



Data Sheet

PRODUCT NAME

Galvalume® Sheet
Galvalume® Plus Sheet

MANUFACTURER

Bethlehem Steel Corporation
Sparrows Point Division
Sparrows Point, MD 21219
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PRODUCT DESCRIPTION

Coating: "Galvalume" is the registered trade name for a patented sheet steel product having a coating of corrosion-resistant aluminum-zinc alloy applied by a continuous hot dipping process. The alloy coating of aluminum and zinc provides an optimum balance between (a) the long-term general corrosion resistance, high temperature oxidation resistance and heat reflectivity of aluminum, and (b) the galvanic protection of zinc at scratches and cut edges.

"Galvalume Plus" is the registered trade name for a bare Galvalume sheet product with a thin, clear acrylic coating. This product offers several advantages, including:

- Can be rollformed dry, with no vanishing oil applied in our coating line or at the rollforming line. In fact, Galvalume Plus should only be roll formed dry.
- Panels will be delivered to the jobsite dry, with no vanishing oil on the surface.
- Resists fingerprinting and smudging during handling and installation at the jobsite.
- Provides excellent resistance to storage stain and transit corrosion.
- Provides a bright appearance which will weather uniformly.

Basic Use: Galvalume sheet -- bare, acrylic-coated and pre-painted -- is intended for applications where superior corrosion resistance is required, as in roofing, siding, pre-engineered buildings, appliances, air conditioner housings and other uses. Bare Galvalume sheet is also used for applications where resistance to oxidation at elevated temperatures is important, such as fireplaces, toasters and automotive exhaust systems.

Limitations: Based on experience to date, Bethlehem advises against contact of Galvalume sheet with lead, copper, graphite, unprotected steel, uncured concrete, or wet, green or pressure-treated wood; exposure of Galvalume sheet to water run-down from copper and the use of Galvalume sheet in harsh chemical or intensive animal confinement environs.

TECHNICAL DATA

Coating: The composition of the Galvalume sheet coating is typically 55% aluminum, 1.6% silicon and the balance zinc, nominal percentages by weight. The product is described in ASTM Specification A 792 and is available in three coating weights:

ASTM Designation **AZ50 AZ55 AZ60**

Triple Spot Average Minimum	oz/sq ft	0.50	0.55	0.60
Single Spot Minimum	oz/sq ft	0.43	0.50	0.52

A nominal coating weight of 0.50 oz/sq ft (total both sides) is equivalent to 0.8 mil thickness per side.

The coating is available as regular spangle or extra smooth surface, with or without chemical treatment. An oil coating may also be specified on bare Galvalume sheet.

Galvalume Plus begins with Bethlehem's standard high-quality bare Galvalume sheet and goes a step further. As a final step in the hot-dip coating process, a very thin acrylic coating is applied to both sides of the sheet using a sophisticated roll coater. This acrylic coating provides excellent resistance to storage stain and transit corrosion. Galvalume Plus eliminates the need for conventional chemical treatment and vanishing oil.

Atmospheric Corrosion Resistance: Based on 30-year atmospheric test results, it is estimated that Galvalume sheet will outlast G90 galvanized by two to four times in marine, industrial and rural atmospheres. When compared to aluminum coated sheet steel, Galvalume sheet has superior corrosion resistance at sheared edges.

Salt Spray Corrosion Resistance: With cut edges protected, the coating on Galvalume sheet steel lasts five to ten times longer than the coating on G90 galvanized. In salt spray tests conducted with bare cut edges exposed, the corrosion resistance is typically three to four times that of G90 galvanized.

High Temperature Behavior: Bare Galvalume sheet can be used at temperatures up to 600°F without discoloration and up to 1250°F without heavy oxidation and scaling. Prolonged exposure to temperatures above 600°F can result in changes to the base metal characteristics of conventional Galvalume sheet. Galvalume H.T. Sheet (UL listed) will resist base metal change. Galvalume sheet applications subjected to these temperatures should be reviewed with a Bethlehem Sales representative.

Galvalume® is a registered trademark of BIEC International, Inc. or one of its licensed producers.

