

# **Intertek** ETL SEMKO

REPORT OF

**PERFORMANCE TESTING TO  
ASTM E283-04 "STANDARD TEST METHOD OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS,  
CURTAIN WALLS, AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE  
SPECIMEN"**

**CONDUCTED ON A 4' x 4' SEALECTION™ 500 SPRAY FOAM INSULATION (VARIOUS  
THICKNESSES) AND FIBERGLASS INSULATION STUD WALL ASSEMBLIES**

**3-1/2" THICK SEALECTION™ 500 SPRAY FOAM INSULATION (2" X 4" FRAMING)  
5-1/2" THICK SEALECTION™ 500 SPRAY FOAM INSULATION (2" X 6" FRAMING)  
7-1/2" THICK SEALECTION™ 500 SPRAY FOAM INSULATION (2" X 8" FRAMING)  
5-1/2" THICK OWENS CORNING R19 FIBERGLASS WITHOUT KRAFT PAPER VAPOUR BARRIER  
(2" X 6" FRAMING)  
5-1/2" THICK OWENS CORNING R19 FIBERGLASS WITH KRAFT PAPER VAPOUR BARRIER  
(2" X 6" FRAMING)**

FOR

**DEMILEC USA, LLC  
2925 GALLERIA DRIVE  
ARLINGTON, TEXAS, USA  
76011**

**REPORT PREPARED BY RON PRENTICE**

**INTERTEK TESTING SERVICES NA LTD.  
3210 AMERICAN DRIVE  
MISSISSAUGA, ONTARIO, L4V 1B3  
CANADA**

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**Intertek Testing Services NA Ltd.**  
3210 American Dr. Mississauga, Ontario, Canada L4V 1B3  
Telephone 905-678-7820 Fax: 905-678-7131  
Web: www.intertek-etlsemko.com



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## INTRODUCTION

Intertek Testing Services N.A. Ltd. (Intertek) has conducted performance tests on nominal 4' x 4' Sealection™ 500 polyurethane spray foam insulation (various thicknesses) and fibreglass insulation stud wall assemblies submitted to our laboratory on July 6<sup>th</sup> 2006. The Sealection™ 500 liquid components were randomly sampled from Demilec stock by an Intertek representative on June 6<sup>th</sup> 2006. Installation of the Sealection™ 500 spray foam insulation into the 4' x 4' stud wall cavities was witnessed and inspected by an Intertek representative on June 26<sup>th</sup> 2006. FRP panels were used as backing for the application process and were removed after the foam had cured properly. This left the foam adhered only to the wood framework supporting the foam at its edges. Testing on the insulated wall assemblies was carried out on July 17, 2006. All tests were performed in accordance with the test standard ASTM E283-04.

## PRODUCT DESCRIPTIONS

- |                       |  |
|-----------------------|--|
| <b>Series</b>         | <ul style="list-style-type: none"><li>• Demilec USA LLC, Sealection™ 500</li></ul>   |
| <b>Designation</b>    | <ul style="list-style-type: none"><li>• 0.5 pcf Open Cell Spray Foam Insulation</li></ul>  |
| <b>Type (general)</b> | <ul style="list-style-type: none"><li>• Open Cell Polyurethane Spray Foam Insulation</li></ul>   |
| <b>Material</b>       | <ul style="list-style-type: none"><li>• Sealection™ 500 Open Cell Spray Foam Insulation.</li></ul>   |
| <b>Samples tested</b> | <ul style="list-style-type: none"><li>• 3-1/2" thick Sealection™ 500 (2" x 4" Framing)</li><li>• 5-1/2" thick Sealection™ 500 (2" x 6" Framing)</li><li>• 7-1/2" thick Sealection™ 500 (2" x 8" Framing)</li></ul>   |
| <b>Test Boxes</b>     | <ul style="list-style-type: none"><li>• Foam spray was tested in 4' x 4' wood test bucks with wood studs on 16" centres.</li></ul>   |
| <b>Series</b>         | <ul style="list-style-type: none"><li>• Owen Corning R19 Fiberglass™</li></ul>   |
| <b>Designation</b>    | <ul style="list-style-type: none"><li>• Fiberglass</li></ul>   |
| <b>Type (general)</b> | <ul style="list-style-type: none"><li>• Fiberglass</li></ul>   |
| <b>Material</b>       | <ul style="list-style-type: none"><li>• Owen Corning R19 Fiberglass</li></ul>  |
| <b>Samples tested</b> | <ul style="list-style-type: none"><li>• 5-1/2" Thick Owen Corning R19 Fiberglass with Kraft Paper vapour barrier on interior (2" x 6" Framing).</li><li>• 5-1/2" Thick Owen Corning R19 Fiberglass without Kraft Paper vapour barrier (2" x 6" Framing).</li></ul> |
| <b>Test Boxes</b>     | <ul style="list-style-type: none"><li>• Fiberglass was tested in a 4' x 4' wood test bucks with wood studs on 16" centres.</li></ul>   |

## **TEST PROGRAM**

### **Air Leakage Test**

The Air leakage tests were conducted in accordance with ASTM E283-04, "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen,"

The Air leakage tests were performed using different test pressures ranging from 75 Pa (1.57 psf), to 2000 Pa (41.77 psf). The air leakage rate was calculated in units of L/s/m<sup>2</sup>.

