BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)

DEPARTMENT OF CIVIL ENGINEERING

Mobile: 01819 557 964; PABX: 966 5650-80 Ext. 7226; www.buet.ac.bd/ce/

BRTC Bureau of Research, Testing & Consultation

STRENGTH OF MATERIALS LABORATORY

BRTC No. : **1102-71844 /22-23/CE; Dt: 27/9/2022**

Sent by : Project Manager, Union Mercantile Ltd.

Ref. No. : Letter; Dt: 27/9/2022

Project : Reliance 718 MW Combined Cycle Power Plant Project, Maghnaghat, Narayanganj

Sample : **Bitutherm Extruded Polystyrene Thermal Insulation Board, 50 mm Thick (Sample 1)**

Date of Test : 20/10/2022

TEST RESULTS

1. Dimensions

Length	1244.5	mm
Width	597.5	mm
Thickness	48.5	mm

2. Density of the Board (ASTM C 1622-03)

Sl. No	Specimen Dimension	Specimen Volumn	Specimen Weight	Density	Average Density
	mm	mm^3	gm	kg/m^3	kg/m^3
1	150.6×150.2×48.8	1103495	38.76	35.12	
2	151.9×149.5×49.2	1117272	39.52	35.37	35.25
-	-	-	-	-	

1

PEBSnWfHL

Department of Civil Engineering, BUET, Dhaka-1000, Bangladesh

Countersigned by :

Dr. A. B. M. Badruzzaman
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Test Performed by :

24/10/2022

Dr. Shameem Ahmed
Assistant Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Important Notes: Samples as supplied to us have been tested in our laboratory. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples are sent in a secure and sealed cover/packet/container under signature of the competent authority. In order to avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by duly authorized person, and not by the Contractor/Supplier.

AL HOTY- STANGER	BITUMAT CO. LTD.	Date: 16th Jan. 2010
		TWO No.: 20100333
	P.O. BOX 7487	Inv.: To Follow
		Report No.: 40476
	DAMMAM 31462	Page 1 of 1

"TEST REPORT ON EXTRUDED POLYSTYRENE SAMPLE"

Sample Reference	:	EXTRUDED POLYSTYRENE BOARD
Sample Identification	:	"BITU THERM" 50mm Size : 500 x 500mm Density : 32 – 35 Kg/m^3
Sampled by	:	Client
Date Received	:	06.01.2010
AHS Sample No.	:	20100333 / 001
Required Test	:	Density, Thermal conductivity, Compressive strength and Water absorption.

RESULTS

TESTS	METHOD	RESULTS
Density, Kg/m^3	ASTM D-1622	33.61
Water Absorption by Submersion, vol.%	ASTM D-2842	0.041
Compressive Strength @ 10% deflection, psi (kPa)	ASTM D-1621	76 (516.38)
Thermal Conductivity	ASTM C518-04	*(See attached 'B')*

A. N. M OMAR, *M. Sc.*
Assistant Manager, Materials Analysis Dept.
for AL HOTY-STANGER LTD. CO.

NAEEM ZAIDI, *M. Sc.*
Manager, Materials Analysis Dept.
Test Method Variation: NONE

