



Test Report

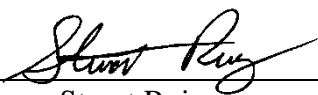
Fungi Resistance Measurements According to ASTM C1338 on Rock Mineral Wool ECOSE Product Faced with Black Woven Glass Mat Supplied by Knauf Insulation d.o.o.

Prepared For:

Nenad Zeljak
Knauf Insulation d.o.o.
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42220 Novi Marof
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R & D Services, Inc.
P.O. Box 2400
Cookeville, Tennessee 38502-2400

Report: RD18585-R2


Stuart Ruis
President

March 9, 2020

The test results in this report apply only to the specimens tested. The tests conform to the respective test methods except for the report requirements. The report includes summary data but a full complement of data is available upon request. This report shall not be reproduced, except in full, without written approval of R & D Services, Inc. This report must not be used by the client to claim product endorsement by R & D Services, Inc., IAS or any other organization.



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Phone: 931-372-8871
Fax: 931-525-3896

Fungi Resistance Test Report

Test Number: RD181978FR

Date of Test: July 18 – August 15, 2018

Specimen Number: 1211180716-7

Date of Manufacture: Unknown

Description of Test Specimen: Rock mineral wool ECOSE product faced with black woven glass mat. Glass Mat is manufactured by Porcher Industries (Style 3668, Finish 102). Specimen was tested as part of Rock mineral wool ECOSE product (product ID “Thermo-tek BD 050 WBS Mineral Wool”)

Test Method: ASTM C1338-14, “Standard Test Method for Determining Fungi Resistance of Insulating Materials and Facings.

Report Prepared For: Knauf Insulation d.o.o. / Nenad Zeljak

This test method is used to determine the relative ability of an insulation and its facing to resist fungal growth under conditions favorable for their development.

This test method uses a comparative material to determine the relative ability of a material to resist fungal growth. In some specialized product areas, it is required that no growth take place. In such cases, the use of the comparative material is omitted, and the pass/fail criterion is based upon growth.

Viability specimens are used to determine the viability of the spore suspension during incubation. A comparative material of either white birch or southern yellow pine is used as a control specimen to determine comparative growth on test specimens.

Test specimens and comparative material are exposed to a 28-day inoculation period. After the inoculation period, the specimens are removed from test chamber and evaluated under 40X magnification. Each of the test specimens are determined to have no fungal growth, fungal growth no greater than the comparative material, or fungal growth greater than the comparative material. Specimens are evaluated at seven-day intervals for fungal growth. The viability and control specimens are determined to have growth or no growth.

The fungal species used in the tests for thermal insulation are listed below.

- | | |
|----------------------------------|-------------------|
| ▪ <i>Aspergillus niger</i> | <i>ATCC 9642</i> |
| ▪ <i>Aspergillus flavus</i> | <i>ATCC 9643</i> |
| ▪ <i>Aspergillus versicolor</i> | <i>ATCC 11730</i> |
| ▪ <i>Penicillium funiculosum</i> | <i>ATCC 11797</i> |
| ▪ <i>Chaetomium globosum</i> | <i>ATCC 6205</i> |



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Results:

	Date	Viability	Control	Specimen 1	Specimen 2	Specimen 3
Day 7 Observation	7/25/18	2	2	1	1	1
Day 14 Observation	8/1/18	2	2	1	1	1
Day 21 Observation	8/8/18	2	2	1	1	1
Day 28 Observation	8/15/18	2	2	1	1	1

Observation Scale:

1. No growth
2. Growth
3. Specimen has less growth than the Comparative Material
4. Specimen has more growth than the Comparative Material

Comparative Material: Birch

The pass/fail result: Pass

Basis for the pass/fail result: Test specimens showed no growth.

Carla King
Evaluation:

8/17/18
Date:

Shawn King
Review:

8/17/18
Date:

