July 20, 2020
Email: *info@amchemmail.com*

Mr. Shomendra Mann
Director
Amchem Products, Pvt. Ltd.
A-79, Sector 58
Noida, India 201 307

SUBJECT: **Results of Solar Reflective Index Testing; KTA-Tator, Inc. Project No. 400171**

Dear Mr. Mann:

In accordance with KTA-Tator, Inc. (KTA) Proposal No. PN2011135 and payment in full received on March 16, 2020, solar reflective index testing was performed in accordance with ASTM C1549-16, "Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer," and ASTM C1371-15, "Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers," with no deviations to calculate ASTM E1980 - 11(2019), "Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces." The samples were submitted directly to Momentum Technologies Laboratories located in Uniontown, Ohio, who was subcontracted by KTA to perform this testing. The detailed test results are appended.

Briefly, as stated within ASTM E1980, the steady-state surface temperature (T_5) under the sun is strongly correlated to solar reflectivity and thermal emissivity of the surface. For equivalent conditions, the T_5 of dark surfaces (with low solar reflectance) is higher than light - colored surfaces (with high solar reflectance); and surfaces with low thermal emissivity have higher T_5's than surfaces with high thermal emissivity. The procedure recommended in this standard was developed to allow a direct comparison of T_5 of surfaces under the sun. The procedure defines a Solar Reflectance Index (SRI) that measures the relative T_5 of a surface with respect to the standard white (SRI = 100) and standard black (SRI =0) under the standard solar and ambient conditions.

Solar reflectance and thermal emittance are important factors affecting surface and near-surface ambient air temperature. Surfaces with low solar reflectance, absorb a high fraction of the incoming solar energy. A fraction of this absorbed energy is conducted into ground and buildings, a fraction is converted to air (leading to higher air temperatures), and a fraction is radiated to the sky. For equivalent conditions, the lower the emissivity of a surface the higher its steady-state temperature. Surfaces with low emissivity cannot effectively radiate to the sky and, therefore, get hot. Determination of solar reflectance and thermal emittance, and subsequent

calculation of the relative temperature of the surfaces with respect to black and white reference temperature (defined as Solar Reflectance Index, SRI), may help designers and consumers to choose the proper materials to make their buildings and communities energy efficient. The method described here gives the SRI of surfaces based on measured solar reflectance and thermal emissivity of the surfaces.

If you have any questions concerning the testing or this report, please contact me by telephone at 412.788.1300 extension 182, or by email at kstanczyk@kta.com.

Sincerely,
KTA-TATOR, INC.

Kaley M. Stanczyk
Project Manager/Chemical Technician

Appendix – Momentum Technologies Laboratories Report

KMS/VDS:edg

Appendix

Technical Service Report

ISO 17025
Testing Laboratory

Testing Laboratory:	**Momentum Technologies Laboratories, Inc.**
	1507 Boettler Rd. Uniontown OH 44685 Ph: 330-896-5900 Fax: 330-896-9943
Customer:	**KTA-Tator**
	Kaley Stanczyk
	115 Tehcnology Drive
	Pittsburg PA 15275
	kstanczyk@kta.com
Project #:	SX29F0A
Quote #:	2020-111
Date of Report:	Monday, June 29, 2020
PO#:	20PO-166

Abstract: Provide accredited reporting on an analysis of an uncoated 10" concrete slab, prepared and coated 10" concrete slab, and a prepared coated panel tested per ASTM E1980 - 11(2019) Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

MTI#	Description of Material	Receiving Date
MTI-200579	1- 10" x 10" x 1.25" white coated concrete tile prepared by customer labeled Drythane Aliphatic Polyurethane Coated Concrete Tile 10"x10"	6/29/2020
MTI-200580	1- 10" x 10" x 0.25" white coated steel sheet prepared by customer labeled Drythane Aliphatic Polyurethane Coated Steel Sheet 10"x10"	6/29/2020
MTI-200581	1- 10" x 10" x 1" uncoated concrete tile selected by customer labeled Concrete Tile 10" x 10"	6/29/2020

ISO 17025 Testing Laboratory

Equipment

Equipment	Manufacturer	Model #	Serial #
Reflectometer	Devices & Services Company		314
Emissometter	Devices & Services Company	AE1	3013, 3014, 2999, 3000
Timer	Control Company	9371W62	191850357

Results and Conclusion

Method E 1980-11(2019)

Test/Description **Solar Reflective Index, Convective Coefficient, Medium Wind (12 W·m⁻²·K⁻¹)**
7.1.1 The solar reflectance and the thermal emittance of each test surface is listed in the result table.
7.1.2 The calculated SRI for three convective coefficients of 5, 12, 30 W·m–2·K–1, corresponding to low-, medium-, and high-wind conditions, respectively is listed in the result table.

Result:

Product	C1549-16	C1371-15	E1980-11(2019)
Drythane Aliphatic Polyurethane Coated Concrete Tile 10"x10" Laboratory Conditions: 23.8C - 48.6% R.H.	0.864	0.88	Low = 110 **Med = 109** High = 108
Drythane Aliphatic Polyurethane Coated Steel Sheet 10"x10" Laboratory Conditions: 23.3C - 48.3% R.H.	0.864	0.88	Low = 110 **Med = 109** High = 108
Concrete Tile 10" x 10" Laboratory Conditions: 23.1C - 49.0% R.H.	0.342	0.92	Low = 37 **Med = 38** High = 39

Requirement Report Results

Conclusion: **N/A**

MOMENTUM TECHNOLOGIES LABORATORIES

Project #:	**SX29F0A**
Quote #:	**2020-111**
Date:	**6/29/2020**
PO#:	**20PO-166**

Results and Conclusion

Conclusion:

The test results are as reported with no acceptance criteria provided. Samples were tested in accordance with ASTM C1549-16 and ASTM C1371-15 with no deviations to calculate ASTM E1980 - 11(2019) Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces.

Testing Dates

6/29/2020 - 6/29/2020

Tested By:

Stacey Weister

Construction Laboratory Supervisor

Reviewed By:

Rodney Armstrong

Managing Director

Revision Log

Revision #	Date	Revision
0	6/29/2020	Original

Form Revision# 0- 10/28/2019

ISO 17025 Testing Laboratory