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JINCHENG MAGNESIUM MATRIX (JIANGSU) INTERNATIONAL TRADE CO., LTD.

TEST REPORT

SCOPE OF WORK
ASTM C871-18 – STANDARD TEST METHODS FOR CHEMICAL ANALYSIS OF THERMAL INSULATION MATERIALS FOR LEACHABLE CHLORIDE, FLUORIDE, SILICATE, AND SODIUM IONS, ON MAGMATRIX MGO FIRE RATED STRUCTURAL PANEL

REPORT NUMBER
104838643MID-001

TEST DATE(S)
11/16/21

ISSUE DATE	**[REVISED DATE]**
11/17/21	N/A

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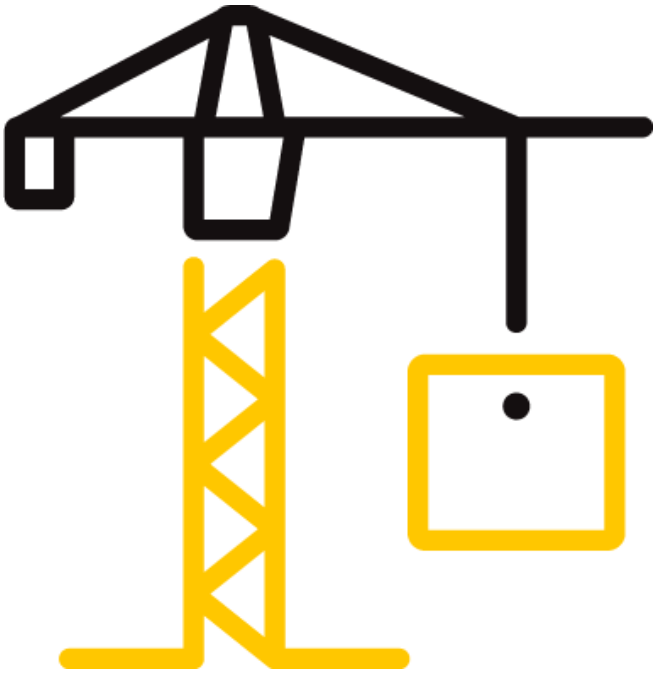

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TEST REPORT FOR JINCHENG MAGNESIUM MATRIX (JIANGSU) INTERNATIONAL TRADE CO., LTD.

Report No.: 104838643MID-001
Date: 11/17/21

REPORT ISSUED TO

JINCHENG MAGNESIUM MATRIX (JIANGSU) INTERNATIONAL TRADE CO., LTD.
No. 9 Daiwang Road of High Tech Industrial Zone
Dongcheng, Taixing City, Jiangsu Province
China

SECTION 1

SCOPE

Intertek Testing Services NA, Inc. dba Intertek Building & Construction (B&C) was contracted by Jincheng Magnesium Matrix (JiangSu) International Trade Co., Ltd., No. 9 Daiwang Road of High Tech Industrial Zone Dongcheng, Taixing City, Jiangsu Province, China, to perform testing in accordance with ASTM C871-18, *Standard Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate and Sodium Ions*, on their MagMatrix MgO Fire Rated Structural Panel. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek Testing Services NA, Inc. test facility in Middleton, WI.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called “Shared Risk approach,” of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens (where required by Certification or Accreditation bodies), or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

COMPLETED BY:	Nicholas Hampel	**REVIEWED BY:**	Mark Crawford
TITLE:	Associate Engineer – B&C	**TITLE:**	Engineering Team Lead
SIGNATURE:		**SIGNATURE:**	
DATE:	11/17/21	**DATE:**	11/17/21

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SECTION 2
SUMMARY OF TEST RESULTS

The chloride, fluoride, silicate and sodium content of insulation was found to be 562.55, 1.51, 6.50 and 1025.08 µg/g respectively.

