Test Report

Solar Reflectance Indices (SRI) Measurements According to ASTM E1980 on GALE Pacific Commercial 95 Supplied by Gale Pacific Limited

Prepared For:

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Report: RD17664

Stuart Ruis
President

September 12, 2017

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Calculated Solar Reflectance Indices (SRI) Report

Test Number: RD172044SI Date of Test: August 23, 2017

Specimen Number: 1491170823-1,17 Date of Manufacture: Unknown

Description of Test Specimen: GALE Pacific Commercial 95; Fabric Material

Test Method: ASTM E 1980-11, "Standard Practice for Calculating Solar Reflectance Index of Horizontal and low Sloped Opaque Surfaces".

Report Prepared For: Gale Pacific Limited / Mr. Andrew Nasarczyk

Description

Measured solar reflectance and measured thermal emittance were used to calculate Solar Reflectance Indices (SRI) in accordance with ASTM E 1980-11. One specimen was tested for thermal emittance and solar reflectance. Test reports for the solar reflectance at air mass 1.5 and the thermal emittance are attached. The calculated SRI for three wind speeds is listed below.

Results

R&D Services Identification	Color	Reflectance	Emittance	SRI		
				Low Wind	Med Wind	High Wind
1491170823-1	Natural	0.555	0.851	63.3	64.3	65.2
1491170823-2	Desert Sand	0.364	0.862	37.7	38.9	40.0
1491170823-3	Cedar	0.214	0.862	17.7	19.2	20.5
1491170823-4	Yellow	0.455	0.842	48.9	50.3	51.6
1491170823-5	Cherry Red	0.287	0.839	25.7	27.6	29.3
1491170823-6	Cayenne	0.310	0.837	28.7	30.6	32.3
1491170823-7	Deep Ochre	0.104	0.859	3.1	4.8	6.4
1491170823-8	Sky Blue	0.166	0.846	10.1	12.1	13.9
1491170823-9	Aquatic Blue	0.170	0.824	8.8	11.5	13.8
1491170823-10	Navy Blue	0.045	0.862	-4.2	-2.5	-0.9
1491170823-11	Rivergum	0.306	0.848	28.9	30.6	32.0
1491170823-12	Turquoise	0.160	0.803	5.7	9.0	11.8
1491170823-13	Brunswick Green	0.049	0.863	-3.6	-1.9	-0.4
1491170823-14	Steel Grey	0.194	0.859	14.8	16.4	17.9
1491170823-15	Gun Metal	0.099	0.860	2.5	4.3	5.8
1491170823-16	Charcoal	0.047	0.869	-3.4	-1.8	-0.4
1491170823-17	Black	0.026	0.882	-4.9	-3.7	-2.6

Reviewed By: 9/12/17
Date:

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Total Hemispherical Emittance Test Report

Test Number: RD172046HE

Date of Test: August 31 & September 6, 2017

Specimen Number: 1491170823-1,17

Date of Manufacture: Unknown

Description of Test Specimen: GALE Pacific Commercial 95; Fabric Material

Test Method: ASTM C 1371-15, "Test Method for Determination of Emittance of Materials near Room Temperature Using Portable Emissometers".

Report Prepared For: Gale Pacific Limited / Mr. Andrew Nasarczyk

Procedure

This report presents the results of the test specimen identified above using a Model AE emissometer manufactured by Devices and Services Company of Dallas, Texas. The emissometer is powered to provide warm-up prior to use. A warm-up time of one hour in a conditioned laboratory has been found to be acceptable. Calibration at high (0.89) and low (0.05) emittance is performed after the warm-up period using calibration disks supplied by Devices and Services Company. Test specimens are placed in good contact with the thermal sink that is part of the apparatus. The measurement head of the emissometer is placed on the test specimen and held in place at least 60 seconds for each measurement. The emissometer was calibrated prior to use and calibration was verified at the end of testing. The average emittance reported below is based on three measurements.

