



July 20, 2020

Email: [info@amchemmail.com](mailto: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

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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](mailto:kstanczyk@kta.com).

Sincerely,  
**KTA-TATOR, INC.**

A handwritten signature in blue ink that reads 'Kaley Stanczyk'. The signature is written in a cursive, flowing style.

Kaley M. Stanczyk  
*Project Manager/Chemical Technician*

#### Appendix – Momentum Technologies Laboratories Report

KMS/VDS:edg

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**NOTICE:** This report represents the opinion of KTA-TATOR, INC. This report is issued in conformance with generally accepted industry practices. While customary precautions were taken to verify the information gathered and presented is accurate, complete, and technically correct, this report is based on the information, data, time, materials, and/or samples afforded. This report should not be reproduced except in full.

# *Appendix*

# Technical Service Report



**Testing Laboratory:**

<b>Momentum Technologies Laboratories, Inc.</b>
1507 Boettler Rd. Uniontown OH 44685 Ph: 330-896-5900 Fax: 330-896-9943

**Customer:**

<b>KTA-Tator</b>
Kaley Stanczyk
115 Tehcnology Drive
Pittsburg PA 15275
kstanczyk@kta.com

**Project #:**

SX29F0A
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**Quote #:**

2020-111
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**Date of Report:**

Monday, June 29, 2020
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**PO#:**

20PO-166
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**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



# Equipment

Equipment	Manufacturer	Model #	Serial #
Reflectometer	Devices & Services Company		314
Emissometer	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<sup>-2</sup>·K<sup>-1</sup>)**  
 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<sup>-2</sup>·K<sup>-1</sup>, corresponding to low-, medium-, and high-wind conditions, respectively is listed in the result table.

**Result:**

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

**Requirement** Report Results

**Conclusion:** **N/A**



## 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

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Form Revision# 0- 10/28/2019

