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Standard Specification for STEEL SHEET, COLD-ROLLED, TIN-COATED BY ELECTRODEPOSITION¹

This standard is issued under the fixed designation A 599; 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 quality, drawing quality, drawing quality special killed, and structural quality which are fully described in Specifications A 366, A 611, A 619/A 6191M, and A 620/620M. Tin-coated sheet is produced in thicknesses from 0.015 to 0.033 in. (0.84 to 0.38 mm). The tin coating is available as unmelted or melted.

1.2 *Limitations*—This specification does not cover material covered by Specification A 624 in thicknesses 0.0149 in. (0.38 mm) and thinner.

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

2. Applicable Documents

2.1 *ASTM Standards:*

A 366 Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality²

A 568 Specification for Steel, Carbon and High-Strength Low-Alloy Hot-Rolled Sheet and Cold-Rolled Sheet, General Requirements²

A 611 Specification for Steel, Cold-Rolled Sheet, Carbon, Structural²

A 619/A619M Specification for Steel Sheet, Carbon, Cold-Rolled, Drawing Quality²

A 620/A 620M Specification for Steel Sheet, Carbon, Cold-Rolled, Drawing Quality, Special Killed²

A 624 Specification for Tin Plate, Single-Reduced Electrolytic³

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

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

3. Descriptions of Terms Specific to This Standard

3.1 *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 roll base metal finish usually employed on unmelted tin-coated sheet.

¹ This specification is under the jurisdiction of ASTM Committee A-5 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.11 on Sheet Specifications.

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² *Annual Book of ASTM Standards*, Vol 01.03.

³ *Annual Book of ASTM Standards*, Vol 01.06.

⁴ *Annual Book of ASTM Standards*, Vols 01.01, 01.03, 01.04, and 01.05.