



## Measurement Report

Conducted by the  
National and Kapodistrian University of Athens  
Physics Department

According to the contract, signed between the **National and Kapodistrian University of Athens** and **MARIS POLYMERS S.A.**, on 1/12/2009, measurements for the assessment of the:

- **solar reflectance (SR)** at the UV-VIS-NIR spectrum (300 to 2500nm),
- **infrared emittance** at the wide IR spectrum and

have been carried out by the laboratory of the Group Building Environmental Studies, of the Physics Department, of the National and Kapodistrian University of Athens (NKUA).

The following specimens have been submitted for testing:

Specimen 1: Roof coating sample of white color and dimensions: 7cm (w) x 7cm applied on aluminum and concrete substrate.

**Product Code: MARISEAL 250**

The laboratory of the Group Building Environmental Studies, of the Physics Department of NKUA hereby reports that on the 1/12/2009 the above mentioned tested samples have been successfully measured to have the values of solar reflectance, infrared emittance and solar reflectance index that are shown in Table 1.

Product code	SR	$\epsilon$ ( $\pm 0.02$ )
MARISEAL 250	0.87	0.89

Table 1. The values of solar reflectance, infrared emittance and solar reflectance index of the sample submitted by MARIS POLYMERS S.A..

The measurements for the solar reflectance were conducted according to the ASTM Standard E903-96 (ASTM E 903 -Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres) by using a UV/VIS/NIR (Varian, Carry 5000) fitted with a 150mm diameter, integrating sphere (Labsphere, DRA 2500). The reference standard reflectance material used for the measurement was a PTFE plate (Labsphere).

The measurements for the infrared emittance were conducted according to the ASTM Standard E408-71 (ASTM E408-71(1996) - Standard Test Method for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques) by using the Emissometer Model AE (Devices & Services).

For the calculation of the solar reflectance and the solar reflectance index the ASTM Standard G159-91. Standard Tables for References Solar Spectral Irradiance at Air Mass 1.5: Direct Normal and Hemispherical for a 37° Tilted Surface and ASTM E1980 - 01 Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

Scientific supervisor:

Mat Santamouris

1/12/2009

Signed on

