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GENERAL INFORMATION

Subject:	Test report on testing activities to determine solar reflectance, infrared emittance and solar reflectance index (SRI)		
Client	GOUP FOUR for Maintenance and Services Road 3616, Block 436, Bldg 742, Office 75, P.O. BOX 26999 Seef Area, Kingdom of Bahrain VAT: 22000636670002	Client reference person	Mr. Ram Mohan Kutty phone: +973 17225373 email: rmk@groupfourservices.com PEC: -
Commitment document	MO_GC_05 dated 15/12/2021 sent by Ram Mohan Kutty	Report release date	23/12/2021
Notes	-		

SAMPLE DATA

Data provided by the customer for which the customer assumes full responsibility*				<p style="text-align: center;">Sample picture</p>			
Product name	BRONYA NF						
Manufacturer	Bronya St. Lavraneva 21 Volgograd - Russia						
Short physical description	Product type: Water-based acrylic insulation coating. Hollow vacuum microspheres Surface aspect and/or coating: - Substrate: metal						
Sample thickness	3.5 mm	Total sample size	6 x 6 cm				
Surface coated	YES	Coating thickness	2.000 mm				
Information on history and ageing*	N.A.						
Other information							
Receipt date	21/12/2021						
Sample id. sub.	-						
ECRC id	-						
Sampling	Carried out by the Client						
Ageing	-						
Treatments	-						
Surface state	Variegated	NO	Aged				
Optical properties	Diffusive reflecting	NO	Intermediate reflecting	YES	Clear transmitting	NO	
	Specular reflecting	NO	Translucent transmitting	NO	Opaque	YES	
Notes							
* The laboratory declines all responsibility for the data supplied by the customer							

The test results are based on the material supplied by the client. This report shall not be reproduced except in full without the written approval of this laboratory. This laboratory 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 reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, which for a normal distribution provides a level of confidence of approximately 95%.



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TEST RESULTS

Test Date		Solar Reflectance (SR)	Standard Deviation	Measured Values				
21/12/2021	Value	0.749	0.006	0.754	0.741	0.752	0.753	0.745
	U(k=2, P=95%)	(± 0.010)						
Test method		ASTM C1549-09						
Reference Solar Spectrum		ASTM E 891– 87 Direct normal						
Notes This test was performed according to ASTM C1549-09: Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Reflectometer with air mass 1.5. A solar spectrum reflectometer Devices and Services SSR-ER was used. Calibration standards with low (0.000) and high (0.864) solar reflectance were provided by the instrument manufacturer. Measurements were conducted at ambient temperature of 21 ± 1°C and relative humidity of 45% ± 10%.								

Test Date		Infrared Emittance (IE)	Standard Deviation	Measured Values		
21/12/2021	Value	0.811	0.005	0.816	0.807	0.811
	U(k=2, P=95%)	(± 0.055)				
Test method		ASTM C1371-15				
Notes This test was performed according to ASTM C1371-15: Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emittance Meters. An emittance meter with scaling digital voltmeter Devices and Services AE1 RD1 was used. Calibration standards with low (0.060) and high (0.870) emittance were provided by the instrument manufacturer. Measurements were conducted at ambient temperature of 21 ± 1°C and relative humidity of 45± 10% in a time period of about 1 h.						

Test Date		Solar Reflectance (SR)	Infrared Emittance (IE)	Solar Reflectance Index (SRI)[%]		
				Low wind	Medium wind	High Wind
21/12/2021	Value	0.749	0.811	89.5	91.0	91.8
				Surface temperature (ST) [°C]		
				55.0	48.0	42.4
Test method		ASTM E1980-11				
Notes This calculation was performed according to ASTM E1980-11: Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces. This utilizes the following values for the convection coefficient: h _c = 5 W/m ² ·K for low-wind (0 to 2 m/s), h _c = 12 W/m ² ·K for medium-wind (2 to 6 m/s), and h _c = 30 W/m ² ·K for high-wind (6 to 10 m/s).						

The Responsible of EELab Laboratory (Prof. Alberto Muscio)