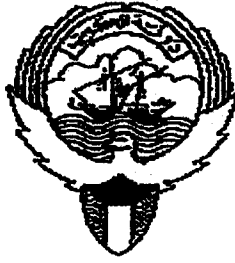


Product Test Certificates

Test Certificates

2004



Test On Water Proofing
Membrane (Awazel DS 40)

APP. NO. :1824/2004

APPLICANT: Kuwait Awazel Co.

CONTRACT :--

DATE:09/08/2004

ON : 21/07/2004

LAB. No: 258/2004

*Testing of stability under exposure to heat (100 C°)
(acc to DIN 52123) / 85.

Two specimens , measuring 10 cm × 10 cm were exposed for two hours
in an oven of 100 °C .

Test observation : No sign of slipping or spreading .

* Softening point according to ASTM D 36 = 158.1 C°

Remarks : Result represents only the samples submitted for tests.

DIRECTOR, CONST LABS DEPARTMENT



**TEST FOR BITUMINOUS ROOFING MEMBRANE
AS PER Din 52123/85 & ASTM D 4073/94**

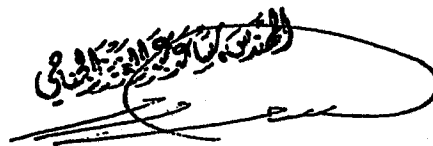
App. No.	1824-2004	Date:	14-8-2004
Applicant	AWAZEL AL-KUWAIT CO. FOR BUILDING MATERIALS .	Date on:	21-7-2004
Contract	—		
Description of Sample	Bituminous Roofing Membrane (4mm) (D S 40)		

Tests :

SL NO.	TEST	Standard	Average	Unit
1	Total Thickness	-	4.00	mm
2	Width of Specimens.	-	50.00	mm
3	Average Tensile force of 5 Specimens.	Long.	910	N
		Trans.	652	N
4	Average Elongation of 5 Specimens.	Long.	49	%
		Trans.	52	%
5	Tensile Tear Strength	Long.	570.9	N
		Trans.	437.7	N

REMARK:

ALL RESULTS REPRESENT SAMPLE SUBMITTED FOR TEST ONLY


DIRECTOR, CONST LABS DEPARMENT

Test Certificates

2005



Report: CETC 435/03/05
Date : 05/04/05
Page: 1/2

To : وزارة الأشغال العامة
From : Civil Engineering Testing Center (CETC)
College of Engineering
Kuwait University

Dear Sir

We here by report the results requested by you according to the following information :

REPORT : CETC 435/03/05
TEST : Water-Proofing Membrane
TEST CODE : N. A.
STANDARD : As shown in the Report
CLIENT NAME : شركة خالد الخرافي
TESTED FOR : وزارة الأشغال العامة / المكتب الاستشاري الهندسي الصناعي
PROJECT NAME : إنشاء وإصلاح وصيانة المباني الواقعة في المنطقة
CONTRACT NO. : 74 / م.م.خ
NO OF PAGES : 2

SAMPLES DELIVERED, STATE AND NUMBER:
One roll in good condition

INFORMATION PROVIDED BY SUPERVISION:
N.A.

Best regards

Eng. Moh'd Rabi Morelly
CETC Manager





Test Report Water-Proofing Membrane

1-Thickness (DIN 52123/85)

Thickness = 1.15 mm

2-Weight/m² (ASTM D-146-03)

Weight = 1.46 kg/m²

3-Water Absorption (ASTM D-578-89)

Sample No.	Absorption (%)
1	0.095
2	0.091
3	0.098
Avg	0.094

4-Tensile Strength And Elongation (ASTM D 146-03)

Sample No.	Tensile Strength (N/cm ²)		Elongation (%)	
	Longitudinal	Transverse	Longitudinal	Transverse
1	1173.2	765.2	57.9	52.4
2	1138.7	755.3	50.1	54.3
3	1149.4	769.4	58.7	54.9
4	1120.9	796.8	55.1	56.4
5	1060.2	739.7	53.1	56.4
Avg	1128.4	757.3	55.8	56.3

