

AGT PRODUCTS INC.

TEST REPORT

SCOPE OF WORK

THERMAL RESISTANCE, COMPRESSIVE STRENGTH, AND WATER VAPOR TRANSMISSION TESTING ON HIGH DENSITY EPS FOAM BOARD SUBFLOOR INSULATION

REPORT NUMBER

104010084TOR-001

TEST DATE(S)

07/26/19 – 08/12/19

ISSUE DATE

08/21/19

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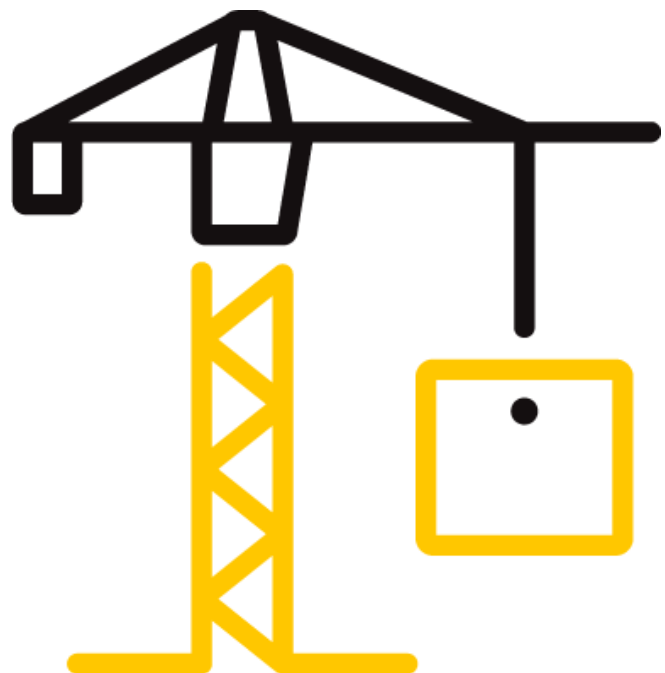
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TEST REPORT FOR AGT PRODUCTS INC.

Report No.: 104010084TOR-001

Date: 08/21/19

REPORT ISSUED TO

AGT PRODCUTS INC.

Unit 2, 2311 Royal Windsor Dr.

Mississauga, ON

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SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by AGT Products Inc. (AGT) to perform testing on their EPS foam board subfloor insulation. Tests were performed in accordance with ASTM C518-17, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*, ASTM D1621-16, *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*, ASTM E96/E96M-16, *Standard Test Methods for Water Vapor Transmission of Materials*, and ASTM D6364 - 06(2018) *Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics*, on their High Density EPS Foam Board. Results obtained are tested values and were attained by using the designated test method(s). Testing was conducted at the Intertek test facility in Mississauga, Ontario.


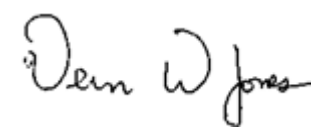
This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

The AGT Products Inc. test results are presented in Section 7 of this report.

For INTERTEK B&C:

COMPLETED BY:	Baljeet Chung	REVIEWED BY:	Vern Jones
TITLE:	Technical Analyst Building Products	TITLE:	Senior Technologist Building Products
SIGNATURE:		SIGNATURE:	
DATE:	08/21/19	DATE:	08/21/19

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SECTION 3

TEST METHOD(S)

The specimens were evaluated in accordance with the following standard test method:

ASTM C518-17, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

ASTM D1621-16, *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*

ASTM E96/E96M-16, *Standard Test Methods for Water Vapor Transmission of Materials*

***ASTM D6364 - 06(Reapproved 2018)**, *Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics*

*Note: This test method was requested by the client; however, it is not necessarily relevant to the product tested.

SECTION 4

MATERIAL SOURCE/INSTALLATION (SAMPLE SELECTION)

Samples were submitted to Intertek Building & Construction (B&C) by AGT Products Inc in person. The test sample identification is as provided by the client and Intertek accepts no responsibility for any inaccuracies therein.

Samples were received at the Evaluation Center in July 24, 2019.

SECTION 5

SAMPLE ASSEMBLY AND DESCRIPTION (SAMPLE SELECTION)

Samples submitted for testing were high density EPS foam boards with circular support points (dimples) extruding upwards from a flat base, with spacing between each dimple. Samples submitted were cut to the correct dimensions required for each test method.

SECTION 6

TEST PROCEDURE

Unless otherwise specified, the thickness of the specimens was measured from the flat bottom to the top of the support points of the opposite plane, therefore the density reported includes air space.

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6.1 CONDITIONING

Specimens were conditioned in accordance with the test method used for testing.

6.2 THERMAL RESISTANCE

The specimens were tested in accordance with ASTM C518-17, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus". Three samples with nominal dimensions of 305 mm long by 305 mm wide by 25 mm thick (12 in. × 12 in. × 1 in.) were tested within 1% of the following mean temperature value: 73.4°F (23°C). The samples were tested in a Netzsch Lambda 436 Heat Flow Meter (HFM). The HFM was verified prior to testing using a NIST traceable calibration panel and was found to be within 3% of its' conductivity value.

