

RAPPORTI DI PROVA SULLA CONDUCIBILITA' TERMICA

Fibra di cellulosa stabilizzata : COCOON2 GreenFiber INS 735

Prove di Laboratorio eseguite sulla fibra di cellulosa stabilizzata **Cocoon2** (codice INS 735) prodotta dalla US GreenFiber, svolte in varie date di produzione ed in varie partite di produzione.

Le prove di laboratorio sono state svolte seguendo la normativa **ASTM C-518** dal titolo : Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus (Proprietà di trasmissione stazionaria del calore per mezzo dell'apparecchiatura con termo flussimetro)

I Provini sottoposti a prova hanno seguito le normative ASTM C-687 e normative ASTM C-739 e sono stati condizionati per 2 giorni in camera per raggiungere 21°C e 50 % di UR dopodiché sono stati provati con apparecchiatura con termo flussimetri per 69 ore ad una temperatura di 24°C e 50 % di UR ,come da Norma ASTM C-518.

Data	N° Test	Densità kg/m3	Spessore dei provini	Conducibilità termica apparente in Btu.in/ft2.hr.°F	Conducibilità termica apparente in W/mK
24-27 febbraio 2006	RD061249TR	25,27	101,6	0.2759	0.0397
7-9 marzo 2006	RD061352TR	25,27	101,6	0.2811	0.0405
7-9 marzo 2006	RD061351TR	25,27	101,6	0.2805	0.0404
10-13 marzo 2006	RD061350TR	25,27	101,6	0.2782	0.0401
12 settembre 2003	RD032004TR	22,26	101,6	0.2777	0.0400
12 settembre 2003	RD032005TR	22,26	101,6	0.2767	0.0399
16 settembre 2003	RD032006TR	22,26	101,6	0.2793	0.0402

La conducibilità termica media risulta essere : **λ 0.040 W/mK a 24°C e 50 % UR (ASTM C-518)**

I fattori di conversione per passare dal sistema metrico americano al Sistema Internazionale SI sono :

1 Btu-in./hr.-sqft-°F = 0.1442 W/mK

1 pcf = 16.018 kg/m3

1 inch = 25,4



di Marchesini Enrico

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Thermal Resistance Test Report

Date of Test: February 24-27, 2006

Date of Manufacture: February 10, 2006

Fox Number: 5494

Specimen Number: 1180060214-6

R&D Test Number: RD061249TR

Description of test specimen: US GreenFiber-Lithia Springs; INS 735 Cellulose; Tested at 1.59 PCF

Test Method: ASTM C 518, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report prepared for: US GreenFiber, LLC - Lithia Springs / Steve Martin

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.59</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2759</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.625</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.5</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 69.9

The precision of this test is estimated to be 2.5% (Section 10.3, ASTM C 518)

Reviewed By: _____

Date: _____

The results in this report apply only to the specimen tested. This test conforms to ASTM Test Method C 518 except for the report requirements. The report includes summary data but a full complement of data is available upon request.



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Thermal Resistance Test Report

Date of Test: March 07-09, 2006

Date of Manufacture: February 10, 2006

Fox Number: 2849

Specimen Number: 1180060214-7

R&D Test Number: RD061352TR

Description of test specimen: US GreenFiber-Lithia Springs; INS 735 Cellulose; Tested at 1.59 PCF

Test Method: ASTM C 518, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report prepared for: US GreenFiber, LLC - Lithia Springs / Steve Martin

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.54</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2811</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.558</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.2</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 49.8

The precision of this test is estimated to be 2.5% (Section 10.3, ASTM C 518)

Reviewed By: _____

Date: _____

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Thermal Resistance Test Report

Date of Test: March 07-09, 2006

Date of Manufacture: February 10, 2006

Fox Number: 5498

Specimen Number: 1180060214-7

R&D Test Number: RD061351TR

Description of test specimen: US GreenFiber-Lithia Springs; INS 735 Cellulose; Tested at 1.59 PCF

Test Method: ASTM C 518, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report prepared for: US GreenFiber, LLC - Lithia Springs / Steve Martin