5-Tensile / Tear Resistance (ASTM D-4873-94 (2003))

Sample No.	Tensile / Tear Resistance (N)	
	Longitudinal	Transverse
1	591.9	389.3
2	562.6	500.7
3	569.8	461.2
Avg	574.8	450.4



6-Polyester Reinforcement (ASTM D-146-03)

Weight/m² = 4566 g/m²

Extracted Bitumen content = 4286 g/m²

Unextracted materials (Polyester Reinforcement & Others) = 280 g/m²

7-Resistance To Heat (DIN 52123-85):

Resistance To Heat Up to 100 °C for 2 hours without any effect

Kuwait University, the College of Engineering & Petroleum, and the Civil Engineering Testing Center will not be held liable for any consequent actions based upon the results so obtained in this report. Test results represent the samples submitted for testing only. The CETC assumes that samples supplied by clients are prepared according to the requirements of the relevant technical procedures.

Ministry of Public Works
 Govnt. Center For Testing & Research
 Cons. Labs. Department
 Kaifan - Kuwait
 Tel: 4842529 - 4840381 (1500) Fax: 4841931



وزارة الأشغال العامة
 المركز الحكومي للفحوصات و المختبرات
 إدارة مختبرات الإنشاءات
 الكويت - كيفان
 تلفون: 4841931 - 4840381 (1500) فاكس: 4842529

**TEST FOR BITUMINOUS ROOFING MEMBRANE
 AS PER DIN 52123/89 & ASTM D 4073/94**

App. No.	5766-2005	Date:	14/09/2005
Applicant	MINISTRY OF EDUCATION	Date on:	08/08/2005
Contract	40-45-2004/2005		
Description of Sample	THIC. 4 mm (AWAZEL D540)		

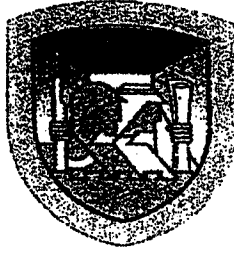
Tests:

SL NO.	TEST	Standard	Average			Unit	
1	Thickness	-	3.83			mm	
2	Width of Specimens.	-	50.00			mm	
3	Average Tensile force of 5 Specimens.	Long.	929			N	
		Trans.	638			N	
4	Average Elongation of 5 Specimens.	Long.	48			%	
		Trans.	45			%	
5	Tensile Tear Strength	Long.	627.1	602.7	545.0	591.6	N
		Trans.	368.1	377.7	383.1	376.3	N

REMARK:

RESULTS REPRESENT ONLY THE SAMPLE SUBMITTED FOR TEST

DIRECTOR, CONST LABS DEPARTMENT



STATE OF KUWAIT
MINISTRY OF DEFENCE
MILITARY ENGINEERING PROJECTS

دَوْلَة كُوَيْت
وَزَارَة الْعَسَاكِر
مَكْتَبَة اَلْمَشَارِك الْعَسَاكِرِيَّة

تَقْرِير فَحْص
Test Report

Serial Number	74210 PH 00007	رقم الإشارة
Date of Reporting	2007 /02/ 27	تاريخ التقرير
Contractor/Client	شركة التقنية الدولية للتجارة العلهة والمقاولات	المتههد / العميل
Project Name	قسام صناعية في مشروع أبو فطره	اسم المشروع
Project Address	أبو فطره الصناعية	موقع المشروع
Contract No.	-	رقم العقد
Supervision Site	شركة الإنشاءات الشرقية	جهة الإشراف
Description & Identification / Condition of Sample(s)	عازل رطوبة حبيبي - (1) رول كامل مغلق	وصف / تمييز العينة/ حالة العينة
Date of Test Request	2007/02/6	تاريخ الطلب
Request NO.	MOD - LABS - 1064/A	رقم الطلب
Total Number of Pages including this page	(2) صفحات	عدد صفحات التقرير بما فيها هذه الصفحة

Laboratory Controller

مراقب المختبرات

إد يوسف الشطي



Page 01 of 02

Test reports shall not be reproduced except in full, without written approval of the laboratory .