AL HOTY- STANGER

THERMAL RESISTIVITY TEST

METHOD : ASTM C 518-04

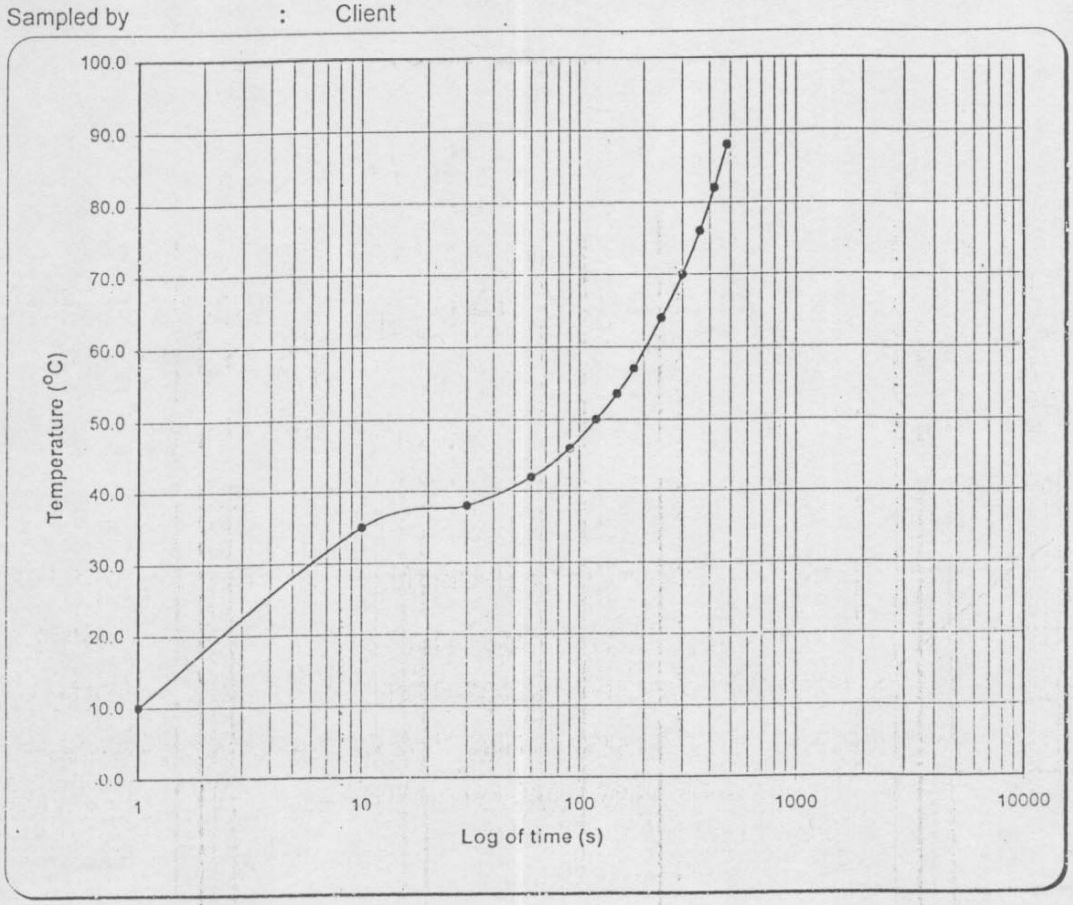
CLIENT: BITUMAT CO. LTD.

Date: 16.01.2010

Sample # 2010-0152/001

SHEET NO.B

Sample Description	:	EXTRUDED POLYSTERENE
Location	:	Bitumat Co. Ltd., Dammam
Date Sample received	:	06.10.2010
Sampled by	:	Client



Gradient Temperature	=	36.00 °C
"g" Factor	=	10
Thermal Conductivity	=	0.028 (W/m-K)
Thermal Resistance	=	1.79 K-m^2 /W

K.H.ABDUL NESSIR
Assistant Manager
Construction Materials Dept.
For AL HOTY STANGER LTD. CO., Khobar

AL HOTY-STANGER LTD. CO. Concrete & Soils Dept. C.R. 2051002999

pp ABDUL NAEEM
Lab Supervisor

الهيئة السعودية للمواصفات والمقاييس والجودة

Saudi Standards, Metrology and Quality Organization

Riyadh Address: Al Muhammadiyah - in front of King Saud University, PO. B 3437 Riyadh 11471, KSA.
Jeddah Address: Al Aziziyah, As Shafa Street, PO. B 9485 Jeddah 21413, KSA.
Dammam Address: Coastal Al Kohabar, King Faisal RD, PO. B 1893 Dammam 31441, KSA