6.3 COMPRESSIVE STRENGTH

The compressive strength was evaluated in accordance with ASTM D1621-16. Per the client's request, two sets of specimen sizes were tested. The first set of six specimens (Figure 1) consisted of a single support point measuring nominally 74 mm long by 74 mm wide by 25 mm thick (3 in. × 3 in. × 1 in.). The second set of six specimens (Figure 2) consisted of four support points measuring nominally 154 mm long by 154 mm wide by 25 mm thick (6 in. × 6 in. × 1 in.). Specimens were conditioned prior to testing.

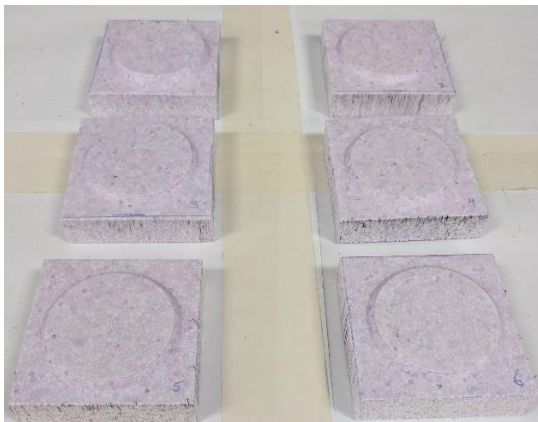


Figure 1: Single support point per specimen



Figure 2: Four support points per specimen

Specimens were measured for length, width and thickness at three points for each dimension using a digital caliper. Compressive strength was then tested using a Baldwin Universal Testing Machine. Continuous load and deflection data was recorded for each specimen and these results were used to calculate the compressive strength based on a 10% core deformation as follows:

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$$SC = W / A$$

Where

SC	= Compressive Strength, N/mm ²
W	= Load at 10% core deformation, N
A	= Initial horizontal cross-sectional area, mm ²

6.4 SHORT TERM COMPRESSION BEHAVIOR OF GEOSYNTHETICS

The short term compression behavior was evaluated in accordance with ASTM D6364-06. Per the standard, five specimens (Figure 3) were tested consisting of five complete support points along each major axis. Each specimen measured nominally 367 mm long by 372 mm wide by 25 mm thick ($14\frac{1}{2}$ in. \times $14\frac{3}{4}$ in. \times 1 in.). Specimens were conditioned prior to testing.



Figure 3: Specimen tested in accordance with ASTM D6364-06

6.5 WATER VAPOR PERMEANCE

The Water Vapor Permeance was determined as per ASTM E96/E96M-16, Standard Test Methods for Water Vapor Transmission of Materials, desiccant method. Specimens were cut to nominal values of 202 mm long by 202 mm wide squares. The thickness was measured by averaging the thickness from the bottom flat plane to the top of the support point on the opposite plane and the distance from the bottom flat plane to the base of the support points on the opposite plane; a nominal thickness of 22mm was measured. The pocket in the dish was filled with calcium chloride to within 6.4 mm ($\frac{1}{4}$ -in.) of the specimen. The specimens were then fitted onto the dish right above the pocket. The specimens were prepared with the product's flat bottom facing the desiccant and the side with the support points exposed to the chamber environment. The

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assemblies were then placed in a controlled chamber operating at a temperature and relative humidity of $23\pm 2^{\circ}\text{C}$ and $50\pm 5\%$, respectively. The assemblies were then weighed periodically until eight (8) data points were obtained. The water-vapor transmission was calculated as follows:

$$\text{WVT} = G/tA$$

where:

WVT= rate of water vapor transmission, $\text{g}/\text{m}^2\text{s}$

G= weight change, g

t= time during which G occurred

A= test area, m^2

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SECTION 7

TEST RESULTS

A summary of test results is shown in Table 1 through Table 4. A full set of test data is presented in Appendix A.

Table 1 - Test Results for Thermal Transmission (ASTM C518-17)				
High Density Foam EPS Subfloor				
Specimen	Density (kg/m ³)	Thermal Conductivity (W/m·K)	Thermal Resistance at Test Thickness (RSI) (K·m ² /W)	Thermal Resistance at Test Thickness (R) (°F·ft ² ·h/Btu)
1	42.10	0.035	0.714	4.052
2	40.58	0.035	0.695	3.943
3	42.66	0.035	0.721	4.093
Mean		0.035	0.710	4.029
Mean Test Temperature, (°C)			23.3	
Mean Temperature Differential, (°C)			22.3	
Mean Test Thickness, (mm)			25.1	
Mean Sample Thermal Resistivity (r), (m·K/W)			28.30	
Mean Sample Thermal Conductance (C), (W/m ² ·K)			1.409	
Mean Thermal Resistance at 25mm (K·m ² /W)			0.708	
Mean Thermal Resistance at 1" (°F·ft ² ·h/Btu at 1")			4.085	