دولة الكويت
وزارة الدفاع
مصلحة المنشآت العسكرية

74210 PH 00007	الإشارة:
2007/02/27	تاريخ التقرير:
-	رقم العقد:
شركة التقنية الدولية	المتعهد:
2007/02/06	تاريخ الطلب:

TEST OF WATER-PROOFING MEMBRANE

ASTM D 6222 - 02 / ASTM D 5147 - 05 / ASTM D 4073 - 94 (Reapproved - 2003)

SAMPLE TYPE : TYPE I GRADE G (ASTM D 6222) TRADE NAME : AWAZEAL

PHYSICAL PROPERTIES ID : MOD - LABS -1064 /A

DESCRIPTION	RESULT	SPECIFIED LIMIT
THICKNESS (mm)	4.19	min, 4.0
NET MASS PER UNIT AREA (g/m ²)	4723	min, 4150
HIGH TEMP. STABILITY (°C)	112	min, 110

TENSILE STRENGTH AND ELONGATION

SAMPLE NO.	MAX. LOAD AT 23 ± 2°C (kN/m)		ELONGATION (%)	
	LONGITUDINAL	TRANSVERSE	LONGITUDINAL	TRANSVERSE
1	22.54	11.03	55.57	56.15
2	19.64	14.62	77.93	48.95
3	22.92	14.20	78.89	56.93
4	20.67	13.72	77.36	49.93
5	19.18	11.59	60.71	52.44
Mean	20.99	13.03	70.09	52.88
SPECIFIED	min, 8.8	min, 8.8	min, 23	min, 23

TEAR STRENGTH

SAMPLE NO.	TEAR STRENGTH (N)	
	LONGITUDINAL	TRANSVERSE
1	487	758
2	506	689
3	488	698
4	427	829
5	518	772
Mean	485	749
SPECIFIED	min, 311	min, 311

REMARKS :

المصدر : المملكة العربية السعودية
اسم المشروع : قسائم صناعية في مشروع أبو فطيرة
موقع المشروع : أبو فطيرة الصناعية
هذا التقرير يلغى التقرير رقم 74210PH00011 الصادر بتاريخ 13/02/2007

مراقب المختبرات
محمد يوسف الشطي



النتائج تمثل العينات المقدمة للفحص فقط

Test Certificates

2008



مركز الفحوصات الهندسية والمخبرية والمعايرة
Center of Engineering, Laboratory
Testing & Calibrations

Center of Engineering, Laboratory Testing & Calibrations

مركز الفحوصات الهندسية والمخبرية والمعايرة



Kuwait University
College of
Engineering & Petroleum

To : وزارة الاوقاف والشؤون الاسلامية / إدارة مساجد محافظة حولي Ref. : 9836
From : Center of Engineering, Laboratory Testing & Calibrations Report : CELTC 801371/8/2008
College of Engineering & Petroleum Date : 18/08/2008
Kuwait University Page : [1 / 2]

Dear Sir,

Please find attached the requested report according to the information below, and as per reporting department.

Report : CELTC 801371/8/2008
Test : Test of Water Proofing Membrane
Standard : As Enclosed
Client Name : شركة إبراهيم الناصر الهاجري
Tested For : وزارة الاوقاف والشؤون الاسلامية / إدارة مساجد محافظة حولي
Project Name : صيانة مساجد محافظة العاصمة
Contract No. : 7/2006-2007
No. of Pages : 2

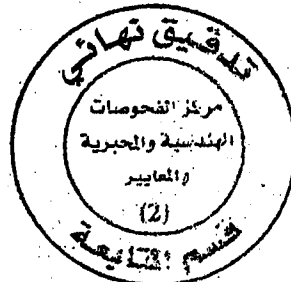
Sample Delivered. State & Number:
Water Proofing Membrane in Good Condition.