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.57</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2805</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.565</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.3</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 49.0

The precision of this test is estimated to be 2.5% (Section 10.3, ASTM C 518)

Reviewed By: _____

Date: _____

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Thermal Resistance Test Report

Date of Test: March 10-13, 2006

Date of Manufacture: February 10, 2006

Fox Number: 2851

Specimen Number: 1180060214-8

R&D Test Number: RD061350TR

Description of test specimen: US GreenFiber-Lithia Springs; INS 735 Cellulose; Tested at 1.59 PCF

Test Method: ASTM C 518, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report prepared for: US GreenFiber, LLC - Lithia Springs / Steve Martin

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.61</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2782</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.595</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.4</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 67.2

The precision of this test is estimated to be 2.5% (Section 10.3, ASTM C 518)

Reviewed By: _____

Date: _____

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Thermal Resistance Test Report

Date of Test: September 12, 2003

Date of Manufacture: N/A

Fox Number: 2324

Specimen Number: 1077030731-1

R&D Test Number: RD032004TR

Description of test specimen: Bonded "All Borate" Cellulose Product; Tested at 1.39 PCF

Report prepared for: Bonded Insulation Company, Inc. / Curt Chittenden

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.42</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2777</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.601</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.4</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 69.4

Ronald L. Swader
Reviewed By:

10-08-03
Date:

Test results reported apply only to the specimen tested This test conforms to ASTM Test Method C 518 except for the report requirements. The report includes summary data but a full complement of data is available upon request.



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Thermal Resistance Test Report

Date of Test: September 12, 2003

Date of Manufacture: N/A

Fox Number: 5017

Specimen Number: 1077030731-1

R&D Test Number: RD032005TR

Description of test specimen: Bonded "All Borate" Cellulose Product; Tested at 1.39 PCF

Report prepared for: Bonded Insulation Company, Inc. / Curt Chittenden

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>3.999</u>	inches
Specimen density:	<u>1.42</u>	lb/ft ³
Cold plate temperature:	<u>52.54</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.05</u>	deg F
Apparent thermal conductivity:	<u>0.2767</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.614</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.4</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 69.3

Ronald S. Braden
Reviewed By:

10-08-03
Date:

Test results reported apply only to the specimen tested This test conforms to ASTM Test Method C 518 except for the report requirements. The report includes summary data but a full complement of data is available upon request.



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Thermal Resistance Test Report

Date of Test: September 16, 2003

Date of Manufacture: N/A

Fox Number: 2325

Specimen Number: 1077030731-1

R&D Test Number: RD032006TR

Description of test specimen: Bonded "All Borate" Cellulose Product; Tested at 1.39 PCF

Report prepared for: Bonded Insulation Company, Inc. / Curt Chittenden

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518. The test results in a value for the apparent thermal conductivity of the test specimen, k , in units W/m.K. The thermal resistivity, R-value per inch, in U.S. customary units is the reciprocal of the product of 6.933 and k .

Heat flow meter:	<u>24 by 24</u>	inches x inches
Specimen thickness:	<u>4.000</u>	inches
Specimen density:	<u>1.40</u>	lb/ft ³
Cold plate temperature:	<u>52.56</u>	deg F
Hot plate temperature :	<u>97.56</u>	deg F
Average specimen temperature:	<u>75.06</u>	deg F
Apparent thermal conductivity:	<u>0.2793</u>	Btu.in/ft ² .hr.°F
Thermal resistivity (R-per-inch):	<u>3.580</u>	ft ² .hr.°F/Btu.in
Thermal resistance of specimen:	<u>14.3</u>	ft ² .hr.°F/Btu

Notes: Calibration factor used for manual calculation? NA EMF NA

Edge guards or cabinet temperature satisfactory? Yes

Excessive moisture on cold plate? No

Length of time for test (hours)? 47.3

Ronald S. Swader

Reviewed By:

10-08-03

Date:

Test results reported apply only to the specimen tested This test conforms to ASTM Test Method C 518 except for the report requirements. The report includes summary data but a full complement of data is available upon request.