SECTION 3
TEST METHOD(S)

The specimen was evaluated in accordance with the following:

> **ASTM C871-2018**, *Standard Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate and Sodium Ions,* ASTM International

SECTION 4
MATERIAL SOURCE/INSTALLATION

Test samples were provided by the client. The results outlined in this report apply to the sample as received. The test samples were received by the test facility on October 6, 2021 as verified by receiving number MID2110061555-001.

SECTION 5
EQUIPMENT

EQUIPMENT			
DESCRIPTION - ASSET #:	Spectrophotometer - 1118	**VBU:**	11/16/2021
DESCRIPTION - ASSET #:	Titrando - 1154	**VBU:**	11/16/2021
DESCRIPTION - ASSET #:	Balance – 1396	**CALIBRATION DUE:**	4/6/2022
DESCRIPTION - ASSET #:	Pipetter P1000 – 1128	**CALIBRATION DUE:**	10/25/2022
DESCRIPTION - ASSET #:	Pipetter P100 – 1192	**CALIBRATION DUE:**	10/25/2022
DESCRIPTION - ASSET #:	Room Temp/Humidity Monitor - 1455	**CALIBRATION DUE:**	4/12/2022
DESCRIPTION - ASSET #:	Cond. Temp/Humidity Monitor - 1451	**CALIBRATION DUE:**	2/17/2022

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Nicholas Hampel	Intertek B&C

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SECTION 7
TEST PROCEDURE

In accordance with ASTM C871 test methods, the sample was analyzed using the following devices. Fluoride Ion Selective Electrode, Chloride Ion Selective Electrode and Sodium Ion Selective Electrode, each manufactured by Van London Co.; Touch Control, 835 Titrando, 801 Stirrer manufactured by Metrohm USA Inc.; 8453 UV-Visible Spectrophotometer manufactured by Agilent Technologies. The purpose of this testing was to obtain unknown concentration quantities of fluoride, chloride, sodium and silicate in the sample.

The sample extraction technique was performed as follows: the sample was crushed to form a powder and the reinforcing fibers were cut to small pieces which were then utilized to make a 20.0 gram sample. This was then blended in approximately 300 mL of distilled water, quantitatively transferred to a tared borosilicate beaker and heated to boiling and maintained for 30 minutes. The mixture was cooled to room temperature in an ice bath and then brought up to a 520.0 gram mixture of the sample and distilled water. The mixture was then stirred and vacuum filtered through a 0.45µm filter, producing a filtrate to be analyzed for the concentration of fluoride, chloride, sodium and silicate according to section 10 of ASTM C871. Fluoride, chloride and sodium were analyzed via use of calibrated ion selective electrodes. Silicate was analyzed utilizing the colorimetric method as outlined in section 10.3.2 in ASTM C871.

SECTION 8
TEST CALCULATIONS

Calculations were performed in accordance with section 11 of ASTM C871-18.

SECTION 9
TEST SPECIMEN DESCRIPTION

The sample MagMatrix MgO Fire Rated Structural Panel is a white fiber-reinforced magnesium oxide board. Sample was conditioned a minimum of 24 hours at 23±2°C and 50±10% relative humidity.

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SECTION 10
TEST RESULTS

TEST STANDARD C871 RESULTS		
ION ANALYZED	**ION CONCENTRATION IN SOLUTION(µg/mL)**	**ION CONTENT IN INSULATION (µg/g)**
Fluoride	0.06	1.51
Chloride	22.50	562.55
Sodium	41.00	1025.08
Silicate	0.26	6.50

pH of the sample solution: 10.216
Sodium plus silicate ions: 1031.58 ppm
Chloride plus fluoride ions: 564.05 ppm

SECTION 11
CONCLUSION

There are no specified performance requirements.

The chloride, fluoride, silicate and sodium content of insulation was found to be 562.55, 1.51, 6.50 and 1025.08 µg/g respectively.

SECTION 12
REVISION LOG

REVISION #	DATE	SECTION	REVISION
0	11/17/21	N/A	Original Report Issue