Information Provided by Supervision:
N.A

Best regards,

Dr. Sorour Al-Otaibi
CELTC Manager

أولاً بسم الله الرحمن الرحيم
المعزز المشاعر للتجويد والتطوير الهنوي



I hereby certify that I have received & accepted all results as complete, and find this report to fulfill all requested services.

Name: هنا م (عقبي) Signature: [Signature] Date: 20.08.08

No. of Pages: 2

(في حالة قيام المركز بعمل فحوصات لدى طرف ثالث، فإن الطرف الثالث يتحمل مسؤولية نتائج هذه الفحوصات)



مركز الفحوصات والمختبرية والمعايرة
Center of Engineering, Laboratory
Testing & Calibrations

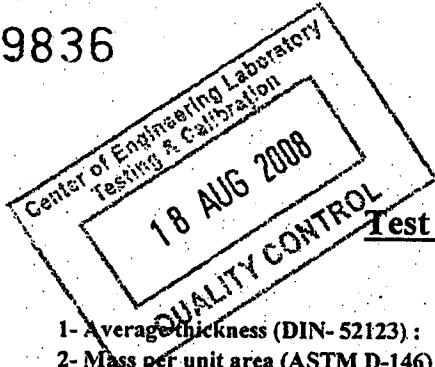
Center of Engineering, Laboratory Testing & Calibrations

مركز الفحوصات الهندسية والمختبرية والمعايرة



Kuwait University
College of
Engineering & Petroleum

09836



Test No. : T-71
Date : 18/8/2008
Page:2/2

Test of Water Proofing Membrane (Awazel DS 40)

- 1- Average thickness (DIN- 52123) : 4.10 mm
2- Mass per unit area (ASTM D-146) : 4708 gm/m²
3- Water absorption (ASTM D- 5147) :

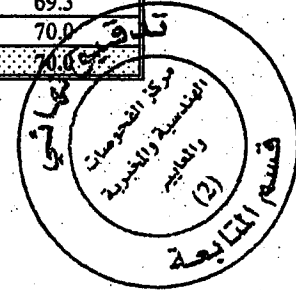
Specimen No	Water Absorption (%)
1	0.425
2	0.477
3	0.388
Avg.	0.430

4- Tensile Strength and elongation (ASTM D-146) :

Specimen No.	Tensile Strength (N/2.5cm)		Elongation %	
	Longitudinal	Transverse	Longitudinal	Transverse
1	436.0	286.5	50.7	70.0
2	441.0	285.0	49.3	68.0
3	435.0	286.0	50.7	72.7
4	436.0	284.5	51.3	69.3
5	438.5	284.0	50.0	70.0
Avg.	437.3	285.2	50.4	70.0

5- Tensile /Tear resistance (ASTM D-4073) :

Specimen No.	Tear Resistance (N)	
	Longitudinal	Transverse
1	571.8	412.8
2	562.0	401.2
3	569.5	406.5
Avg.	567.8	406.8



6-Polyester reinforcement (ASTM D-146) :

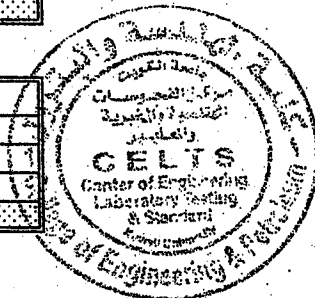
Polyester Reinforcement +Unextracted Mat.= 344.2 gm/m²

7- Softening point (ASTM D-36) :

Specimen No	Temperature °C
1	157.0
2	157.5
Avg.	157.3

8- Penetration (ASTM D-5) :