Results:

Test Temperature: 69 °F
Test Humidity: 50 %RH

R&D Services Identification	Client Identification	Color	Thermal Emittance	Standard Deviation
1491170823-1	GALE Pacific Commercial 95	Natural	0.851	0.007
1491170823-2	GALE Pacific Commercial 95	Desert Sand	0.862	0.002
1491170823-3	GALE Pacific Commercial 95	Cedar	0.862	0.006
1491170823-4	GALE Pacific Commercial 95	Yellow	0.842	0.002
1491170823-5	GALE Pacific Commercial 95	Cherry Red	0.839	0.006
1491170823-6	GALE Pacific Commercial 95	Cayenne	0.837	0.006
1491170823-7	GALE Pacific Commercial 95	Deep Ochre	0.859	0.008
1491170823-8	GALE Pacific Commercial 95	Sky Blue	0.846	0.013
1491170823-9	GALE Pacific Commercial 95	Aquatic Blue	0.824	0.020
1491170823-10	GALE Pacific Commercial 95	Navy Blue	0.862	0.009
1491170823-11	GALE Pacific Commercial 95	Rivergum	0.848	0.001
1491170823-12	GALE Pacific Commercial 95	Turquoise	0.803	0.001
1491170823-13	GALE Pacific Commercial 95	Brunswick Green	0.863	0.003
1491170823-14	GALE Pacific Commercial 95	Steel Grey	0.859	0.005
1491170823-15	GALE Pacific Commercial 95	Gun Metal	0.860	0.002
1491170823-16	GALE Pacific Commercial 95	Charcoal	0.869	0.005
1491170823-17	GALE Pacific Commercial 95	Black	0.882	0.006

Uncertainty: The 95 % reproducibility as stated in Section 10 of ASTM C1371-15 is 0.019 units.

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Solar Reflectance Test Report

Test Number: RD172045SR Date of Test: August 31, 2017

Specimen Number: 1491170823-1,17 Date of Manufacture: Unknown

Description of Test Specimen: GALE Pacific Commercial 95; Fabric Material

Test Method: ASTM C 1549-16, "Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer."

Report Prepared For: Gale Pacific Limited / Mr. Andrew Nasarczyk

Procedure

The measurement of solar reflectance in accordance with ASTM C 1549-16 was completed using a solar reflectometer built by Devices and Services Company. The reflectometer was calibrated using standards with reflectance 0.0 and reflectance 0.868 prior to use. The solar reflectance measurements were made in a conditioned laboratory space. The solar reflectance was measured at air mass 1.5. Unless otherwise stated, all test surfaces were cleaned to remove dirt or any other blemishes prior to testing.

Results

Test Temperature: 69 °F
Test Humidity: 50 %RH

R&D Services Identification	Client Identification	Color	Average Reflectance	Standard Deviation
1491170823-1	GALE Pacific Commercial 95	Natural	0.555	0.002
1491170823-2	GALE Pacific Commercial 95	Desert Sand	0.364	0.004
1491170823-3	GALE Pacific Commercial 95	Cedar	0.214	0.002
1491170823-4	GALE Pacific Commercial 95	Yellow	0.455	0.002
1491170823-5	GALE Pacific Commercial 95	Cherry Red	0.287	0.004
1491170823-6	GALE Pacific Commercial 95	Cayenne	0.310	0.002
1491170823-7	GALE Pacific Commercial 95	Deep Ochre	0.104	0.001
1491170823-8	GALE Pacific Commercial 95	Sky Blue	0.166	0.002
1491170823-9	GALE Pacific Commercial 95	Aquatic Blue	0.170	0.001
1491170823-10	GALE Pacific Commercial 95	Navy Blue	0.045	0.001
1491170823-11	GALE Pacific Commercial 95	Rivergum	0.306	0.003
1491170823-12	GALE Pacific Commercial 95	Turquoise	0.160	0.002
1491170823-13	GALE Pacific Commercial 95	Brunswick Green	0.049	0.002
1491170823-14	GALE Pacific Commercial 95	Steel Grey	0.194	0.001
1491170823-15	GALE Pacific Commercial 95	Gun Metal	0.099	0.002
1491170823-16	GALE Pacific Commercial 95	Charcoal	0.047	0.004
1491170823-17	GALE Pacific Commercial 95	Black	0.026	0.003

Note: The average reflectance of each product is based on three measurements.