Table 2 - Test Results for Compressive Strength (ASTM D1621-16)		
Specimen Type	Compressive Strength (kPA)	Strain (%)
1 Support Point	193	10
4 Support Points	176	10

Table 3 - Test Results for Short-Term Compression Behavior (ASTM D6364-06 (2018))		
Specimen Type	Compressive Strength (kPA)	Strain (%)
5 support points along each major axis	168	6

Table 4 - Test Results for Water Vapor Transmission (ASTM E96/E96M-15)		
Property	Metric units	Imperial Units
Water Vapor Transmission	0.44 g/hr.m ²	0.63 grns/hr.ft ²
	10.58 g/day.m ²	15.13 grns/day.ft ²
Water Vapor Permeance	85.77 ng/Pa.s.m ²	1.50 perms
	0.07 per mm	1.74 per in.
Water Vapor Permeability	1.87 ng/Pa.s.m	1.74 Perm inch

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SECTION 8

CONCLUSION

Intertek has conducted testing for AGT Products Inc. on their EPS foam board subfloor insulation. Tests were performed in accordance with ASTM C518-17, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*, ASTM D1621-16, *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*, ASTM E96/E96M-16, *Standard Test Methods for Water Vapor Transmission of Materials*, and ASTM D6364 - 06(2018) *Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics*, on their High Density EPS Foam Board.

Test results are presented in Section 7 of this report.

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SECTION 9

APPENDIX A: TEST DATA



Total Quality. Assured.

Test: Thermal Transmission Properties
Date: 2019-07-26
Client: AGT Products Inc.
Product: High Density Foam EPS Subfloor
Test Method(s): ASTM C518-17 Test Method For Steady State Thermal Transmission Properties by Means of the Heat Flow Meter
Apparatus
Conditioning: 24 hours at a temperature of 23 ± 2°C and relative humidity of 50 ± 5%
Equipment: Netsch Heat Flow Meter 280-01-1237 Cal: Verify Before Use
 Caliper 280-01-0909 Cal. Due. Aug 23, 2019
 Scale 280-01-0832 Cal. Due Nov 6, 2019
 Conditioning Chamber 280-01-1201 Cal Due Sept 26, 2019

Project No: G104010084
Eng/Tech: B. Chung
Reviewer: V. Jones

Avg Thermal Resistance

4.085	°F·ft ² ·h/Btu at 1"
0.708	K·m ² /W at 25mm

	Test Date: 2019-07-26		Calibration File: 1450D211				Specimen ID: Specimen 1				Specimen ID: Specimen 2				Specimen ID: Specimen 3			
	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL	SI	IMPERIAL		
Density	kg/m ³	lbs/ft ³		156.39	9.76			42.10	2.63			40.58	2.53			42.66	2.66	
Thickness	mm	in.		1.0205	25.92	1.02		0.9952	25.28	1.00		0.9686	24.60	0.97		0.9953	25.28	1.00
Upper Plate (Tup)	°C	°F		94.01	34.45	94.01		94.01	34.45	94.01		93.97	34.43	93.97		94.03	34.46	94.03
Lower Plate (Tlp)	°C	°F		53.72	12.07	53.72		53.86	12.14	53.86		53.74	12.08	53.74		53.82	12.12	53.82
Differential (Tdelta)	°C	°F		40.29	22.38	40.29		40.15	22.31	40.15		40.23	22.35	40.23		40.21	22.34	40.21
Mean temp (Tm(ulp))	°C	°F		73.87	23.26	73.87		73.94	23.30	73.94		73.86	23.25	73.86		73.93	23.29	73.93
Rate Heat Flux	W/m ²	Btu/h·ft ²			28.132	8.924			31.256	9.909			32.162	10.202			30.986	9.824
Conductance	W/m ² ·K	Btu/h·ft ² ·°F			1.257	0.221			1.401	0.247			1.439	0.254			1.387	0.244
Thermal Resistance	K·m ² /W	°F·ft ² ·h/Btu	0.795547	4.515024	0.796	4.515	0.713929	4.051808	0.714	4.052	0.694806	3.943279	0.695	3.943	0.721193	4.093034	0.721	4.093
Thermal Conductivity	W/m·K	Btu·in./h·ft ² ·°F	0.032654	0.22639	0.033	0.226	0.035455	0.245814	0.035	0.246	0.035461	0.245853	0.035	0.246	0.035089	0.243275	0.035	0.243
Resistivity	K·mW	°F·ft ² ·h/Btu·in.			30.625	4.417			28.205	4.068			28.200	4.067			28.499	4.111
Resistance at 25 mm	K·m ² /W	°F·ft ² ·h/Btu			0.767	4.355			0.706	4.007			0.706	4.007			0.713	4.048
Test Duration	min	min		69				25				42				29		
Constant Mass %	%	%						0.00				0.00				0.00		
Calibr. Panel Conductivity					0.033	0.227												
Percent Error	%	%			-0.2	-0.2												
Verification Check:			OK															

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Total Quality. Assured.