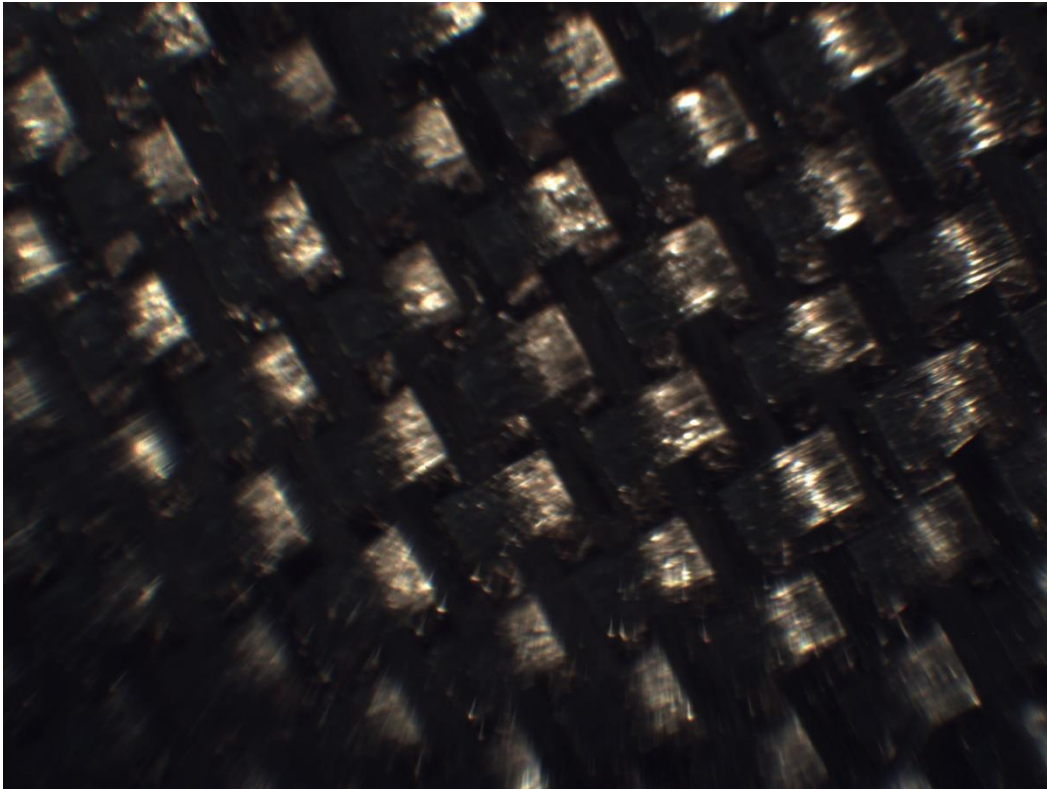


Figure 1: Sample After Testing



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Fungi Resistance Test Report

Test Number: RD181979FR

Date of Test: July 18 – August 15, 2018

Specimen Number: 1211180716-8

Date of Manufacture: Unknown

Description of Test Specimen: Rock mineral wool ECOSE product faced with black woven glass mat. Glass Mat is manufactured by Porcher Industries (Style 3668, Finish 102). Specimen was tested as part of Rock mineral wool ECOSE product (product ID “Thermo-tek BD 150 WBS Mineral Wool”)

Test Method: ASTM C1338-14, “Standard Test Method for Determining Fungi Resistance of Insulating Materials and Facings.

Report Prepared For: Knauf Insulation d.o.o. / Nenad Zeljak

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| ▪ <i>Penicillium funiculosum</i> | <i>ATCC 11797</i> |
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Comparative Material: Birch

The pass/fail result: Pass

Basis for the pass/fail result: Test specimens showed no growth.

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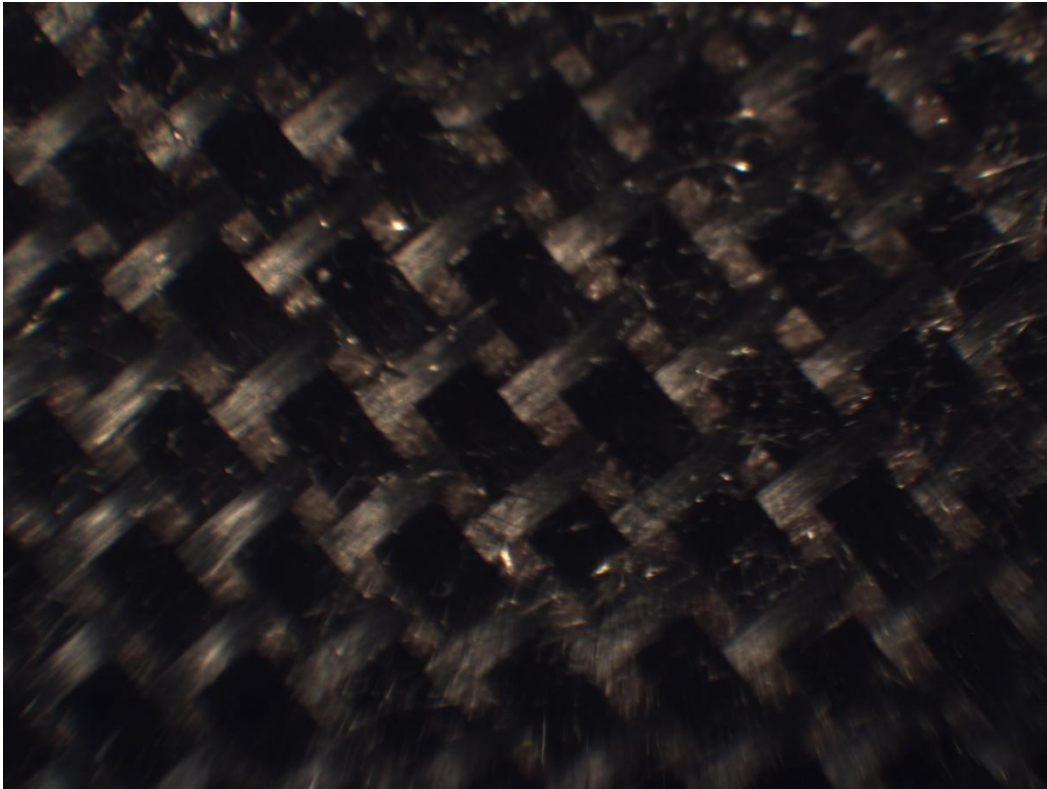


Figure 2: Sample After Testing