Phone: 920009085 Fax: 00966 11 4520086 Email: info@saso.gov.sa

الاعتماد السعودي
Saudi Accreditation
Testing N-T-00163

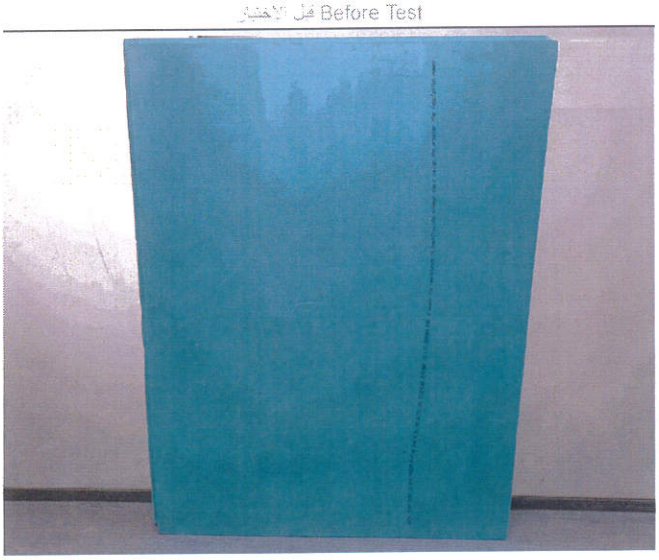
N-T-00163
GDL-FIZ-42061 68794 v1
06-25

Test Report تقرير اختبار

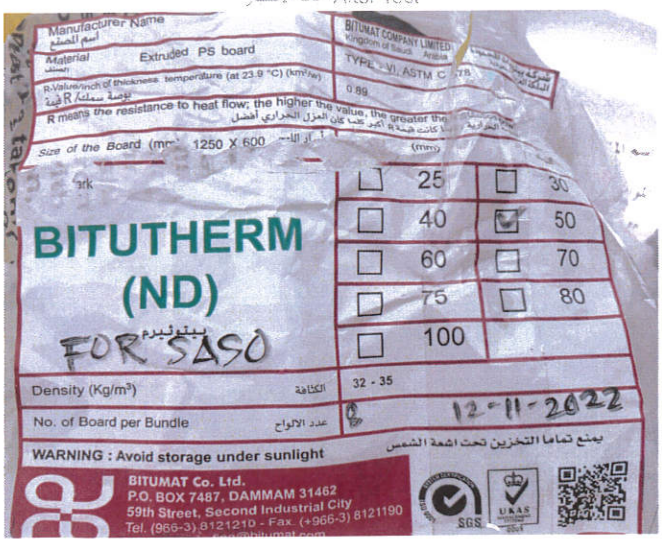
اسم المختبر - الادارة: Laboratory - Department name	مختبر العزل الحراري - إدارة مختبرات المنطقة الصناعية الأولى
اسم و بيانات المستفيد Customer Name / Details	شركة المنتجات البيتومينية المحدودة
عنوان المستفيد Customer Address	
رقم الطلب Order No	GDL-FIZ-42061
تاريخ استلام عينات الاختبار: Date of Receipt of test item	24/11/2022
تاريخ اكتمال الاختبار Date of Test completion date	04/12/2022
عدد صفحات التقرير: No of Pages of Report	5
اسم و وصف *و حالة عينات الاختبار: Name,Identity and *condition of test item	(VI) عازل حراري بوليستيرين

رقم العينة Sample No	68794
تاريخ الاصدار: Issue Date	04/12/2022
التعديلات: Amendment	لايوجد

Before Test قبل الاختبار



After Test* بعد الاختبار



بعضنا لبعض

Seal	Published Date	Person in Charge of Report	Approval
	04/12/2022	م/ محمد ضيف الله العمري	عبد الله محمد العطاس

