under 72 in. (1830 mm) in height are not recommended because of consumer safety considerations.

11. Weight of Coating

11.1 The weight of Zn-5A1-MM alloy coating on the fabric may be ordered in two coating weight classes as follows, in accordance with Specification A817.

11.1.1 *Class 1*—The weight of Zn-5A1-MM alloy coating shall not be less than 0.6 oz/ft^2 (183 g/m^2) of uncoated wire surface.



Mesh Size, S	Height, H	Width, W
⅜ in. mesh (10 mm)	¾ in. (19 mm)	¾ in. (19 mm)
½ in. mesh (13 mm)	15⁄16 in. (24 mm)	15⁄16 in. (24 mm)
⅝ in. mesh (16 mm)	1⅛ in. (29 mm)	1⅛ in. (29 mm)

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

11.1.2 *Class 2*—The weight of Zn-5A1-MM alloy coating shall not be less than 1.0 oz/ft^2 (305 g/m^2) of uncoated wire surface.

11.2 The weight of coating shall be determined in accordance with Test Method A90/A90M.

12. Workmanship

12.1 Chain-link fence fabric shall be produced by methods recognized as good commercial practices. The zinc-5 % aluminium-mishcmetal before-weaving fabric shall be woven using proven industry procedures to ensure a smooth consistent surface without penetrating to the substrate, except at the selvage cut ends, see Note 3.

12.2 Excessive roughness, blisters, and flaking shall be noted. These and other defects, if present to any considerable extent, shall provide a basis for rejection.

NOTE 3—Rust formations on the cut ends of the wire at the fabric selvages are inherent characteristics of this material and do not warrant rejection of the fabric.

13. Standard Length of Rolls

13.1 The standard length of roll shall be 50 ft (15.24 m) ± 1 % except as otherwise agreed upon at the time of purchase.

13.2 The length of roll shall be determined by unrolling a roll of fabric on a flat surface and exerting tension by appropriate means to remove all slack. The tension applied shall not reduce the actual height of the fabric by more than 1⁄16 in./ft (5.3 mm/m) of height or by more than ½ in. (12.7 mm), whichever is less.

14. Sampling and Number of Tests

14.1 One roll from every 50 rolls or fraction thereof in a lot shall be taken at random as a sample for test purposes. In no case shall less than two samples be tested, except when the lot is less than 10 rolls, only one roll shall be selected for the sample.

14.2 Sample rolls selected shall be inspected for weave (Section 6), size of mesh (Section 7), diamond count (6.2), wire size (Section 8), height of fabric (Section 9), selvage (Section 10) and length (Section 13).

14.3 If any specimen tested fails to meet the requirements of this specification, the roll represented by the specimen shall be rejected and two additional rolls shall be inspected, both of which shall meet the requirements in every respect; otherwise, the lot represented by the samples may be rejected.

15. Inspection

15.1 Unless otherwise specified in the purchase order or contract, the manufacturer is responsible for the performance of all inspection and test requirements specified in this specification. Except as otherwise specified in the purchase order or contract, the manufacturer may use his own or any other suitable facilities for the performance of the inspection and test requirements unless disapproved by the purchaser at the time the order is placed. The purchaser shall have the right to perform any of the inspection and tests set forth in this specification when such inspections and tests are deemed necessary to ensure that the material conforms to prescribed requirements.

16. Certification

16.1 When specified in the purchase order or contract, a producer's or supplier's certification shall be furnished to the purchaser that the material was manufactured, sampled, tested, and inspected in accordance with this specification and has been found to meet the requirements. When specified in the purchase order or contract a report of the test results shall be furnished.

17. Packaging, Marking, and Loading

17.1 Each length of chain-link fence fabric shall be tightly rolled and firmly tied. Each roll shall carry a tag showing the type of coating, the specified wire size, mesh size, the specified length and height of fabric in the roll, Specification A491, and the name or mark of the manufacturer.

17.2 Unless otherwise specified, packaging, marking and loading for shipment shall be in accordance with recommended Practices A700.

17.3 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. government, when Level A is specified, preservation, packaging, and packing shall be in accordance with Level A requirements of MIL-STD-163.

17.4 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. government, marking for shipment, in addition to the requirements specified

in the contract or order, shall be in accordance with MIL-STD-129 for U.S. military agencies and in accordance with Fed. Std. No. 123 for civil agencies.

18. Keywords

18.1 aluminum; chain link; coated steel; fence; mischmetal

APPENDIX

(Nonmandatory Information)

X1. APPROXIMATE SI EQUIVALENTS

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

Sizes of Wire and Mesh		Height of Fence Fabric	
in.	mm	in.	mm
0.192	4.88	36	910
0.148	3.76	42	1070
0.120	3.05	48	1220
0.113	2.87	60	1520
1	25	72	1830
1¼	32	84	2130
1¾	44	96	2440
2	50	108	2740
2⅛	54	120	3050
		144	3660