



CONSTRUCTION MATERIALS

TECHNOLOGIES

LABORATORY TEST RESULTS

Report for: Del Castillo
Carrera de las canteras S/N
Bernardos (Segovia)

Attention: David Bernardos

Spain

Product(s): Del Castillo Slate	Manufacturer: JBernardos
Project No.: NSCO-004-02-01	Source: Be Natural Slate
Date(s) Received: May 1, 2016	Test Date(s): June 17, 2016

Purpose: The purpose of this testing was to determine the solar reflectance, thermal emittance, and solar reflectance index value of one (1) sample:

- Del Castillo Slate

Materials: The samples for testing were received from Be Natural Slate. The samples were labeled as indicated in the data table in the results section of this report.

Test Methods: The test methods used included ASTM C 1549-09: *Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Reflectometer* and ASTM C 1371-04a(2010)^{e1}: *Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers*. Thermal emittance measurement for the "slate" sample was modified in accordance with Devices and Services Company's Tech Note 04-1. Both of these methods are Energy Star, Leadership in Energy and Environmental Design (LEED), and Cool Roof Rating Council (CRRC) approved methods for determining radiative properties.

The solar reflectance index (SRI) was calculated in compliance with ASTM E 1980-11: *Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces*.

NSCO-006-02-01 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC
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Results: All measurements were conducted at 72±3°F and 50±5%RH.

Sample ID	Solar Reflectance		Thermal Emittance		SRI		
	ASTM C 1549 ¹		ASTM C 1371 ²		ASTM E 1980 ³		
	Avg.	Std.Dev.	Avg.	Std.Dev.	Low-Wind	Medium-Wind	High-Wind
Del Castillo Slate	0.229	0.020	0.85	0.01	18	20	22

- Note(s):
- 1- Reflectance measurements were conducted using a Devices and Services SSR-ER Version 6.4 Reflectometer operated in v5 emulation mode and calibrated with Devices and Services Reference Tile # D-18.
 - 2- Emittance measurements were conducted using a Devices and Services Emittance Model AE calibrated with Devices and Services Reference Standards: High Emittance: 0.90 and Low Emittance: 0.06. Thermal emittance measurement for "concrete paver" sample was modified in accordance with Devices and Services Company's Tech Note 04-1.
 - 3- SRI calculations per ASTM E 1980 utilize the following assumptions: Low-Wind $h_c = 5 \text{ W/m}^2\cdot\text{K}$, Medium-Wind $h_c = 12 \text{ W/m}^2\cdot\text{K}$, and High-Wind $h_c = 30 \text{ W/m}^2\cdot\text{K}$.

Statement of Attestation: The Solar Reflectance Index of this slate sample was calculated in accordance with **ASTM E 1980: Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces**. The laboratory test results presented in this report are representative of the materials supplied.

Signed: 
 Christopher Freidner
 Client Service Manager

Date: 02/07/2017

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	06/20/2016	2	NA
Reissue	02/07/2017	2	Private Label Manufacturer Report Issued

END OF REPORT

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