



# LABORATORY TEST REPORT

Report for:

BEMO do Brasil Sistemas Metálicos Ltda.

Date: October 12, 2009

Av. Prestes Maia, 539 - Bloco VI Centro Cep: 09930-270 - Diadema/SP

Attention:

Mauro Sansoni

Product Name:	Coated Steel Panels	Manufacturer: BEMO do Brasil
Date Received:	September 30, 2009	Source: BEMO do Brasil
PRI Report No.:	BDB-001-02-01REV	Test Dates:October 7, 2009

Purpose:

The purpose of this testing was to determine the solar reflectance, thermal

emittance, and solar reflectance index value of coated metal panels supplied by

BEMO do Brasil.

Materials:

The samples for testing were received from BEMO do Brasil on September 30, 2009.

The samples were labeled as indicated in the data table in the results section of this

report. The samples were approximately 120 x 120 mm in size.

Test Methods:

The test methods used included ASTM C 1549-04: 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 and . Both of these methods are Cool Roof Rating Council (CRRC) and U. S. Green Building Council: Leadership In Energy and Environmental Design (LEED) approved

methods for determining radiative properties.

The solar reflectance index (SRI) was calculated in compliance with ASTM E 1980-01: Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces. This is the LEED approved practice for calculating SRI.

Results of Testing:

All measurements were conducted at controlled laboratory conditions of  $22 \pm 2^{\circ}$ C and  $50 \pm 5^{\circ}$ % relative humidity. The testing was conducted on October

7, 2009.

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### Reflectance

Material ID	ASTM Test Method	Result, Sol	lar Reflectar	nce (r), Air I	Mass = 1.5
Specimen Designation		1	2	3	Avg.
A-1	C 1549	0.877	0.875	0.878	0.88
A-2	C 1549	0.884	0.881	0.880	0.88
B-1	C 1549	0.757	0.759	0.758	0.76
B-2	C 1549	0.747	0.749	0.750	0.75
C-1	C 1549	0.708	0.710	0.711	0.71
C-2	C 1549	0.712	0.712	0.713	0.71

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

Material ID	ASTM Test Method		Emitta	ınce, ε	
Specimen No.		1	2	3	Avg.
A-1	C 1371	0.89	0.89	0.90	0.89
A-2	C 1371	0.90	0.90	0.90	0.90
B-1	C 1371	0.90	0.90	0.90	0.90
B-2	C 1371	0.91	0.91	0.91	0.91
C-1	C 1371	0.84	0.84	0.84	0.84
C-2	C 1371	0.84	0.84	0.84	0.84

Note: Emittance measurements were conducted using a Devices and Services Emissometer Model AE calibrated with Devices and Services Reference Standards: High Emittance: 0.90 and Low Emittance: 0.06.

## Solar Reflectance Index

Metal Panel A

Reflectance (a) 0.88Emittance ( $\epsilon$ ) 0.90Absorptance ( $\alpha$ ) 0.12

Low-Wind (		_	W/m²-K
	hc =	5	VVIIII - K
C <sub>law-wind</sub>	C	0.096	
SRI <sub>low-wind</sub>		111	1

	hc =	12	W/m²
C <sub>medium-wind</sub>		0.095	
SRI <sub>medium-wind</sub>	1	111	1

	h c =	30	W/m²-k
Chigh-wind	(	0.095	
SRI <sub>high-wind</sub>		111	7

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### Metal Panel B

7 - Je 3

Reflectance (a) 0.75 Emittance ( $\epsilon$ ) 0.91 Absorptance ( $\alpha$ ) 0.25

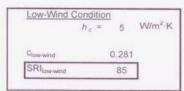
5	W/m²-k
0.223	
93	1
	I de la constante de la consta

h	c = 12	W/m <sup>2</sup> -K
C <sub>medium-wind</sub>	0.222	
SRI <sub>medium-wind</sub>	93	7

High-Wind	h <sub>c</sub> =	30	W/m²-K
C <sub>high-wind</sub>	C	.221	
SRI <sub>high-wind</sub>		93	7

### Metal Panel C

Reflectance (a) 0.71 Emittance ( $\epsilon$ ) 0.84 Absorptance ( $\alpha$ ) 0.29



h,	= 12	W/m <sup>2</sup> K
C <sub>medium-wind</sub>	0.275	
SRI <sub>medium-wind</sub>	86	7

	h c =	30	W/m <sup>2</sup> ·K
Chigh-wind	0	.270	
SRI <sub>high-wind</sub>		86	7

Note: SRI is dependent on ambient conditions and the reflectance and emittance of the material. The SRI is calculated using three conditions: low, medium and high wind using the appropriate convective coefficient (h<sub>c</sub>).

Signed:

Heath Coulombe Laboratory Technician Signed:

Donald C. Portfolio President

Date:

October 9, 2009

Date:

October 12, 2009

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