Test: Compressive Strength

Date: 2019-07-26
Client: AGT Products Inc
Product: High Density Foam Subfloor (1 support point/specimen tested)
Specimen Thickness: 1.00 in 25 mm
Test Method(s): ASTM D1621-16 Method for Compressive Properties of Rigid Cellular Plastics
Conditioning: 40 hours at a temperature of 23 ± 2°C and relative humidity of 50 ± 5%
Crosshead Speed: 0.10 in/min 2.54 mm/min
Deformation at 10%: 0.10 in 2.54 mm

Project No: G104010084
Eng/Tech: B. Chung
Reviewer: V. Jones

Equipment:	<i>Loading:</i>	Instron 5569	Inventory no.	280-01-1214	Calibration Due Date:	04-Jan-20			
	<i>Load Cell:</i>	± 50kN #61768	Inventory no.	280-01-1214B	Calibration Due Date:	04-Jan-20			
	<i>Deflection:</i>	Table movement	Inventory no.	280-01-1214	Calibration Due Date:	04-Jan-20			
	<i>Mass:</i>	Mettler Scale	Inventory no.	280-01-0832	Calibration Due Date:	06-Nov-19			
	<i>Conditioning</i>	Chamber	Inventory no.	280-01-1201	Calibration Due Date:	26-Sep-19			
	<i>Dimensions:</i>	Vernier	Inventory no.	280-01-0909	Calibration Due Date:	23-Aug-19			
Sample	Length (mm)			Width (mm)			Thickness (mm)		
	L1	L2	L3	W1	W2	W3	D1	D2	D3
1	74.30	74.40	74.61	74.02	74.10	74.08	24.66	24.80	24.82
2	73.74	73.78	73.87	74.48	74.30	74.16	24.98	24.92	25.03
3	73.54	73.78	73.99	74.67	74.70	74.52	25.17	25.23	25.18
4	74.47	74.66	74.77	73.87	74.10	74.26	24.88	25.08	24.99
5	74.26	74.33	74.37	73.89	73.92	74.19	25.10	25.27	25.15
6	74.73	74.67	74.65	74.03	74.31	74.43	25.03	25.05	25.23
Sample	Load at 10% Deformation		Compressive Strength		Volume	Mass	Density		
	(lbs)	(N)	(kPa)	(psi)	(cm3)	(g)	(kg/m3)	(lbs/ft3)	
1	241	1073	194.7	28.2	136.5	5.90	43.2	2.70	
2	238	1057	192.7	27.9	137.0	5.96	43.5	2.72	
3	246	1095	198.8	28.8	138.7	6.05	43.6	2.72	
4	238	1059	191.5	27.8	138.1	5.89	42.6	2.66	
5	238	1059	192.6	27.9	138.4	5.93	42.8	2.67	
6	233	1036	186.8	27.1	139.2	5.99	43.0	2.69	
		Mean:	192.8	28.0			43.1	2.69	
		StdDev:	4	0.6			0.4	0.02	
		COV:	2.0%	2.0%			0.9%	0.9%	

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Total Quality. Assured.

Test: Compressive Strength

Date: 2019-07-26
Client: AGT Products Inc
Product: High Density Foam Subfloor (4 support points/specimen tested)
Specimen Thickness: 1.00 in 25 mm
Test Method(s): ASTM D1621-16 Method for Compressive Properties of Rigid Cellular Plastics
Conditioning: 40 hours at a temperature of 23 ± 2°C and relative humidity of 50 ± 5%
Crosshead Speed: 0.10 in/min 2.54 mm/min
Deformation at 10%: 0.10 in 2.54 mm