العميل	:	شركة المنتجات البيتومينية المحدودة	تاريخ دخول العينة للمختبر	:	24/11/2022
نوع المنتج	:	عازل حراري بوليستيرين (VI)	الغرض من الاختبار	:	اختبارات خاصة
نوع العينة	:	عازل	الصانع	:	شركة المنتجات البيتومينية المحدودة
التكلفة	:	4,400.00	بلد المنشأ	:	SAUDI ARABIA
عدد الحاويات	:	1	القياس	:	125X60X5 cm
رقم السداد	:	101144402353084			
رقم الخطاب الوارد	:	بدون			
نوع	:	لوح- بثق -VI			

الظروف البيئية *Environmental Conditions

درجة الحرارة Temperature (°C)	الضغط Pressure	الرطوبة Humidity (%)
23°C	-	50%

م	اسماء الاختبارات Test Name	طرق الاختبار Test Method	الارتياب الموسع Expanded Uncertainty U	النتيجة Result	وحدة القياس SI Unit	حدود المطابقة Conformity Limit (T_L, T_U)	قرار المطابقة Conformity Assessment	مدى التطابق Conformity Probability, P_c
1	البيانات الايضاحية	SASO ASTM C578	-	PASS		-	مطابق Accept	-
2	الكثافة	ASTM D1622	-	33.43	Kg / m 3	-	مطابق Accept	-
3	مقاومة الانضغاط عند 10% من السمك	ASTM C165	-	353.19	kPa	-	مطابق Accept	-
4	المقاومة الحرارية عند (24C,2.54cm)	ASTM C 518	-	0.946	m2*K/W	-	مطابق Accept	-
5	قوة الثني	ASTM C203	-	488.8	kPa	-	مطابق Accept	-
6	امتصاص الماء	ASTM C272	-	0.19	%	-	مطابق Accept	-
* 7	مؤشر الاكسيجين	ASTM D2863	-	28.792	%	-	مطابق Accept	-
8	التفاوت في الطول	ASTM C303	-	-0.4	mm/m	-	مطابق Accept	-
9	التفاوت في العرض	ASTM C303	-	-0.83	mm/m	-	مطابق Accept	-
10	التفاوت في السماكة	ASTM C303	-	1.95	mm/m	-	مطابق Accept	-

* "marked testing are included within accreditation scope"

* "الاختبارات الموضحة مدرجة ضمن مجال الاعتماد"

م	اسماء الاختبارات Test Name	طرق الاختبار Test Method	الارتياب الموسع Expanded Uncertainty U	النتيجة Result	وحدة القياس SI Unit	حدود المطابقة Conformity Limit (T_L, T_U)	قرار المطابقة Conformity Assessment	مدى التطابق Conformity Probability, Pc
11	ثبات (70C,97% RH) الأبعاد للطول عند	ASTM D2126	-	1.89	%	-	مطابق Accept	-
12	ثبات (70C,97% RH) الأبعاد للعرض عند	ASTM D2126	-	0.30	%	-	مطابق Accept	-
13	ثبات (70C,97% RH) الأبعاد للسماكة عند	ASTM D2126	-	-0.93	%	-	مطابق Accept	-
14	ثبات الأبعاد للطول (-40C) عند	ASTM D2126	-	-0.37	%	-	مطابق Accept	-
15	ثبات الأبعاد (-40C) للعرض عند	ASTM D2126	-	-0.19	%	-	مطابق Accept	-
16	ثبات الأبعاد (-40C) للسماكة عند	ASTM D2126	-	-1.09	%	-	مطابق Accept	-

* "marked testing are included within accreditation scope"

* "الاختبارات الموضحة مدرجة ضمن مجال الاعتماد"

*الآراء والتفسيرات: لايوجد

Opinions & Interpretation

*مرفق

*قرار تقييم مطابقة المنتج:

Conformity Assessment

- نتائج الاختبارات التي أجريت على العينة مطابقة للمواصفة القياسية المعتمدة SASO ASTM C578

- حساب مدى التطابق في كل اختبار موضح بالجدول.

The conformity probability for each test is presented in the table.