**TEST APPARATUS**

The test equipment used to determine air leakage through stud wall assemblies described in this report was as shown in the following table:

Test	Application	Equipment	Intertek ID#
Air Leakage	To develop the test pressures	Air blower	--
	Air infiltration testing	Meriam Instrument Co. laminar flow element, Model No. 50MW20-2F, Serial No. 74690-K1	280-01-0059 280-01-0573
		Ashcroft 0-0.5" W.C to 0-5 VDC pressure transducer Model No. XLDP, Serial No. 20226-123 Sciometric Instruments System 200 analog to digital converter.	280-01-0018
	Test Pressure between wall and sample To measure the laminar flow element inlet pressure	Vacuum Motor Ashcroft pressure transducer Model No. XLDP Sciometric Instruments System 200 analog digital converter	280-01-0018
		Calibrated 0-0.5" W.C Mechanical manometer	280-01-0723
Calibrated 0-15" W.C Mechanical manometer		280-02-0081	
	Calibrated 0-30" W.C Mechanical manometer	280-01-0628	

## TEST RESULTS

### 1. Air Leakage Tests

Test Sample No. 1;  
Sealection™ 500 3-1/2" Thick (2" x 4" Framing)

Pressure Differential: 75 Pa

Air Leakage: 0.000 L/s/m<sup>2</sup> (No air leakage detected)

### 2. Air Leakage Tests

Test Sample No. 2;  
Sealection™ 500 5-1/2" Thick (2" x 6" Framing)

Pressure Differential: 75 Pa

Air Leakage: 0.000 L/s/m<sup>2</sup> (No air leakage detected)

### 3. Air Leakage Tests

Test Sample No. 3;  
Sealection™ 500 7-1/2" Thick (2" x 8" Framing)

Pressure Differential: 75 Pa

Air Leakage: 0.000 L/s/m<sup>2</sup> (No air leakage detected)

Pressure Differential: 140 Pa

Air Leakage: 0.000 L/s/m<sup>2</sup> (No air leakage detected)

Pressure Differential: 1200 Pa

Air Leakage: 0.000 L/s/m<sup>2</sup> (No air leakage detected)

Pressure Differential: 1500 Pa

Air Leakage: 0.028 L/s/m<sup>2</sup>

Pressure Differential: 2000 Pa

Air Leakage: 0.028 L/s/m<sup>2</sup>

4. Air Leakage Tests

Test Sample No. 4;  
Owen Corning R19 Fibreglass      5-1/2" Thick (2" x 6" Framing)  
With out Kraft Vapour Barrier  
Paper backing

Pressure Differential:                      75 Pa

Air Leakage:                                (Above Upper Limits of Equipment) L/s/m<sup>2</sup>

5. Air Leakage Tests

Test Sample No. 5;  
Owen Corning R19 Fibreglass      5-1/2" Thick (2" x 6" Framing)  
With Kraft Vapour Barrier  
Paper backing

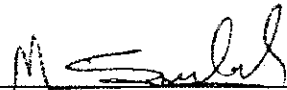
Pressure Differential:                      75 Pa

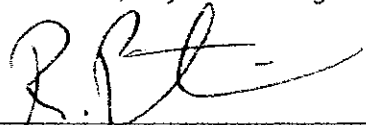
Air Leakage:                                34.31 L/s/m<sup>2</sup>

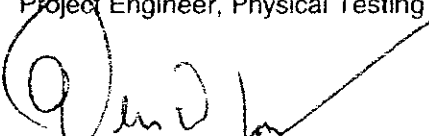
**CONCLUSION**

Sealection™ 500 spray foam insulation; when tested in accordance with ASTM E283-04, for thicknesses of 3.5", 5.5", and 7.5", measured at pressure differential of 75 Pa; has an air leakage rate of less than 0.02 L/s/m<sup>2</sup>. These tests were conducted on the bare foam adhering only to the edges of the wood framework.

INTERTEK TESTING SERVICES NA LTD.

Tested by:   
Mustufa Swalah  
Technician, Physical Testing Services

Prepared by:   
Ron Prentice  
Project Engineer, Physical Testing Services

Reviewed by:   
Vern Jones, C.E.T.  
Manager, Physical Testing Services