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Instytut Inżynierii
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Paints and Plastics Research Group

Order No.: 251200
Reference No.: GL.4120.27.2023

Client:
Kofarb Sp. z o.o.
ul. Jagiellońska 85/87
42-200 Częstochowa

Report

Determination of total solar reflectance

Kofaterm Outdoor Paint

Personnel: Agnieszka Woźniczka
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Gliwice, 17th of March 2023

1. Formal basis for accomplishing the work

The formal basis for accomplishing the work was an order placed by Kofarb Sp. z o.o., ul. Jagiellońska 85/87, 42-200 Częstochowa, regarding determination of total solar reflectance (TSR) of coating.

2. Scope of work

Client has provided for test paint described as Kofaterm Outdoor Paint.

The product was applied to the substrate. After 10 days of conditioning, samples for testing were prepared in the form of squares with dimensions of approx. 5 cm x 5 cm. Measurements were made three times on different samples.

3. The scope of tests

The order was to determine the total solar reflectance (TSR) of coating.

Spectral characteristics of the tested samples/coatings in the range of solar radiation 250-2500 nm were determined with the use of a two-beam UV/VIS/NIR V-670 spectrophotometer with a sphere, Jasco. The total solar reflectance was calculated according to ASTM E903 using the following equation:

$$TSR = \frac{\int \rho_{\lambda} E I d\lambda}{\int E d\lambda} \times 100$$

where: ρ_{λ} - reflectance, E – solar irradiance, $d\lambda$ – wavelength interval of integration.

4. Test results

The results obtained are summarized in **Table 1**. The spectra in the 250-2500 nm solar radiation range are shown in **Figures 1**.

Table 1. Solar reflectance value for coating

Lp	Symbol	Total solar reflectance, %	
		values determined	average value
1	Kofaterm Outdoor Paint	90,83 90,55 90,68	90,69

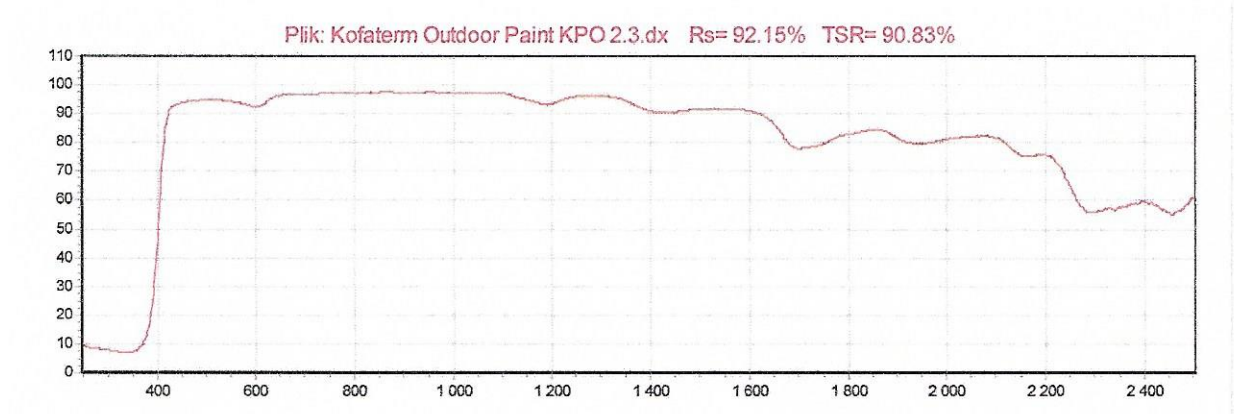


Fig. 1. The spectrum in the solar radiation range of the coating Kofaterm Outdoor Paint

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