*وصف قاعدة قرار تقييم المنتج1:

*Definition of Decision Rule1

- تم تطبيق قاعدة القرار و حساب مدى تطابق المنتج طبقا للمواصفة الدولية ايزو 4-98. تعتبر العينة مطابقة للمواصفة اذا تساوى او تجاوز مدى التطابق 50 %

The conformity assessment and the evaluation of conformity probability were performed in accordance with ISO/IEC Guide 98-4. The sample is considered in conformity with the specification if P_C >= 50 %.

- حدود المطابقة لكل اختبار موضحة بالجدول.

The tolerance limits for each test are given in the table.

- يمكن حساب المخاطر في قبول العينة لكل اختبار باستخدام[100-P_C]%

The risk assessment in accepting the test item for each test can be evaluated as [100-P_C]%

- يتم حساب مدى التطابق للاختبارت الكمية فقط. الاختبارات الكيفية يتم كتابة الملاحظات - ان وجدت - على عينة الاختبار في هذا الجزء من التقرير.

The conformity probability is evaluated only for quantitative tests. For qualitative test, the appropriate notes/recommendations (if any) are given in this part of the report.

*الاضافات او الانحرافات او الاستثناءات عن طريقة الاختبار:

*Additions to, deviations, or exclusions from the test method

لا يحق لصاحب العينة المطالبة بالعينات الاتلافية والعينات التي تجاوزت فترة حفظها اكثر من (90 يوم من تاريخ اصدار هذا التقرير

The sample owner isn't entitled to claim destructive samples and samples whose holding period exceeded 90 days from date of issuance of this report.

تم اجراء جميع الاختبارات بمقر الهيئة السعودية ما عدا الاختبارات الموضحة بعلامة "+" تم اجراؤها من طرف المقاول من الباطن.

All tests were conducted at SASO, except tests marked with "+" were subcontracted.

تم حساب الارتياب طبقا للمواصفة الدولية ايزو 3-98 مع استخدام معامل تغطية (k=2)

The evaluation of uncertainty was carried out in accordance with ISO Guide 98-3:2008 (GUM-1995) with coverage factor k=2

معامل القدرة الحسابية (C_p) لجميع مختبرات الهيئة السعودية للمواصفات لا يقل عن 1.33 تطبيقا لتوصيات المواصفة الدولية (ISO 7870-2)

The measurement capability indexes (C_p) for all SASO laboratories are not less than 1.33 following the recommendations of ISO 7870-2.

1. To view more about the decision rule used to Conformity of sample with requirements or specifications, Please enter to the link

1. للاطلاع اكثر عن قاعدة القرار المستخدمة في مدى مطابقة العينة للمتطلبات، ارجو الدخول على الرابط التالي

End of the report نهاية التقرير

MTC-BND5-08/24-008

TEST CERTIFICATE

BITUTHERM (ND) 5cm

We hereby certify that the information given below is the result of tests carried out on two (2) samples of **Bitutherm (ND) 5cm** manufactured in our Dammam factory on 11.07.2024 under the production batch no. 10102548 and tested in our QC Lab in accordance with *ISO 9001:2015*.

Characteristics	Unit Measure	Average Results	Test Method
1. Colour	Visual	Light Green	-
2. Thickness	mm	50.02	ASTM C-578
3. Density	Kg/m³	33.84	ASTM D-1622
4. Compressive Strength @ 10% Deflection	kPa	308	ASTM D-1621
5. *Thermal Conductivity	W/m-k	0.029	ASTM C-518-98
6. Water absorption @ 24 hours	%, Vol.	0.25	ASTM D-2842
7. *Water Vapor Permeability	Perm-inch	0.55	ASTM E – 96

* Typical

For
Bitumat Co. Ltd.
Issue Date: 07.08.2024

(Company Stamp)

(Quality Control Manager)

AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL22154
		Report No. : KHSPL22154- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 18-09-2022 11:36 AM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL22154
Sample Description : BITUTHERM(ND) 5cm VI - XPS BOARD
Company : BITUMAT CO. LTD.
Test Required : Compressive Resistance (SASO ASTM C578-19/ASTM D1621-16)
Testing Date : 15-09-2022 Product Lot / Batch No. : 10101963(07082022)
Sample Delivered By : Client
Project : NA

