Galvalume® Steel

Description:

Galvalume®, the registered trade name for patented sheet steel having a hot-dip coating of corrosion-resistant, aluminum zinc alloy, is available prepainted from the manufacturer. The use of a prepainted Galvalume steel sheet offers the consumer many positive features in addition to the corrosion resistance of the substrate. Compared with post-painting, these features include:

- More uniform paint coating.
- Reduction of in-plant rejections resulting from defective material treatments and coatings.
- Longer tool life because of prepainted Galvalume steel sheet's lubricity and non-abrasiveness.
- Shorter production schedules by eliminating handling, cleaning and post-painting.
- Elimination of capital equipment by the fabricator; thus, saving money and maintenance time.
- Reduction of fire hazard and pollution problems by eliminating storage of volatile solvents.
- No special tooling requirement because prepainted Galvalume steel sheet is generally formed on press brakes and roll forming equipment with the same dies and rolls used for bare steel.

Prepainted Galvalume steel sheet is an ideal product for many painted applications where superior atmospheric corrosion resistance is needed, such as in pre-engineered buildings, architectural panels, siding, roofing (conventional and standing seam) and other building components. It is also suitable for appliances and other end uses. A variety of colors and finishes are available.

Advantages:

High aluminum content of the coating results in Galvalume steel sheet having a lower density and less weight per unit area than G90 galvanized steel sheet of equivalent thickness.

Technical Data:

Typical Mechanical Properties	
Yield Strength	40-55 ksi
Tensile Strength	55-70 ksi
Total Elongation	20-36%
Hardness	50-65 HRB

(Structural steels, including 50 ksi and 80 ksi minimum yield strengths, are also available.)

Substrate:

- The Galvalume steel sheet coating consists of an alloy of nominally 55% aluminum, 1.6% silicon, and the balance zinc by weight, as listed in ASTM designation A 792. On a volume basis, the coating is approximately 80% aluminum.
- The metallic coating is applied by a continuous hot-dip process whereby properly cleaned low carbon, cold-rolled steel is dipped into a molten aluminum-zinc bath**.**
- The alloy coating of Galvalume steel sheet provides an optimum balance between (a) the long-term general corrosion resistance of aluminum, and (b) the galvanic protection of zinc at scratches and cut edges.

Processing:

- Galvalume steel sheet is cleaned and pretreated in preparation for painting. Surface contaminants are removed using a suitable alkaline cleaner.
- The sheet is then pretreated with a chromate pretreatment. The pretreatment is a uniform, continuous deposit applied in a manner to provide excellent paint adhesion and corrosion resistance.
- A minimum of two coats of paint are applied to both the face side and back side of the steel sheet: a corrosion inhibitive primer and a top coat. (Primer thickness is typically 0.2 - 0.25 mil, top coat thickness varies depending on paint type and end use).

Paint Adhesion:

- Adhesion is determined by pick-off on a tape pull on a cross-hatch, wedge bend and nine joule (80 inch-pounds) reverse impact dimple.

Corrosion Resistance:

- Prepainted Galvalume steel sheet exhibits less than 3 mm of edge creep along sheared edges and no scribe creep after 750 hours of salt-spray exposure (Specification ASTM B 117). Additionally, no blistering or loss of paint adhesion occurs after 1,000 of hours water fog exposure (100% relative humidity at 100°F).

Installation:

- Prepainted Galvalume steel sheet should not come in direct contact with wet concrete. Concrete's high alkalinity attacks the aluminum, causing the coating to peel.
- Prepainted Galvalume steel sheet should not be placed in contact with copper, lead, or the water run-off from either. Electrochemical reaction between these elements and the aluminum-zinc alloy coating will lead to premature corrosion of the coating.
- Fasteners should have corrosion resistance at least equivalent to the expected life of the base material.
- Good installation practice includes removal of metal fines due to drilling, cutting, etc. from the steel sheet surface.
- Prepainted Galvalume steel sheet can be stored, handled, and installed using the same procedures as with prepainted galvanized steels.

Maintenance:

Prepainted Galvalume steel sheet requires no special maintenance under normal use. Recommended touch-up paint systems are available from the paint manufacturers for repairing areas damaged during erection.

Warranty:

Prepainted Galvalume steel sheet is conditionally warranted against rupture, structural failure or perforation due to corrosion for a period of 20 years and six months when used for building panel applications.

Paint finishes are warranted depending upon application, paint system and color. More specific information regarding warranties will be furnished upon request.

Technical Data:

Complete technical information and literature is available from EXCEPTIONAL Metals at www.exceptionalmetals.com or by calling 800-248-0280.

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