Project No: G104010084
Eng/Tech: B. Chung
Reviewer: V. Jones

Equipment:	<i>Loading:</i>	Instron 5569	Inventory no.	280-01-1214	Calibration Due Date:	04-Jan-20			
	<i>Load Cell:</i>	± 50kN #61768	Inventory no.	280-01-1214B	Calibration Due Date:	04-Jan-20			
	<i>Deflection:</i>	Table movement	Inventory no.	280-01-1214	Calibration Due Date:	04-Jan-20			
	<i>Mass:</i>	Mettler Scale	Inventory no.	280-01-0832	Calibration Due Date:	06-Nov-19			
	<i>Conditioning</i>	Chamber	Inventory no.	280-01-1201	Calibration Due Date:	26-Sep-19			
	<i>Dimensions:</i>	Vernier	Inventory no.	280-01-0909	Calibration Due Date:	23-Aug-19			
Sample	Length (mm)			Width (mm)			Thickness (mm)		
	L1	L2	L3	W1	W2	W3	D1	D2	D3
1	153.57	153.67	153.65	154.01	154.06	154.07	25.27	25.02	25.06
2	153.61	153.63	153.70	153.02	153.11	152.98	25.24	24.94	24.90
3	152.31	152.16	152.08	155.28	155.37	155.38	24.73	24.46	23.59
4	155.71	155.82	155.78	152.66	152.70	153.40	25.17	25.20	25.36
5	154.55	154.48	154.43	153.75	153.76	153.66	25.29	25.44	24.93
6	153.53	153.89	153.71	154.22	154.08	154.09	24.93	25.27	25.36
Sample	Load at 10% Deformation		Compressive Strength		Volume	Mass	Density		
	(lbs)	(N)	(kPa)	(psi)	(cm3)	(g)	(kg/m3)	(lbs/ft3)	
1	902	4010	169.5	24.6	594.4	24.40	41.0	2.56	
2	958	4262	181.3	26.3	588.5	24.69	42.0	2.62	
3	882	3923	166.0	24.1	573.5	22.91	39.9	2.49	
4	963	4282	179.8	26.1	601.3	25.19	41.9	2.62	
5	942	4192	176.5	25.6	598.9	24.71	41.3	2.58	
6	962	4280	180.7	26.2	596.7	25.45	42.7	2.66	
		Mean:	175.6	25.5			41.5	2.59	
		StdDev:	6	0.9			0.9	0.06	
		COV:	3.7%	3.7%			2.3%	2.3%	

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Total Quality. Assured.

Test: **Short-Term Compression Behavior**
 Date: 2019-08-12
 Client: AGT Products Inc
 Product: High Density Foam Subfloor (5 support points by 5 support points)
 Specimen Thickness: 1.00 in 25 mm
 Test Method(s): ASTM D6364-06(2018)
 Conditioning: ASTM D6364-06(2018)
 Crosshead Speed: 0.10 in/min 2.54 mm/min
 Deformation at 10%: 0.10 in 2.54 mm

Project No: G104010084
 Eng/Tech: B. Chung
 Reviewer: V. Jones

Equipment:	<i>Loading:</i>	Baldwin UTM	Inventory no.	280-01-0015	Calibration Due Date:	20-Jun-20
	<i>Mass:</i>	Mettler Scale	Inventory no.	280-01-0832	Calibration Due Date:	06-Nov-19
	<i>Conditioning</i>	Chamber	Inventory no.	280-01-1201	Calibration Due Date:	26-Sep-19
	<i>Dimensions:</i>	Vernier	Inventory no.	280-01-0909	Calibration Due Date:	23-Aug-19
	<i>Dimensions:</i>	Ruler	Inventory no.	280-01-1234	Calibration Due Date:	10-Apr-20

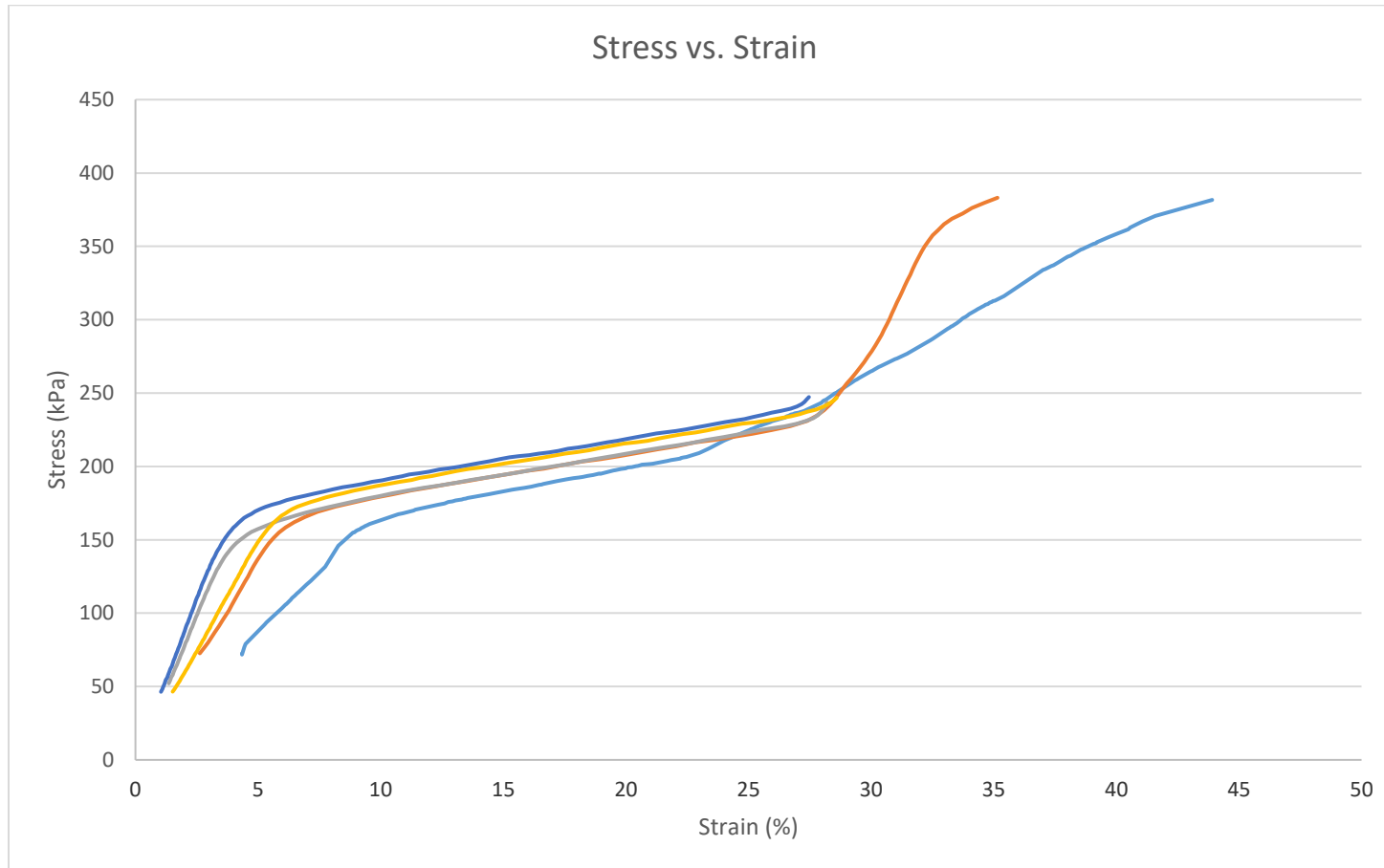
Sample	Length (mm)			Width (mm)			Thickness (mm)		
	L1	L2	L3	W1	W2	W3	D1	D2	D3
1	367	366	365	369	370	368	24.42	25.49	25.44
2	367	366	366	373	373	372	24.84	24.31	24.28
3	367	367	367	373	373	373	24.85	24.73	25.20
4	367	367	367	373	373	373	25.20	24.69	23.54
5	366	366	367	373	373	373	24.43	25.22	25.30

