

Façade & Roof Material Daylight Reflectance Test Report



Report number: OTM2104001

Client: **Company name**

Address line 1

Address line 2

Address line 3

Attention: Name

Laboratory: **Optical & Thermal Testing Laboratory**

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The Optical & Thermal Testing Laboratory of OTM Solutions Pte Ltd is accredited to ISO/IEC 17025 under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme (SAC-SINGLAS, Certificate No: LA-2016-0610-G).

The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council.

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Job description: Total / diffuse / specular daylight reflectance testing of 1 piece of sample.

The sample was delivered by the client and received by OTM on 01/04/2021 and was tested on 01/04/2020.

Approved signatory: Dr. Chen Fangzhi
Laboratory Manager (Tel: +65 9187 7666; Email: chen.fz@otm.sg)

Date of test: 01/04/2021

Date of report: 01/04/2021

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Test method description

<u>Methods:</u>	<ul style="list-style-type: none"> • ASTM E903-20 Standard test method for solar absorptance, reflectance, and transmittance of materials using integrating spheres • ASTM E971-11 Standard practice for calculation of photometric transmittance and reflectance of materials to solar radiation • CIE 130-1998 Practical methods for the measurement of reflectance and transmittance
<u>Instruments</u>	<ul style="list-style-type: none"> • PerkinElmer Lambda 950 UV/VIS/NIR spectrophotometer, with 150 mm integrating sphere
<u>Environmental conditions</u>	<ul style="list-style-type: none"> • Temperature: 24 ± 2 °C • Relative humidity: 45 ± 15 %
<u>Calculation software</u>	<ul style="list-style-type: none"> • In-house software (DLR@OTM, V1.2.0) based on ASTM E971-11 (based on ASTM G173 AM1.5 direct normal solar spectrum)
<u>Estimated uncertainties</u>	<ul style="list-style-type: none"> • Total daylight reflectance: ± 0.007 (± 0.7 %) • Diffuse daylight reflectance: ± 0.007 (± 0.7 %) • Specular daylight reflectance: ± 0.004 (± 0.4 %) • The uncertainties were estimated at a level of confidence of approximately 95%, with a coverage factor $k = 2$
<u>Notes</u>	N/A

Disclaimer

- The test report shall not be reproduced except in full, without written approval of the laboratory.
- The sampling was not performed by the laboratory. The test results relate only to the samples received and tested.
- The sample description information was declared by the client and it may affect the validity of the results.
- The test report is issued subject to the “Testing Service Terms and Conditions” annexed to OTM official quotation and on request from OTM.

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Sample ID	2104001
Sample description	Sample description
Dimension	1 mm × 10 cm × 10 cm
Test results	<p>Total daylight reflectance = 0.260 (26.0%)</p> <p>Diffuse daylight reflectance = 0.250 (25.0%)</p> <p>Specular daylight reflectance = 0.010 (1.0%)</p>
Curves	<p>The graph displays three reflectance curves over a wavelength range of 380 nm to 740 nm. The y-axis represents Reflectance [-] from 0 to 1.0. The x-axis represents Wavelength [nm] from 380 to 740. The Total reflectance (red line) shows a peak around 420 nm and another around 620 nm. The Diffuse reflectance (blue line) is slightly lower than the total reflectance. The Specular reflectance (green line) is very low, near 0.01, across the entire wavelength range.</p>

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Photos



Test sample photos