

maniscalco

**UNITED STATES TESTS ATC
(TILE COUNCIL OF NORTH AMERICA)**

DIN 51097

Procedure	Results
ASTM C1378	
Determination to Staining	Passes
ASTM C650	
Resistance to Chemical Substances	Resistant

UNE:ENU 12663

Procedure	Results
MOH's SCRATCH HARDNESS	
Hardness	5
ASTM C373	
Water Absorption Bulk Density Porosity	Null

Note from the manufacturer:

Shade variations are possible between different production batches, being this fact inherent in fired materials.
Thus we do not recommend to mix different production batches.
Complaints derived of this fact will not be attended.
The production date is printed on each carton.



PRODUCT TESTING SERVICE

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

TCA TEST REPORT NUMBER: TCA-231-05

PAGE: 1 OF 1

TEST SUBJECT MATERIAL: Identified by client as: Glazed

TEST DATE: 9/26/05-9/27/05

TEST PROCEDURE: ASTM C1378: "Determination of Resistance to Staining"
-One specimen was tested for each test solution.
-The specimens were exposed to the test solutions for 24 hrs. at 74°F.
-**Cleaning procedure A: running hot water 5 min.**
-**Cleaning procedure B: hand cleaning w/ weak cleaner**
-**Cleaning procedure C: mechanical cleaning w/ strong cleaner**
-**Cleaning procedure D: 24hr. Immersion in suitable solvent (3% HCl, 20%KOH, Acetone)**

TEST RESULTS:

<u>Staining Agent</u>	<u>Visual Test (Affected?)</u>	<u>Cleaning Procedure</u>
Contrasting Grout	YES	A
Carbon Lamp Black	YES	A
Waterproof Ink (Black)	YES	A
Washable Ink	YES	A
Potassium Permanganate Solution, 1%	YES	A
Methylene Blue Solution, 1%	YES	A



Noah Chitty
Laboratory Manager

9/27/05

Date



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TCA TEST REPORT NUMBER: TCA-231-05

PAGE: 1 OF 1

TEST SUBJECT MATERIAL: Identified by client as: Glazed

TEST DATE: 9/21/05-9/22/05

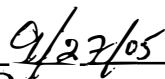
TEST PROCEDURE: ASTM C650: "Resistance of Ceramic Tile to Chemical Substances"
 -One specimen was tested for each test solution.
 -The specimens were exposed to the test solutions for 24 hrs. at 74°F.

TEST RESULTS:

Test Solution	Visual Test (Affected?)	Pencil Test (Affected?)
Common Household and Cleaning Chemicals		
Acetic acid, 3% (v/v)	NO	NO
Acetic acid, 10% (v/v)	NO	NO
Ammonium chloride, 100 g/L	NO	NO
Citric acid solution, 30 g/L	NO	NO
Citric acid solution, 100 g/L	NO	NO
Lactic acid, 5% (v/v)	NO	NO
Phosphoric acid, 3% (v/v)	NO	NO
Phosphoric acid, 10% (v/v)	NO	NO
Sulfamic acid, 3% (w/v)	NO	NO
Sulfamic acid, 10% (v/v)	NO	NO
Swimming Pool Chemicals		
Sodium hypochlorite solution, 20 mg/L	NO	NO
Acids and Bases		
Hydrochloric acid solution, 3% (v/v)	NO	NO
Hydrochloric acid solution, 18% (v/v)	NO	NO
Potassium hydroxide, 30 g/L	NO	NO
Potassium hydroxide, 100 g/L	NO	NO



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TEST SUBJECT MATERIAL: Identified by client as: Glazed

TEST DATE: 9/21/05

TEST PROCEDURE: Mohs' Scratch Hardness
-Three whole tiles were tested.

TEST RESULTS: The Mohs' Scratch Hardness was determined to be: 5. (The Mohs' Scratch Hardness Scale runs from 1-talc to 10-diamond.)



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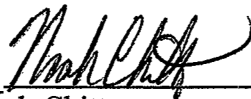
TEST SUBJECT MATERIAL: Identified by client as: Glazed

TEST DATE: 9/20/05-9/22/05


TEST PROCEDURE: ASTM C373: "Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products"
-Five specimens were tested.
-The specimens were subjected to a five-hour boil and 24 hour soak to room temperature.

TEST RESULTS: The average water absorption of five (5) specimens was: **0.08%**. This value classifies the subject material as impervious (with a water absorption of less than 0.5 percent).

The individual results of water absorption were as follows:
Specimen 1: 0.03 %
Specimen 2: 0.03 %
Specimen 3: 0.12 %
Specimen 4: 0.11 %
Specimen 5: 0.10 %



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Laboratory Manager



Date