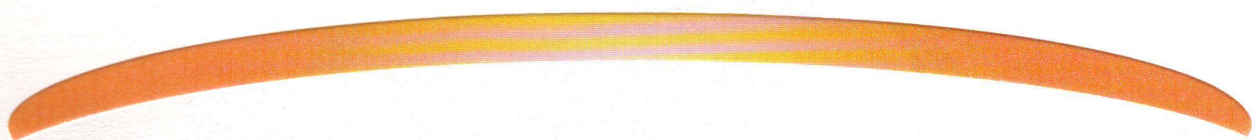


Unisearch



Report Prepared on Behalf of
Unisearch Limited

on

**Solar Absorptance and BASIX Colour
Classification of
Roofing Tile materials**

Lab Reference 04433

by

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SOLAR PROPERTIES TO ASTM E 903-96

DESCRIPTION OF SAMPLES

2 samples of roof tiles approximately 54mm x 50mm. Each tile has been identified on the back. We have marked each tile with our identifier.

Report 04433 Sample number	Description
1	Light Grey Mottled
2	Dark Grey

METHODS

Ultraviolet-Visible-Infrared spectral reflectances (300-2500nm)

A Hitachi Model U-3410 spectrophotometer comprising double monochromator (prism + grating). The reflectance attachment includes a 60mm diameter integrating sphere coated with Barium Sulphate paint. The measurements were made with reference to a compressed Barium Sulphate disc standard and published values for its reflectance were used.

A wavelength accuracy of within 0.3 nm was verified using a Mercury and Neon discharge lamps. This was reconfirmed prior to measurement using Deuterium lines 656.1 and 486.0 in an installed test program.

To assess stray light at 220nm in the spectrophotometer, a freshly made 10g/litre aqueous solution of sodium iodide (NaI) in a 10mm quartz cell is fitted. A nominal 8nm bandwidth and 10 second or greater integration time is used. At 340nm a 50g/litre aqueous solution of sodium nitrite (NaNO₂) in a 10mm quartz cell is fitted.

Stray light <0.0005% at 220nm (NaI) Deuterium arc

Stray light <0.0001% at 340nm (NaNO₂) Tungsten filament

Measurements were made with a variable servo controlled bandwidth in the range 800 - 2500 nm and with a fixed 2nm bandwidth in the region 300 - 800 nm.

The method complies with ASTM E903.

Calculation of Solar Reflectances

The figures for the solar spectrum are given in ASTM E424 - 71.



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UNCERTAINTIES

The uncertainty values stated in this report have been calculated at the 95% confidence level. This means that the chance of that a result is in error by more than the value of its uncertainty is not more than five in one hundred.



Stephen Dain PhD
Authorised Signatory

RESULTS

Report 04433 Sample number	Description	Solar Reflectance	Solar Absorptance	Basix colour
1	Light Grey Mottled	35.1	64.9 ± 1.1	Medium
2	Dark Grey	12.1	87.9 ± 0.4	Dark

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