United States Steel

Technical Bulletin Construction:

ACRYLUME E PLUS™ Coated Sheet Steel

For further assistance on the use of steel building panels or related topics, contact U. S. Steel Construction Sales

Group: U. S. Steel Construction Sales

600 Grant Street Room 1714 Pittsburgh, PA 15219

1-877-798-7909

constructionsales@uss.com

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Product Description

It is estimated that buildings in the United States consume more than one-third of all energy and three quarters of all electricity generated. Cool roof products are being introduced to reduce energy consumption by lowering building cooling loads and urban air temperatures. Reflective roofs can save up to 40 percent of cooling energy according to the Heat Island Group of Lawrence Berkeley National Laboratory [1]. High thermal emittance roofs radiate heat absorbed during the day, which helps to mitigate smog formation. Roofs that combine these attributes are known as cool roofs. To meet the increasingly stringent building codes being developed to address these concerns, U. S. Steel has developed ACRYLUME E PLUS™ coated sheet.

ACRYLUME E PLUS™ offers the environmentally conscious metal building construction industry a chromium-free high emittance clear polymer coating on GALVALUME® coated sheet, which is designed to meet challenging solar reflectance and thermal emittance regulations. The clear coat passivation system consists of a clear polymer resin system and chromium-free corrosion inhibitors. The exposed surface of this product allows the roof panels to emit heat while retaining the clear reflective characteristics of conventional ACRYLUME®. The result is ACRYLUME E PLUS™, a product that provides an appearance similar to that of bare GALVALUME® with cool roof properties similar to a painted roof, thus providing an economical alternative solution for low slope roofing applications.

Product Description

ACRYLUME E PLUS™ sheet steel retains the same superior performance attributes of U. S. Steel's family of clear polymer coated GALVALUME® coated sheet steels, ACRYLUME® and ACRYLUME CF™, including:

- Good roll formability without the need for additional lubricants
- A non-slippery surface, enhancing safety during transport, handling and installation
- Excellent stain and discoloration resistance during transit and field storage
- A dramatic decrease in finger printing and foot printing during installation
- Outstanding corrosion protection
- Long-term surface brightness when exposed to the environment

1 Cool Metal Roofing Coalition, "Metal Roofing Cool and Sustainable", www.CoolMetalRoofing.org

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The initial thermal reflectance and emittance characteristics of ACRYLUME E PLUS™ as measured by a Cool Roof Rating Council accredited independent testing laboratory are as follows:

- Total Solar Reflectance (TSR) 0.67
- Thermal Emittance (TE) 0.63
- Solar Reflective Index (SRI) 75

This is very encouraging considering that the coating is only a fraction of the thickness of conventional roof paint.

ACRYLUME E PLUS™ products meet the current U. S. environmental guidelines, as well as numerous European Union environmental directives, including Restriction of Hazardous Substances Directive (RoHS) and Registration, Evaluation, Authorization and Restriction of Chemical Substances (REACH).

The GALVALUME® coating that the emissive coating is applied to is ASTM A792 AZ55 and is available in the same steel grades and dimensions as U. S. Steel ACRYLUME® products. U. S. Steel provides the same 25.5-year limited warranty against perforation corrosion for ACRYLUME E PLUS™ products as for ACRYLUME® products.

ACRYLUME E PLUS™ coated sheet steel is incompatible with a few common building materials, these include contact with lead, graphite, copper and treated or wet lumber.

ACRYLUME E PLUS™ coated sheet steel is best cleaned by using water or a mild, non-abrasive cleaning solution with water. It should not be cleaned with industrial-type solvents.

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