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Reflectance of Prepainted Metal for Lighting Fixtures

Prepainted metal has been used successfully for decades in the production of numerous components of lighting fixtures. One of the key properties of coated metal for this application is the reflectance of the surface. Reflectance is usually expressed as a percentage, and can be defined as “the percentage of incident light that is reflected from a surface”.

When specifying prepainted metal for use in lighting fixtures, it is important to recognize that several methods exist for measuring reflectance, and that each method may provide slightly different results. Three common methods are as follows:

- Reflectometer – a handheld portable device
- Spectrophotometer with 0/45 Geometry – a more complex laboratory instrument (reference ASTM E1349)
- Spectrophotometer with Spherical Geometry – a variant of the 0/45 Geometry (reference ASTM E1331)

Any of these methods can be considered a valid method for the measurement of reflectance, provided that the customer and supplier are working with a common understanding of which method is being used.

In an ideal situation, a customer’s or supplier’s specification for reflectance will include a notation of the applicable test method. If there is uncertainty about the method that is to be used to specify and control the reflectance of a product, it is advisable for a sample or samples with the proposed properties to be exchanged between the customer and supplier. These samples can then be tested using a known method, mutually agreed specifications can be established, and the method can then be included as a part of the specification.

Note that there are numerous factors that can affect the reflectance of a given sample. Some of these include, but are not limited to: substrate surface properties, substrate color, coating thickness, coating formulation, coating surface smoothness, etc.