



# PRODUCT TESTING SERVICE

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TCNA TEST REPORT NUMBER:

TCNA-550-14

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TEST REQUESTED BY: Arto Brick California Pavers

TEST METHOD: ASTM C1026-13: "Standard Test Method for Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling"

Informal Test Method Description: This test method describes the procedures and equipment required to test either glazed or unglazed ceramic or glass tiles for resistance to repeated cycles of freezing and thawing. Tile of any size or shape may be tested by this test method. A designated test load of tile specimens is saturated with water prior to being placed face-up in a metal water-filled container inside a freezer. The water level is adjusted such that the tile specimens are partially submerged. A thermocouple is inserted into the bottom of the metal container such that the water surrounding the thermocouple is the last location to freeze and thaw. Freezing is followed by a thawing cycle using water that flows over the test load. The number of freeze-thaw cycles is recorded and after 300 cycles, the test load is visually examined for damage and checked for total weight loss.

This summary is provided for the reader's convenience and is not a complete description of the method. See ASTM C1026 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Monrovia Red (MR 1-5)"  
Approximate Size as Received: 3"x3"

TEST DATE: 10/28/2014 – 1/26/2015

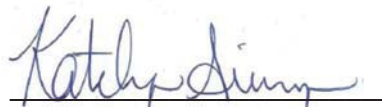
### TEST PROCEDURE:

- Sample Prep: Five (5) specimens were prepared and conditioned according to ASTM C1026, section 7.1.1.
- The specimens were then subjected to three hundred (300) cycles of freeze-thaw consisting of freezing the tiles in water to 27°F and then thawing the tiles in water to 40°F.

### TEST RESULTS:

Specimen #	Initial Dry Wt. (g)	Final Dry Wt. (g)	Observations After 300 Cycles	Total Wt. Loss (%) (Shall be less than 0.5% per ASTM C1026)
1	101.87	101.78	No Damage	0.08%
2	96.52	96.54	No Damage	0%
3	94.18	94.18	No Damage	0%
4	104.06	104.08	No Damage	0%
5	95.04	95.05	No Damage	0%

COMMENTS: None

  
Katelyn Simpson  
Laboratory Manager

1/29/2015

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