TEST RESULT

Test Property		Reading 1	Reading 2	Reading 3	Reading 4	Reading 5	Average
Compressive Resistance at 10% deformation	kPa	444.49	409.30	429.50	445.98	447.46	435.35
Load	N	4444.93	4093.02	4295.04	4459.80	4474.64	4353.49

Test Parameters	Values
Specimen dimensions (length x width x thickness)	100x100x50 mm
Crosshead speed	5 mm/min
Room atmospheric conditions - Temperature	23 °C
Room atmospheric conditions - Humidity	49 %
Standard deviation	14.53

Note :

AHSL certifies that the above test was carried out in accordance with specific standard.

Tested by

HASAN SHAWKAT, B.E

Senior Specialist Engineer
Specialist Department
For AL HOTY - STANGER LTD. CO.

AL HOTY-STANGER LTD. CO. C.R. 2051002999 SPECIALIZED TESTING SERVICES Independent Laboratories & Materials Testing

Verified by

SAYYED ASJAD HUSSAIN, - MBA,DPE
Department Head
Specialist Department

Test Method Variation: NONE

F-5

AL HOTY-STANGER LTD. CO.
INDEPENDENT LABORATORIES & MATERIALS TESTING
P.O. BOX 3072 Al-Khobar 31952 - Tel: (013) 889 1000 / 808 4317 / 808 7517 / 808 7518 / 808 5217 Fax: (013) 898-1466
Jubail P.O. 467 - Tel: (013) 341-6791 Fax : (013) 341-0642 - Hofuf P.O. Box 2752 - Tel: (013) 586-3210 Fax: (013) 587-1420 - Riyadh P.O. Box 7359 - Tel: (011) 478-4292 Fax: (011) 479-2058
Jeddah P.O. Box 8129 - Tel: (012) 660-1924 Fax: (012) 665-6742 - Yanbu - P.O. Box 30312 - Tel: (014) 322-5495 Fax: (014) 391-7471 - Jazan - Tel : (017) 334-0518

AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL22154
		Report No. : KHSPL22154- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 18-09-2022 11:36 AM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL22154
Sample Description : BITUTHERM(ND) 5cm VI - XPS BOARD
Company : BITUMAT CO. LTD.
Test Required : Thermal Resistance (SASO ASTM C578-19/ASTM C177-19)
Testing Date : 15-09-2022 Product Lot / Batch No. : 10101963(07082022)
Sample Delivered By : Client
Project : NA

TEST RESULT

Test Property	Test Temperature (°C)	Sample thickness (mm)	Thermal conductivity (W/m.K)	Thermal resistance ($K.m^2/W$)
Reading 1	24.10	50.00	0.029	1.694

Test Parameters	Values
Apparatus	TLP 500 -GX1
Dimension of the metered section	500 X 500 mm
Direction of heat transfer	Top to Bottom
Thickness of specimen	50 mm
Temperature of cold surface	19.3 °C
Temperature of Hot surface	28.8 °C
Heating power	0.507 W
Specimen dimension	500x500x50 mm
Mass of the specimen	435.8 g
Density of the specimen	34.86 kg/m^3

Note :

AHSL certifies that the above test was carried out in accordance with specific standard.

Tested by

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Test Method Variation: NONE

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AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL22154
		Report No. : KHSPL22154- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 18-09-2022 11:36 AM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL22154
Sample Description : BITUTHERM(ND) 5cm VI - XPS BOARD
Company : BITUMAT CO. LTD.
Test Required : Flexural Strength (SASO ASTM C578-19/ASTM C203-05a(2017))
Testing Date : 15-09-2022 Product Lot / Batch No. : 10101963(07082022)
Sample Delivered By : Client
Project : NA

