



Designation: A599/A599M – 07 (Reapproved 2012)

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

This standard is issued under the fixed designation A599/A599M; 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 A599), which is supplied in thicknesses from 0.015 in. to 0.036 in., or SI units [as A599M], which is supplied in thicknesses from 0.381 mm to 0.914 mm. For thicknesses lighter than 0.015 in. [0.381 mm], refer to [A624/A624M](#) [A624M].

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:²

[A568/A568M](#) Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

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.

Current edition approved March 1, 2012. Published November 2012. Originally approved in 1969. Last previous edition approved in 2007 as A599/A599M – 07. DOI: 10.1520/A0599_A0599M-07R12.

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.

[A623](#) Specification for Tin Mill Products, General Requirements

[A623M](#) Specification for Tin Mill Products, General Requirements [Metric]

[A624/A624M](#) Specification for Tin Mill Products, Electrolytic Tin Plate, Single Reduced

[A630](#) Test Methods for Determination of Tin Coating Weights for Electrolytic Tin Plate

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

[A1008/A1008M](#) Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

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.

3.2 Finishes:

3.2.1 *No. 5 Finish*—a shot-blasted and/or otherwise textured roll base metal finish usually employed on unmelted tin-coated sheet.

3.2.2 *No. 7 Finish*—a ground-roll base metal finish usually employed on melted tin-coated sheet.

3.2.2.1 *Discussion*—It is possible to produce either No. 5 or No. 7 Finish as unmelted or melted; however, end application is important and should be negotiated with the producer.

3.3 *melted tin coating*—tin coated by electrodeposition on a base steel normally having a ground-roll finish (see [3.2](#)), and then melted to reflow the tin. The resultant coating has a brighter appearance than unmelted tin. An iron-tin alloy layer is developed during the melting operation, thus reducing the amount of free tin available. Due to the limitations of the