



Designation: A 599/A 599M – 02

Standard Specification for Tin Mill Products, Electrolytic Tin-Coated, Cold-Rolled Sheet¹

This standard is issued under the fixed designation A 599/A 599M; 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 cold-rolled steel sheet in coils or in cut lengths, tin-coated by electrodeposition. The product is commonly known as electrolytic tin-coated sheet, and is for applications that need good solderability, good surface appearance, and a degree of corrosion resistance. Tin-coated sheet is produced to various designations of tin coating, as outlined in Table 1.

1.1.1 Electrolytic tin-coated sheet is customarily available as commercial steel (CS); drawing steel (DS); deep drawing steel (DDS); extra deep drawing steel (EDDS), and structural steel (SS). The tin coating is available as unmelted or melted.

1.2 *Limitations*—This specification is applicable to orders in either inch-pound units (as A 599), which is supplied in thicknesses from 0.015 in. to 0.033 in., or SI units [as A 599M], which is supplied in thicknesses from 0.38 mm to 0.84 mm. For thicknesses lighter than 0.015 in. [0.38 mm], refer to A 624 [A 624M].

1.3 Unless the order shows the “M” designation [SI units], the product shall be furnished to inch-pound units. The values stated in either inch-pound or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this specification.

2. Referenced Documents

2.1 ASTM Standards:

A 568/A 568M Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for²

A 623 Specification for Tin Mill Products, General Requirements³

A 623M Specification for Tin Mill Products, General Requirements (Metric)³

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.20 on Tin Mill Products.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 01.06.

TABLE 1 Electrolytic Tin-Coated Sheets Coating Weight [Mass]

NOTE 1—Listed below are the commonly produced coating weights [mass] upon agreement between the producer and the purchaser. Other combinations of coatings may be specified and the appropriate minimum average test values^A apply.

Designation No.	Nominal Tin Coating Weight [Mass] (Each Surface) lb/base box (g/m ²) ^B	Minimum Average Coating Weight [Mass] (Each Surface Test Value) lb/base box (g/m ²) ^{B,C}
5 (0.6/0.6)	0.025/0.025 (0.6/0.6)	0.02/0.02 (0.5/0.5)
10 (1.1/1.1)	0.05/0.05 (1.1/1.1)	0.04/0.04 (0.9/0.9)
15 (1.7/1.7)	0.075/0.075 (1.7/1.7)	0.06/0.06 (1.4/1.4)
20 (2.2/2.2)	0.10/0.10 (2.2/2.2)	0.08/0.08 (1.8/1.8)
25 (2.8/2.8)	0.125/0.125 (2.8/2.8)	0.11/0.11 (2.5/2.5)
50 (5.6/5.6)	0.25/0.25 (5.6/5.6)	0.23/0.23 (5.2/5.2)
75 (8.4/8.4)	0.375/0.375 (8.4/8.4)	0.35/0.35 (7.8/7.8)
100 (11.2/11.2)	0.50/0.50 (11.2/11.2)	0.45/0.45 (10.1/10.1)

^ARefer to Specifications A 623 and A 623M.

^BA base box is defined as a unit of area equivalent to 112 sheets 14 in. by 20 in. or 31 360 in.² (refer to Specification A 623).

^CThe minimum single spot value shall not be less than 80 % of the minimum average tin coating weight [mass] (see 8.1 and 8.2).

A 624/A 624M Specification for Tin Mill Products, Electrolytic Tinplate, Single-Reduced³

A 630 Test Methods for Determination of Tin Coating Weights for Hot-Dip and Electrolytic Tin Plate³

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment⁴

A 1008/A 1008M Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability²

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *chemical treatment*—a passivating chemical treatment, normally applied to the tinned surface to stabilize the surface to control tin oxide formation and growth. Sodium dichromate is most commonly used. Without such treatment, severe tin oxide growth, and its resultant discoloration, is a hazard. Excessive oxide growth may also cause poor solderability and poor adhesion of organic coatings. If a special surface treatment is required, it should be negotiated with the supplier.

⁴ Annual Book of ASTM Standards, Vol 01.05.