Information Sheet

SolReflex

Specially developed, infrared-reflecting TSR formula, reduces surface heating of external thermal insulation composite systems

The principle

Dark-colored surfaces absorb sunlight more readily than lightcolored surfaces and convert solar radiation directly into heat. This effect is particularly challenging for the facade surfaces of external thermal insulation composite systems. With the development of special color formulation, the “heating-up” of the surfaces due to the incidence of sunlight can be significantly reduced, especially on thermally insulated facade surfaces. Thanks to this lower thermal heating, darker colors can be implemented more safely on insulated facades. This results in a margin of freedom over and above the limit value “established” in the technical guidelines (light reflective value > 20) for the design of external thermal insulation composite systems in darker colors.

Light reflective value

The Light reflective value (LRV) is an expression of how light the color of an object appears as observed by the human eye in relation to pure white (LRV 100) or deep black (LRV 0). However, human eyes only perceive electromagnetic radiation in the wavelengths from 400–700 nm (nanometers). This range determines the differing perception of object colors, whereby the range between 500 and 600 nm plays the largest role in the perception of lightness (LRV).

Light reflective value limits

A restriction with regard to color lightness has always applied to the color design of thermally insulated substrates. According to this principle, the applicable guidelines have established a predominant minimum light reflective value (LRV) of 20 for external thermal insulation composite systems or 30 for highly insulated masonry (e.g. aerated concrete).

LRV and TSR-value

The sun radiates more than half of its energy in the near infrared range (700–2500 nm). This radiation range, invisible to humans, is also used in medicine, for example in patient treatments that promote healing via infrared exposure. The especially intensive and deep action generates a pleasant warmth and relief of pain.
On facades, the entire incident solar radiation spectrum, specifically the visible and the infrared, contribute to the heating of surfaces. A low LRV alone is not sufficiently informative with regard to the warming behavior of a facade surface. A darkcolored paint applied to a rendered and highly insulated substrate must exhibit very high reflection prop-erties in the infrared range in order to make the total solar reflectance sufficiently high. This value, abbreviated TSR, represents the degree to which all sunlight is reflected by a color. This abbreviation stands for „**T**otal **S**olar **R**eflectance“.

SolReflex with the TSR-formula

With SolReflex Brillux has developed a system that can create color shades with a light reflective value < 20 on highly heat-insulated substrates such as ETIC systems.
In this context, the Evocryl 200, Silicone Facade Paint 918 or Extrasil 1911 facade paints are each used with the TSR formula, i.e., with a special color shade formula.
The surfaces coated in this way exhibit a higher TSR-value, this means that they heat up significantly less when exposed to sunlight. The build-up recom-mendations described below apply for new Brillux ETIC sys-tems with a render coating.

Use of SolReflex in the Brillux ETIC system

Render coating [1)]	**Top coat with SolReflex** [2)]
Rausan KR/R, Silcosil KR/R or Silicone Render KR/R	in the system build up 2x with Evocryl 200 or Silicone Facade Paint 918
Mineral Lightweight Render	in the system build up 2x with Extrasil 1911

[1)] Only execute in the standard color white, Basecode color shades or special SolReflex color shades.
[2)] With special TSR formula (special color shade).

Notes

SolReflex color shades

The full effectiveness of SolReflex facade paints depends on the special color formulation. The supplied colors must never be mixed with customarily tinted paint, tinting paints Mixol or similar products.
If the TSR-value of a color is too low despite the special formula, additional measures may be necessary. If this is indicated during the color selection process or by the Color Search function, always contact the Brillux consulting service.

Pay attention to the substrate color

Infrared radiation can “penetrate” coats of paint to a certain extent and strike a less reflective substrate, negatively influencing the effectiveness of SolReflex. For this reason, do not use conventionally tinted renders under SolReflex facade paints.

Coatings on existing ETICS systems

Renovation coatings on existing ETICS systems with a light reflective value ≥ 20 can be executed without restrictions. If colors with a light reflective value < 20 are to be used, always contact the Brillux consulting service.

Implement contiguous surfaces in an identical manner

The special formula of the TSR-formulated quality may result in a standard product with slight differences in color shades and a stronger metamerism effect. For this reason, only use materials of the same quality and production batch on contiguous, adjacent or parallel surfaces.

Further information

Follow the instructions on the data sheets of the products used.

Remark

This Information Sheet is based on extensive development work and years of practical experience. The translation corresponds to the current German version, in compliance with the German laws, regulations, standards and guidelines. Its content does not constitute a contractual legal relationship. The user/buyer is not released from the responsibility of checking our products to ensure they are suitable for the intended application. In addition, our general terms of business apply.

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Brillux
Weseler Straße 401
48163 Münster
GERMANY
Phone +49 251 7188-0
Fax +49 251 7188-105
info@brillux.de
www.brillux.com