Galvalume® Plus is a registered and protected trademark of BIEC International, Inc.

Formability: Galvalume sheet can be formed about as readily as continuously annealed galvanized sheet. Lock forming and roll forming are readily accomplished.

Weldability: Galvalume sheet is readily weldable with conventional resistance and arc welding processes. Conditions for resistance welding are similar to those used on galvanized steel. Spot welding electrodes should be redressed as required to maintain nugget size. RWMA Class 2 or dispersion-strengthened copper alloy electrodes are suggested. Galvalume sheet can be arc welded with the shielded metal-arc and gas metal-arc processes. The lower zinc content of the coating of Galvalume sheet results in considerably less fuming during arc welding, providing reduced fume hazards to welders. For further information on welding, contact a Bethlehem Sales representative.

Appearance: Uniform visual appearance of unpainted Galvalume sheet cannot be guaranteed. Even with Galvalume Plus, the normally occurring variations in surface appearance typical of all hot-dip products will still be present and will not be masked by the thin, clear acrylic film. If uniform visual appearance is critical, then prepainted Galvalume sheet should be ordered.

Paintability: Prepainted Galvalume sheet is an ideal product for many applications where the aesthetic appearance of a painted product is desired along with excellent atmospheric corrosion resistance. Such applications include pre-engineered metal buildings, architectural panels, roofing and siding, and other building components. For more information, consult Bethlehem's Data Sheet on Prepainted Galvalume Sheet.

Galvalume sheet may be field-painted with most paints suitable

for galvanized: zinc-dust primers, butyral wash primers and acrylic latex paints.

Galvalume Plus may be field painted using water-based acrylic primers and/or topcoats. Note that field painting of either Galvalume or Galvalume Plus may have warranty implications.

Typical Mechanical Properties:

(Commercial Steel)	
Yield Strength	38 - 53 ksi
Tensile Strength	50 - 65 ksi
Total Elongation	20-36%
Hardness	50-65 HRB

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

INSTALLATION

To preserve the surface appearance of Galvalume sheet, only clean, dry gloves should be used during handling. Care should also be exercised to prevent the sheets from sliding over rough surfaces or each other. Fasteners and other component parts should have equivalent corrosion resistance. Galvalume sheet steel joints can be effectively closed using appropriate sealants such as neutral-curing silicone rubber. If other types of sealants are considered, they should possess the long-term durability, adhesion and non-corrosive properties of neutral-cure silicone rubber. Soldering is not recommended.

AVAILABILITY AND COST

Availability: Galvalume sheet is available from our plants at Sparrows Point, MD and Jackson, MS. It can be obtained in thicknesses from 0.014" to 0.055" and in widths up to 48". Inquire for heavier thicknesses.

Galvalume Plus is available from our plant at Sparrows Point, MD. It can be obtained in thicknesses

from 0.015" to 0.030" and in widths up to 48".

Cost: Galvalume sheet is priced competitively with G90 galvanized on a per square foot (or per part) basis. Specific price quotations for Bethlehem Galvalume sheet will be furnished upon request.

WARRANTY

Galvalume sheet conforms to the requirements of ASTM Specification A 792. Galvalume sheet is a component recognized by the American Gas Association and by Underwriters Laboratories, Inc. under File No. MH9372.

Galvalume sheet is conditionally warranted against rupture, structural failure or perforation due to corrosion for a period of up to 25 years and six months when used for building panel applications

MAINTENANCE

Properly installed Galvalume sheet requires no special maintenance. Galvalume sheet, like galvanized, is subject to wet storage staining and turns gray to black if moisture is trapped between coil laps, cut length sheets, or roll formed parts during shipping and storage. The mill treats Galvalume sheet to retard wet storage staining (unless otherwise requested); however, the user should take precautions to keep Galvalume sheet dry in transit, in storage and at work sites.

TECHNICAL SERVICES

For more information, call Bethlehem Steel at (800) 521-4789 or write: Bethlehem Steel Corp., Coated Sheet Marketing, 5111 North Point Boulevard, Sparrows Point, MD 21219; or visit our website at www.bethsteel.com.