



CONSTRUCTION MATERIALS TECHNOLOGIES

LABORATORY TEST REPORT

Report for: Hartstone
PO Box 5397
Louisville, KY 40255

Attention: Steve Kamin

Product Name: Color #0	Manufacturer: Hartstone
Date Received: November 29, 2012	Source: Hartstone
PRI-CMT Report No.: HSTN-001-02-01	Test Dates: December 12, 2012

Purpose: The purpose of this testing was to determine the solar reflectance, thermal emittance, and solar reflectance index value of Hartstone's Color #0.

Materials: The samples for testing were received from Hartstone on , November 29, 2012. 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*.

HSTN-001-02-01 PRI-CMT Accreditations: IAS TL-189; State of Florida TST 5878; Miami-Dade 06-1116.02; CRRC

The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies, LLC. assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

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					
Color #0		0.733	0.752	0.765	0.750	0.016

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				
Color #0		0.90	0.90	0.90	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)

Reflectance (a) 0.75
 Emittance (ε) 0.9
 Absorptance (α) 0.25

Low-Wind Condition	
$h_c = 5$	W/m ² ·K
$C_{low-wind}$	0.228
SRI_{low-wind}	92

Medium-Wind Condition	
$h_c = 12$	W/m ² ·K
$C_{medium-wind}$	0.226
SRI_{medium-wind}	92

High-Wind Condition	
$h_c = 30$	W/m ² ·K
$C_{high-wind}$	0.225
SRI_{high-wind}	93

HSTN-001-02-01 PRI-CMT Accreditations: IAS TL-189; State of Florida TST 5878; Miami-Dade 06-1116.02; CRRC
 The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies, LLC. assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

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: December 16, 2012

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	12/16/2012	3	NA

END OF REPORT

HSTN-001-02-01 PRI-CMT Accreditations: IAS TL-189; State of Florida TST 5878; Miami-Dade 06-1116.02; CRRC
The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies, LLC. assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.