Sample	Load at Yield Point		Stress at Yield Point		Volume	Mass	Density	
	(lbs)	(N)	(kPa)	(psi)	(cm3)	(g)	(kg/m3)	(lbs/ft3)
1	5009	22280	165.0	23.9	3392.1	145.30	42.8	2.67
2	5159	22948	168.1	24.4	3341.6	137.24	41.1	2.56
3	4972	22116	161.6	23.4	3412.2	142.42	41.7	2.61
4	5343	23768	173.6	25.2	3350.6	141.09	42.1	2.63
5	5262	23408	171.3	24.8	3413.8	144.05	42.2	2.63
		Mean:	167.9	24.4			42.0	2.62
		StdDev:	5	0.7			0.6	0.04
		COV:	2.9%	2.9%			1.5%	1.5%

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Total Quality. Assured.

Test: Water Vapor Transmission
Date: 2019-08-02
Client: AGT Products Inc.
Product: High Density Foam Subfloor

Project: G104010084
Eng/Tech: B. Chung
Reviewer: V. Jones

Test Methods: ASTM E96/E96M-15, *Test Methods for Water Vapour Transmission of Materials*

Test Procedure: Dessicant Method

Conditioning: 23 ± 2°C and relative humidity of 50 ± 5%

Equipment: **Balance:** 280 01 0075 cal due July 24, 2020

Test Chamber: 280 01 1216 cal due Sept 26, 2019

Digital Calipers: 280 01 0082 cal due Aug. 23, 2019

Barometer: 273-01-0175 cal due May 2020

Measurement	Control	Sp. 1	Sp. 2	Sp. 3	Air Velocity Evaluation	
Thickness 1 (mm)	21.72	21.94	21.43	21.70	Initial Air Velocity	0.02 m/s
Thickness 2 (mm)	21.55	22.04	21.52	22.01	Final Air Velocity	0.02 m/s
Thickness 3 (mm)	21.23	22.06	21.53	22.38	Velocity Minimum Control Limit	0.02 m/s
Thickness 4 (mm)	21.34	21.97	21.56	22.20	Velocity Maximum Control Limit	0.3 m/s
Thickness 5 (mm)	21.48	21.99	21.39	21.81	Constants	
Desiccant Mass (g)		552.0	552.9	552.2		
Air Gap thickness (mm)	25.0	6.0	6.0	6.0	Standard Atmospheric Pressure	101325 Pa
Mask Width (mm)	2.0	2.0	2.0	2.0	Ideal Gas Constant for water	461.5 J/kg.K
Assembly height (mm)	25.0	25.0	25.0	25.0	Gas Constant for Dry Air	287.055 J/kgK
Assembly Diameter (mm)	228.4	228.0	227.9	229.1	Density of Material of Balance Weights	8000 kg/m ³

