

## Energy Star

The Energy Star program was created in 1992 by the United States Environmental Protection Agency in an attempt to reduce energy consumption and greenhouse gas emission by power plants. Energy Star is now an international standard for energy efficient products. Since 1992, Australia, Canada, Japan, New Zealand, Taiwan, and the European Union have adopted the program. Based on the position of the EPA, Energy Star labeled roofing products can help building owners save money and the environment by reducing energy use. Because much of the United State's electricity is generated by burning fossil fuels that create air pollution, reducing the amount of energy needed to cool buildings helps to reduce the production of air pollutants.

The Energy Star Roof Products Program has established a minimum standard that requires low-slope reflective roofing products to have an initial reflectance of at least 0.65 (65%), and a reflectance of at least 0.50 (50%) after three years of weathering. It is a voluntary program based on third-party testing. If there is any question about whether a roofing system is considered an energy efficient roof by the EPA, the Energy Star Web site ([www.energystar.gov](http://www.energystar.gov)) can be referenced. Siplast products that meet Energy Star requirements are listed below.

- Paradiene 30 CR FR.
- Paradiene 30 CR FR TG.
- Veral Aluminum.
- PC-227 Elastomeric Coating (White).

## Solar Reflectance

Total solar reflectance is defined as the fraction of the incident solar energy that is reflected by a surface. Solar reflectance as used in the roofing industry is determined by a process using ASTM E903, C1549 or CRRC Test Method #1. The reflectance determined using these test methods represents a portion of the solar spectrum from visible to near infrared (NIR) wavelengths.

## Infrared Emittance

Infrared emittance is defined as the ability of a material to release heat energy in the form of infrared waves, generally expressed as a value between 0 and 1. Infrared emittance is determined using ASTM test methods E408 or C1371. Currently, infrared emittance is listed on the Energy Star Web site for informational purposes only as there are no specific infrared emittance requirements.

## The Importance Of Thermal Value

An important factor the roof designer should always take into consideration is the inclusion of a thermal insulation system in the roof construction to achieve energy efficiency. While highly reflective roofs may provide a higher degree of energy efficiency than non-reflective roofs in warmer, sunnier climatic zones, thermal insulation offers a practical and very effective means of achieving energy savings in cold weather or warm weather climates. Consideration should be given to thermal properties of the total roof construction as well as the reflective characteristics of a roof membrane surface when determining the potential overall energy savings that can be realized from the roof design.



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