



CONSTRUCTION MATERIALS TECHNOLOGIES

LABORATORY TEST REPORT

Report for: Hartstone
PO Box 5397
Louisville, KY 40255

Attention: Steve Kamin

Product Name: Soft White #2	Manufacturer: Hartstone
Date Received: May 15, 2015	Source: Hartstone
PRI-CMT Report No.: HSTN-002-02-01	Test Dates: May 21, 2015

Purpose: The purpose of this testing was to determine the solar reflectance, thermal emittance, and solar reflectance index value of Hartstone's Soft White #2.

Materials: The samples for testing were received from Hartstone on May 15, 2015. 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: *Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers*. 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 1980-98e1: *Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces*.

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Results: All measurements were conducted at controlled laboratory conditions of 72±3 °F and 50 ± 5 %RH.

Reflectance

Specimen	Test Method	1	2	3	Avg.	Std. Dev.
Solar Reflectance at air mass = 1.5	ASTM C 1549					
Soft White #2		0.539	0.531	0.534	0.535	0.004

Note: Reflectance measurements were conducted using a Devices and Services SSR-ER Version 5.0 Reflectometer calibrated with Devices and Services Reference Standard: 0.807.

Emittance

Specimen	Test Method	1	2	Avg.	Std. Dev.
Emittance	ASTM C 1371				
Soft White #2		0.88	0.88	0.88	0.00

Note: 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.

Solar Reflectance Index (SRI)

$$\text{Solar Reflective Index (SRI)} = 123.97 - 141.35 * x + 9.655 * x^2$$

$$x = (\alpha - 0.029 * \epsilon) * (8.797 + h_c) / (9.5205 * \epsilon + h_c)$$

Low-Wind Condition:

$h_c = 5 \text{ W/m}^2\text{K}$

Variable	Value	Units
x	0.45	Dimensionless
SRI	62	Dimensionless

Medium-Wind Condition:

$h_c = 12 \text{ W/m}^2\text{K}$

Variable	Value	Units
x	0.45	Dimensionless
SRI	63	Dimensionless

High-Wind Condition:

$h_c = 30 \text{ W/m}^2\text{K}$

Variable	Value	Units
x	0.44	Dimensionless
SRI	63	Dimensionless

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The Solar Reflectance Index of this material 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 material supplied.

Signed: _____



Zach Priest, P.E.
Director

Date: _____ May 26, 2015 _____

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	05/26/2015	4	NA

END OF REPORT

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