Time (mm/dd/yy hh:mm)	Temp. (°C)	RH (%)	Baro. Pressure (mm Hg)	Baro. Pressure (kPa)	Mass of Control (g)	Mass of Assembly 1 (g)	Mass of Assembly 2 (g)	Mass of Assembly 3 (g)
8-2-19 11:20	23.0	50.0	29.52	100.0	562.13	1116.12	1115.43	1119.18
8-6-19 11:20	23.0	50.0	29.08	98.5	562.14	1117.81	1117.29	1120.93
8-6-19 11:20	23.0	50.0	29.10	98.5	562.17	1117.93	1117.42	1121.08
8-7-19 11:20	23.0	50.0	29.14	98.7	562.15	1118.24	1117.77	1121.39
8-7-19 11:20	23.0	50.0	29.09	98.5	562.15	1118.42	1117.92	1121.53
8-8-19 11:20	23.0	50.0	28.99	98.2	562.16	1118.67	1118.23	1121.80
8-8-19 11:20	23.0	50.0	29.01	98.2	562.15	1118.77	1118.37	1121.91
8-9-19 11:20	23.0	50.0	29.16	98.7	562.15	1119.11	1118.68	1122.22

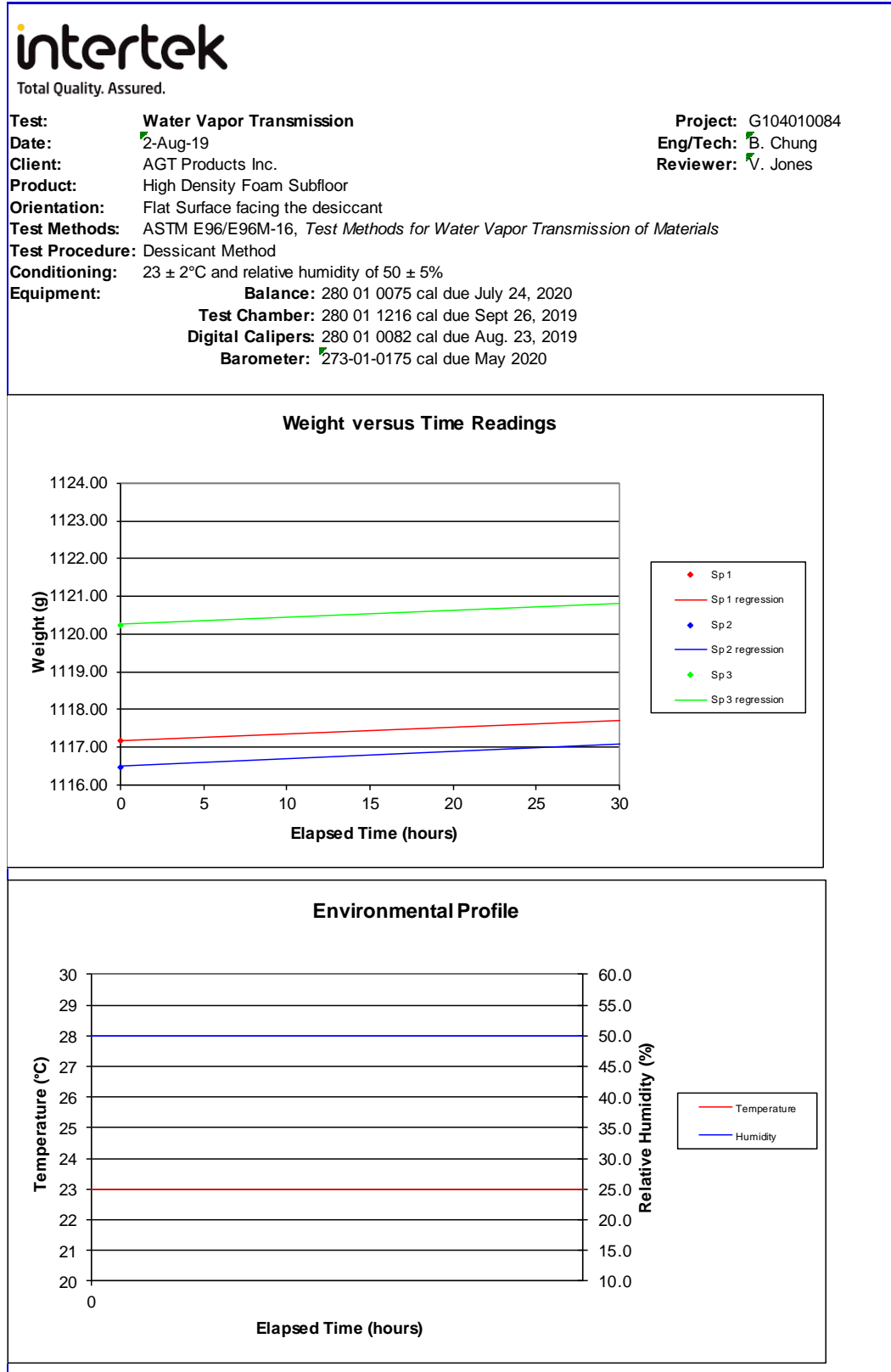
Elapsed Time (hours)	Density of Air (kg/m ³)
0.0	1.1759
96.0	1.1584
96.0	1.1592
120.0	1.1608
120.0	1.1588
144.0	1.1548
144.0	1.1556
168.0	1.1616

