



STANDARDS

COIL COATED GALVANIZED SHEET STEEL FOR STRUCTURAL BUILDING PRODUCTS

1. SCOPE

The following standards shall apply to hot dipped galvanized sheet steel as delivered from the coil coater, coated in coil form with colours of proven durability for exterior exposure.

2. DEFINITIONS

2.1 Proven Colour

A proven colour is one which is manufactured from pigments, the stability of which has been established as being durable under exterior exposure conditions.

2.2 Other Colours

Colours other than proven colours are those which are produced from pigments, the stability of which have not been established by exterior exposure and therefore are not covered by the exterior exposure requirements of this standard.

3. BASE METAL

The base metal furnished before painting will be standard 1.25 oz./sq. ft. continuous hot dipped galvanized steel, conforming to ASTM A446 (CSA 163.3). Condensations of these specifications are included in the CSSBI Technical Bulletin No. 3.

4. PAINT QUALIFICATION TESTS

4.1 Film Thickness (ASTM D-1005, latest revision)

4.1.1 The exposed surface shall have a dry film thickness of one (1) mil, with a tolerance of plus or minus 0.2 mils.

4.1.2 The unexposed surface or reverse side shall have a dry film thickness of 0.3 mils with a tolerance of plus or minus 0.1 mil unless otherwise specified.

4.2 Humidity Resistance

4.2.1 The humidity resistance shall be conducted at 100% relative humidity at 100 °F (ASTM D-2247, latest revision).

4.2.2 1000 hours—May show only a few scattered blisters no larger than No. 8, (ASTM D-714, latest revision).

4.3 Fabrication Resistance

4.3.1 This test is to provide information concerning the formability of coil coated steel. A representative sample shall be bent 180 degrees around a mandrel twice the thickness of the material used as the test specimen, (ASTM D-522, latest revision).

4.3.2 There shall be no loss of adhesion of the paint when tested by means of No. 600 scotch cellophane tape. No "unsightly" paint film fracture will be permitted. "Unsightly" fracture will be considered as any cracks which are large enough to be seen at a distance of 30 inches in a MacBeth Daylight Booth by an observer with 20/20 vision.

4.4 Film Adhesion

4.4.1 On a flat sample and using a sharp knife or similar instrument, make ten (10) parallel cuts through the film at approximately 1/16 inch spacing. Make ten (10) similar cuts at 90 degrees to, and crossing the first ten (10). Apply No. 600 scotch cellophane tape firmly to the area and pull sharply.

4.4.2 No removal of the film shall occur when tested in accordance with the foregoing.

4.5 Oil Immersion

- 4.5.1 The oil immersion test shall be conducted for 48 hours in SAE Grade 10 oil at 70 °F. plus or minus 2 °F.
- 4.5.2 Twenty-four (24) hours after removal from the oil, there shall be no softening and no appreciable change in colour as observed in a MacBeth Daylight Booth.

4.6 Water Immersion (ASTM D-870, latest revision)

- 4.6.1 The water immersion test shall be conducted for 100 hours in distilled water.
- 4.6.2 Four (4) hours after removal from the water, there shall be no softening and no appreciable change in colour as observed in a MacBeth Daylight Booth.

4.7 Film Cure

- 4.7.1 The baked film shall withstand thirty (30) double rubs with a piece of soft cheesecloth saturated with M.E.K. (Methyl Ethyl Ketone) and applied with sufficient pressure to maintain contact between the cheesecloth and the paint film, or,
- 4.7.2 The baked film hardness may also be measured by means of Eagle Turquoise pencils using a flat round lead applied at 45 degrees to the paint film. Pencil hardness is specified as that of the first pencil which will not rupture the film. A minimum hardness of "HB" to "F" shall be obtained.

4.8 Salt Spray Resistance

- 4.8.1 Salt spray resistance shall be measured using 5% salt solution (ASTM B-117, latest revision). All sample panels to be scored to bare metal with a diagonal line across the panel and suitably protected on the edges and back side to withstand salt spray testing.
- 4.8.2 750 hours—No blistering on the face of the panel and no removal of paint at the score line (when tested by means of No. 600 scotch cellophane tape). Loss of adhesion shall be tested after panel is allowed to dry

in air for four (4) hours after removal from salt spray cabinet.

5. GLOSS

The specular gloss shall be 30, plus or minus 5 degrees, when measured with a Gardner 60 Glossmeter, (ASTM D-523, latest revision) for standard specification coatings. Other gloss ranges shall be mutually agreed upon prior to purchase.

6. EXTERIOR EXPOSURE

6.1 Weathering

In exterior exposure the film shall show no checking or loss of adhesion and exhibit only slight chalking (No. 6, ASTM D-659, latest revision) and slight colour change after one year exposure in south Florida and also in southern Ontario, at 45° to the horizontal facing south, and shall not exhibit a colour change of more than seven (7) fade units when measured on any accepted colourimeter designed to produce reflecting readings in the Tristimulus Filter System of X-, Y-, and Z- based on the CIE values of illuminant C.

6.2 Resistance to Accelerated Weathering

6.2.1 Accelerated weathering shall be tested by the use of an Operating Light and Water-Exposure apparatus (Carbon Arc Type) for Artificial Weathering Test (ASTM E-42, latest revision).

6.2.2 For example, the results using an Atlas Model SW Sun Arc Weatherometer with an 18 minute water spray and a 102 minute light cycle, using standard filters, would be as follows:

1000 hours — No cracking, spotting (except normal water spotting) checking or peeling (when tested by means of a No. 600 scotch cellophane tape). May show slight fading and only slight chalking (No. 6 ASTM D-659, latest revision).

Other testing devices and cycles may be used and the required end results agreed upon prior to the tests.