



PRODUCT TESTING SERVICE

100 Clemson Research Blvd. □ Anderson, SC 29625 □ Tel (864) 646-TILE □ Fax (864) 646-2821

TCNA TEST REPORT NUMBER:

TCNA-549-14

PAGE: 1 OF 2

TEST REQUESTED BY:

Arto Brick California Pavers

TEST METHOD: ASTM C373-14: "Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products"

Informal Test Method Description: This test method covers procedures for determining water absorption, bulk density, apparent porosity, and apparent specific gravity of fired unglazed whiteware products. The water absorption, reported here, is expressed as a percent, the relationship of the mass of water absorbed to the mass of the dry specimen.

This summary is provided for the reader's convenience and is not a complete description of the method. See ASTM C373 for all method details and information.

TEST SUBJECT MATERIAL:

Identified by client as: "Monrovia Red (1-5)"
Approximate Size as Received: 4"x4"

TEST DATE:

9/29/2014 – 9/30/2014

TEST PROCEDURE:

- Sample prep: The tiles were cut to 2"x4" per section 4.2 of ASTM C373.
- Five (5) samples were tested.
- Samples were dried to a constant mass at a temperature of 150°C and cooled to room temperature in a desiccating unit.
- Samples were subjected to a five-hour boil and 24 hour soak at room temperature.
- Saturated mass of the samples is determined after the soaking for 24hrs
- Water absorption is calculated by using the following formula: $(M - D)/D \times 100$
Where; D is the constant dry mass
 M is the saturated mass

TEST RESULTS:

	Water Absorption (%)
Sample 1	6.91 %
Sample 2	5.13 %
Sample 3	6.29 %
Sample 4	6.22 %
Sample 5	5.85 %
Average	6.08 %

Katelyn Simpson
Laboratory Manager

10/8/2014

Testing Services: testing@tileusa.com Literature Orders: literature@tileusa.com Web Site: www.tileusa.com

This report is confidential and has been prepared for the exclusive use of the client. It is not an endorsement, approval, certification, or criticism of any product by TCNA. This report shall not be published in any form without prior written consent from TCNA



PRODUCT TESTING SERVICE

100 Clemson Research Blvd. □ Anderson, SC 29625 □ Tel (864) 646-TILE □ Fax (864) 646-2821

TCNA TEST REPORT NUMBER: TCNA-549-14 PAGE: 2 OF 2

TEST REQUESTED BY: Arto Brick California Pavers

TEST SUBJECT MATERIAL: Identified by client as: "Monrovia Red (1-5)"

TEST METHOD: ASTM C373-14: "Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products"

COMMENTS: None

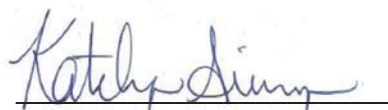
TILE CLASSIFICATION*:

Class	Requirement
Impervious	Water absorption less than or equal to 0.5%
Vitreous	Water absorption more than 0.5 % and less than or equal to 3.0%
Semi-vitreous	Water absorption more than 3.0 % and less than or equal to 7.0%
Non-vitreous	Water absorption more than 7.0 % and less than or equal to 20.0%

ANSI SPECIFICATIONS*:

ANSI standard	Tile Type	Specification
ANSI A 137.1 (Ceramic Tile)	Mosaic Tile	Shall be impervious (porcelain), vitreous, semi-vitreous, or non-vitreous depending on the class.
ANSI A 137.1 (Ceramic Tile)	Quarry Tile	Shall be classified as impervious (porcelain), vitreous, or semi-vitreous with the water absorption not exceeding 5.0 percent
ANSI A 137.1 (Ceramic Tile)	Pressed Floor Tile	Shall be classified as vitreous, semi-vitreous, or non-vitreous
ANSI A 137.1 (Ceramic Tile)	Porcelain Tile	Shall be impervious
ANSI A 137.1 (Ceramic Tile)	Glazed Wall Tile	Shall be classified as non-vitreous
ANSI A 137.2 (Glass Tile)	All Glass Tile	Shall be impervious

*For more detailed information, refer to ANSI A137.1 Specifications for Ceramic Tile and ANSI A137.2 Specifications for Glass Tile


 Katelyn Simpson
 Laboratory Manager

10/8/2014

Testing Services: testing@tileusa.com Literature Orders: literature@tileusa.com Web Site: www.tileusa.com

This report is confidential and has been prepared for the exclusive use of the client. It is not an endorsement, approval, certification, or criticism of any product by TCNA. This report shall not be published in any form without prior written consent from TCNA