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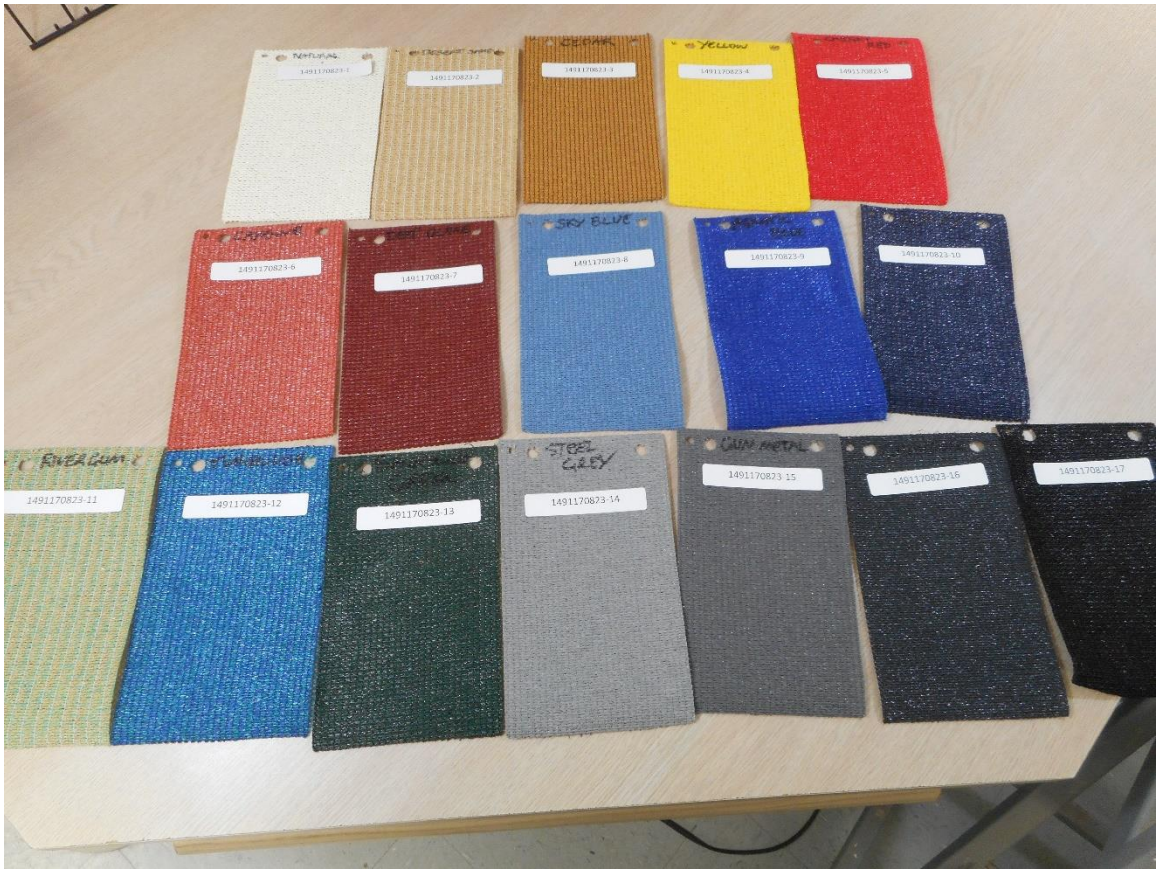

Figure 1: Samples As Received