Control Change (g)	Corrected Control (g)	Corrected Assembly 1 (g)	Corrected Assembly 2 (g)	Corrected Assembly 3 (g)
0.000	563.254	1117.157	1116.467	1120.229
-0.007	563.248	1118.838	1118.318	1121.970
0.024	563.278	1118.928	1118.418	1122.090
0.005	563.260	1119.258	1118.787	1122.420
0.004	563.258	1119.438	1118.938	1122.560
0.010	563.264	1119.678	1119.238	1122.820
0.001	563.255	1119.788	1119.388	1122.940
0.006	563.261	1120.128	1119.697	1123.249

TEST REPORT FOR AGT PRODUCTS INC.

Report No.: 104010084TOR-001

Date: 08/21/19



TEST REPORT FOR AGT PRODUCTS INC.

Report No.: 104010084TOR-001

Date: 08/21/19



Total Quality. Assured.

Test: Water Vapor Transmission **Project:** G104010084
Date: 2-Aug-19 **Eng/Tech:** B. Chung
Client: AGT Products Inc. **Reviewer:** V. Jones
Product: High Density Foam Subfloor
Orientation: Flat Surface facing the desiccant
Test Methods: ASTM E96/E96M-16, *Test Methods for Water Vapour Transmission of Materials*
Test Procedure: Dessicant Method
Conditioning: 23 ± 2°C and relative humidity of 50 ± 5%
Equipment: **Balance:** 280 01 0075 cal due July 24, 2020
Test Chamber: 280 01 1216 cal due Sept 26, 2019
Digital Calipers: 280 01 0082 cal due Aug. 23, 2019
Barometer: 273-01-0175 cal due May 2020

Measurement	Specimen		
	1	2	3
Mean Barometric Pressure (kPa)	98.67	98.67	98.67
Mean Air Temperature (°C)	23.0	23.0	23.0
Mean Saturation Vapour Pressure ¹ (Pa)	2855	2855	2855
Mean Relative Humidity in chamber (%)	50.0	50.0	50.0
Relative Humidity in test dish (%)	0	0	0
Specimen Weight Change (g)	2.971	3.231	3.020
Moisture Gain of Dessicant (%)	0.5	0.6	0.5
Moisture Gain Control Limit (%)	10	10	10
Effective Test Dish Diameter (mm)	228.0	227.9	229.1
Effective Test Area (m²)	0.0408	0.0408	0.0412
Gradient of weight/time graph (g/hour)	0.0178	0.0195	0.0182
Specimen Mean Thickness (mm)	22.00	21.48	22.02
Uncorrected Water Transmission (g/hour.m²)	4.36E-01	4.78E-01	4.41E-01
Uncorrected Water Permeance (ng/Pa.s.m²)	8.49E+01	9.30E+01	8.58E+01
Permeability of Still Air (ng/Pa.s.m)	2.01E+02	2.01E+02	2.01E+02
Permeance of Still Air (ng/Pa.s.m²)	3.34E+04	3.34E+04	3.34E+04
Vapor Resistance of Still Air (m².s.Pa/kg)	2.99E+07	2.99E+07	2.99E+07
Surface Resistances (m².s.Pa./kg)	4.00E+07	4.00E+07	4.00E+07
Total Still Air and Specimen Surface (m².s.Pa/kg)	6.99E+07	6.99E+07	6.99E+07
Four Times Test Area Divided By Perimeter (m)	2.28E-01	2.28E-01	2.29E-01
Excess Water Transmission Due to Mask (%)	3.01	3.00	3.00
Excess Water Permeance Due to Mask (ng/Pa.s.m²)	2.56E+00	2.79E+00	2.57E+00
Mask-corrected Water Permeance (ng/Pa.s.m²)	8.23E+01	9.02E+01	8.32E+01
Water Vapour Transmission (g/hour.m²)	4.26E-01	4.67E-01	4.30E-01
Water Vapour Permeance (ng/Pa.s.m²)	82.82	90.78	83.69
Water Vapour Permeance (perms)	1.45	1.59	1.46
Water Vapour Permeability (ng/Pa.s.m)	1.82	1.95	1.84
Water Vapour Permeability (Perm inch)	1.67	1.88	1.69

¹Estimated by the Clausius-Clapeyron equation

Test Result Summary	Metric units	Imperial Units
Water Vapor Transmission	0.44 g/hr.m²	0.63 gms/hr.ft²
	10.58 g/day.m²	15.13 gms/day.ft²
Water Vapor Permeance	85.77 ng/Pa.s.m²	1.50 perms
	0.07 per mm	1.74 per in.
Water Vapor Permeability	1.87 ng/Pa.s.m	1.74 Perm inch



Total Quality. Assured.

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TEST REPORT FOR AGT PRODUCTS INC.

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SECTION 10
REVISION LOG

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