TEST RESULT

Test Property		Reading 1	Reading 2	Reading 3	Reading 4	Reading 5	Average
Flexural Strength	kPa	668.38	737.92	676.43	731.37	751.86	713.19
Breaking load	N	111.40	122.99	112.74	121.89	125.31	118.87

Test Parameters	Values
Test method & procedure	Method I procedure B
Depth x Width of the specimen	25x100 mm
Support span length	250 mm
Support span-to-depth ratio (L/d ratio)	10
Support span-to-width ratio (L/b ratio)	2.5
Width-to-depth ratio (b/d ratio)	4
Rate of cross head speed	42 mm/min
Average deflection corresponding to maximum force	0.032 %
Standard deviation - Flexural Strength	34.04
Standard deviation - Breaking load	5.67
Room atmospheric conditions - Temperature	23 °C
Room atmospheric conditions - Humidity	49 %

Note :

AHSL certifies that the above test was carried out in accordance with specific standard.

Tested by

HASAN SHAWKAT, B.E
Senior Specialist Engineer
Specialist Department
For AL HOTY - STANGER LTD. CO.

AL HOTY-STANGER LTD. CO. C.R. 2051002999 SPECIALIZED TESTING SERVICES Independent Laboratories & Materials Testing

Verified by

SAYYED ASJAD HUSSAIN, - MBA,DPE
Department Head
Specialist Department

Test Method Variation: NONE

F-5

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AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL22154
		Report No. : KHSPL22154- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 18-09-2022 11:36 AM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL22154
Sample Description : BITUTHERM(ND) 5cm VI - XPS BOARD
Company : BITUMAT CO. LTD.
Test Required : Water Absorption, Volume % (SASO ASTM C578-19/ASTM C272/C272M-18)
Testing Date : 15-09-2022 Product Lot / Batch No. : 10101963(07082022)
Sample Delivered By : Client
Project : NA

TEST RESULT

Test Property		Reading 1	Reading 2	Reading 3
Conditioned dry weight	g	160.300	160.800	155.200
Wet weight	g	169.320	170.020	164.390
Density	kg/m³	34.80	34.35	34.73
Increase in weight	%	5.620	5.730	5.920
Water absorption (% by volume)	%	0.195	0.196	0.205
Average	%		**0.199**	

Test Parameters	Values
Specimen dimensions	301x299x50 mm
Conditioning procedure	Specimen dried in oven for 24 hours at 50 °C
Test type	Test Method A
Test duration	24 hours
Test temperature	23 °C
Standard deviation	0.020
Coefficient of variation	0.104

Note :

AHSL certifies that the above test was carried out in accordance with specific standard.

Tested by

HASAN SHAWKAT, B.E
Senior Specialist Engineer
Specialist Department
For AL HOTY - STANGER LTD. CO.

AL HOTY-STANGER LTD. CO. C.R. 2051002999 SPECIALIZED TESTING SERVICES Independent Laboratories & Materials Testing

Verified by

SAYYED ASJAD HUSSAIN, - MBA,DPE
Department Head
Specialist Department

Test Method Variation: NONE

F-5

AL HOTY-STANGER LTD. CO.
INDEPENDENT LABORATORIES & MATERIALS TESTING
P.O. BOX 3072 Al-Khobar 31952 - Tel: (013) 889 1000 / 808 4317 / 808 7517 / 808 7518 / 808 5217 Fax: (013) 898-1466
Jubail P.O. 467 - Tel: (013) 341-6791 Fax : (013) 341-0642 - Hofuf P.O. Box 2752 - Tel: (013) 586-3210 Fax: (013) 587-1420 - Riyadh P.O. Box 7359 - Tel: (011) 478-4292 Fax: (011) 479-2058
Jeddah P.O. Box 8129 - Tel: (012) 660-1924 Fax: (012) 665-6742 - Yanbu - P.O. Box 30312 - Tel: (014) 322-5495 Fax: (014) 391-7471 - Jazan : Tel.: (017) 334-0518

AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL22154
		Report No. : KHSPL22154- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 18-09-2022 11:36 AM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL22154
Sample Description : BITUTHERM(ND) 5cm VI - XPS BOARD
Company : BITUMAT CO. LTD.
Testing Date : 15-09-2022
Sample Delivered By : Client
Required Test : Density (SASO ASTM C578-19/ASTM D1622-20)

TEST RESULT

Sample No`		1	2	3
Sample dimensions (lxwxt)	cm	10.2x10.1x5.1	10.2x10.1x5.2	10x10.1x5.1
Volume	cm^3	525.00	535.00	525.00
Conditioned weight	g	18.200	18.400	18.100
Density	kg/m^3	34.640	34.340	34.640

Average	kg/m^3	**34.540**
Standard Deviation		**0.173**

Test Conditions :

Test Parameters	Values
Room atmospheric conditions - Temperature	23 °C
Room atmospheric conditions - Humidity	49 %

Note :

AHSL certifies that the above test was carried out in accordance with specific standard.

Tested by

HASAN SHAWKAT, B.E

Senior Specialist Engineer
Specialist Department
For AL HOTY - STANGER LTD. CO.

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AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL2287
		Report No. : KHSPL2287- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 19-05-2022 04:49 PM
		Invoice No. :
	Test Report	Ref. No. :

Sample No.	: KHSPL2287
Sample Description	: XPS BOARD -BITUTHERM (ND) 5CM BATCH NO : 10101906 (13052022)
Company	: BITUMAT CO. LTD.
Test Required	: Thermal Resistance (SASO ASTM C578-19/ASTM C177-19)
Testing Date	: 19-05-2022
Sample Delivered By	: client
Project	: NA

TEST RESULT

Test Property	Test Temperature (°C)	Sample thickness (mm)	Thermal conductivity (W/m.K)	Thermal resistance (K.m²/W)
Reading 1	24.10	51.00	0.02776	1.872

Test Parameters	Values
Apparatus	TLP 500-GX1
Dimension of the metered section	500 X 500 mm
Direction of heat transfer	Bottom to Top Heat Transfer
Thickness of specimen	52 mm
Temperature of cold surface	19.3 °C
Temperature of Hot surface	28.9 °C
Heating power	0.460 W
Specimen dimension	502 X 502 X52 mm
Mass of the specimen	440.7 g
Density of the specimen	34.28 kg/m³

Note :

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Test Method Variation: NONE

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AL HOTY-STANGER	CLIENT: BITUMAT CO. LTD.	TWO No. : KHSPL2287
		Report No. : KHSPL2287- R1-V1
	31462, Dammam, Saudi Arabia	Report Date : 19-05-2022 04:49 PM
		Invoice No. :
	Test Report	Ref. No. :

Sample No. : KHSPL2287
Sample Description : XPS BOARD -BITUTHERM (ND) 5CM BATCH NO : 10101906 (13052022)
Company : BITUMAT CO. LTD.
Test Required : Flexural Strength (SASO ASTM C578-19/ASTM C203-05a(2017))
Testing Date : 19-05-2022
Sample Delivered By : client
Project : NA

TEST RESULT

Test Property		Reading 1	Reading 2	Reading 3	Reading 4	Reading 5	Average
Flexural Strength	kPa	762.99	767.84	839.18	751.37	720.60	768.40
Breaking load	N	127.16	127.97	139.86	125.22	120.10	128.06

Test Parameters	Values
Test method & procedure	Method I Procedure B
Depth x Width of the specimen	25.4 X100 mm
Support span length	250 mm
Support span-to-depth ratio (L/d ratio)	10
Support span-to-width ratio (L/b ratio)	2.5
Width-to-depth ratio (b/d ratio)	4
Rate of cross head speed	42 mm/min
Average deflection corresponding to maximum force	3.30 %
Standard deviation - Flexural Strength	43.62
Standard deviation - Breaking load	7.27
Room atmospheric conditions - Temperature	23 °C
Room atmospheric conditions - Humidity	48 %

Note :

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