



PRODUCT PERFORMANCE TESTING LABORATORY

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March 20, 2020

MS International, Inc.
Attn: Morgan Huang
2095 N. Batavia St
Orange, CA 92865
USA

Dear Morgan Huang,

Tile Council of North America has tested the samples you submitted. Test report TCNA-0242-20 is enclosed. If you have any questions or concerns, please contact us.

Best Regards,

TILE COUNCIL OF NORTH AMERICA, INC.

Damon McDowell
Laboratory Supervisor
Enclosures



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TCNA-0242-20

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TEST REQUESTED BY:

MS International, Inc.

TEST METHOD:

ASTM C1895: "Standard Test Method for Determination of Mohs Scratch Hardness of Ceramic Tile"

Informal Test Method Description: This method covers the procedures to determine the Mohs scratch hardness of ceramic tile. The resistance to scratching is determined based on a visual observation of the ceramic tile surface after an attempt to scratch the surface using a pick of known hardness. This summary is provided for the reader's convenience and is not a complete description of the method. See ASTM C1895 for all method details and information.

TEST SUBJECT MATERIAL:

Identified by client as: **"Catalina Collection"**
Approximate Size as Received: 8"x48"
Product color: Not Provided

TEST DATE:

3/18/2020

TEST PROCEDURE NOTES:

- Sample prep: Samples cut to 6"x6" for testing.
- Three (3) tiles were tested using a Deluxe Hardness Pick Set from Mineralab, LLC. The picks were secured to a sled such that the hardness pick was at a 70±5° angle to the test specimen.
- The sled applied a force of 7±0.5 lb (32.±0.2kg) where the hardness point contacted the test specimen.
- A Jeweler's Loupe was used for magnification of results.
- The following minerals are used as standard:
 - 1 – Talc 6 – Feldspar
 - 2 – Gypsum 7 – Quartz
 - 3 – Calcite 8 – Topaz
 - 4 – Fluorite 9 – Corundum
 - 5 – Apatite 10 – Diamond

TEST RESULTS:

The Mohs Scratch Hardness was determined to be as follows:

Tile Sample #	Highest numerical point that did NOT scratch	Lowest numerical point that DID scratch
1	7	8
2	7	8
3	7	8

COMMENTS: None

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IMAGE OF PRODUCT TESTED:



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3/20/2020

Damon McDowell
Laboratory Supervisor