Specimen No	@ 25 °C, 0.1 mm
1	23.0
2	24.0
3	22.5
Avg.	23.2



Test Certificates

2011



مركز الفحوصات الهندسية والمخبرية والمعايرة
Center of Engineering, Laboratory
Testing & Calibrations

Center of Engineering, Laboratory Testing & Calibrations

مركز الفحوصات الهندسية والمخبرية والمعايرة



Kuwait University
College of
Engineering & Petroleum

To : وزارة الاشغال العامه / مكتب دار السور للاستشارات الهندسية
From : Center of Engineering, Laboratory Testing & Calibrations
College of Engineering & Petroleum
Kuwait University

Ref. : 26613
Report : CELTC 011711049
Date : 19/01/2011
Page : [1 / 2]

Dear Sir,

Please find attached the requested report according to the information below, and as per reporting department.

Report : CELTC 011711049
Test : Desert Shield Mambranes DS40
Standard : As Enclosed
Client Name : The Contractor Co.
Tested For : وزارة الاشغال العامه / مكتب دار السور للاستشارات الهندسية
Project Name: مخازن المضبوطات
Contract No. : 239/أ.م.هـ
No. of Pages : 2

Sample Delivered, State & Number:

One Desert Shield Mambranes DS40 Sample in Good Condition.

Information Provided by Supervision:

N.A

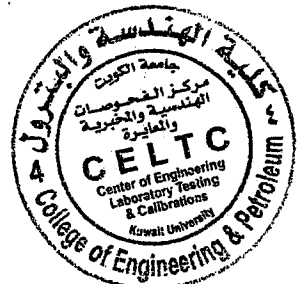
Best regards,

AbdulAzim H. Falah, PH.D.

Manager
Center of Engineering, Laboratory
Testing & Calibration

Dr. Abdulazim H. Falah

CELTC Manager





مركز الفحوصات الهندسية والمخبرية والمعايرة
Center of Engineering, Laboratory
Testing & Calibrations

Center of Engineering, Laboratory Testing & Calibrations

مركز الفحوصات الهندسية والمخبرية والمعايرة



Kuwait University
College of
Engineering & Petroleum

26613

TEST OF AWAZEL DESERT SHIELD 40

Kuwait University
18 JAN 2011
Center of Engineering Laboratory

Test No : T-49
Date : 18/01/2011
Page : 2/2

- 1- Average thickness (ASTM D-5147) :
2- Nominal unit weight (UEAtc M.O.A.T.30)
3- Water absorption (ASTM D-5147) :

4.26 mm ✓
4.72 Kg/m² ✓

Quality Control

Specimen No	Water Absorption (%)
1	0.191
2	0.199
3	0.206
Avg.	0.199 ✓

4- Tensile Strength and elongation (UEAtc M.O.A.T.30) :

Specimen No.	Tensile Strength (N/5cm)		Elongation %	
	Longitudinal	Transverse	Longitudinal	Transverse
1	1121.50	749.50	48.50	52.25
2	1121.00	804.50	49.50	50.00
3	1044.00	737.00	46.50	54.50
4	1051.50	741.00	49.75	50.00
5	1113.50	784.00	49.00	55.50
Avg.	1090.30 ✓	763.20 ✓	48.65 ✓	52.45 ✓

5- Tensile / Tear strength (ASTM D-4073) :

Specimen No.	Tear Resistance (N)	
	Longitudinal	Transverse
1	604.5	618.0
2	658.0	461.5
3	562.5	468.5
Avg.	608.3 ✓	516.0 ✓

6- Resistance to heat (ASTM D- 5147) :

Resistance to heat up to 100°C for 2 hours with NO effect ✓

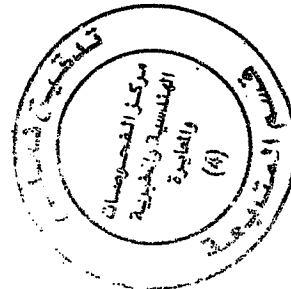
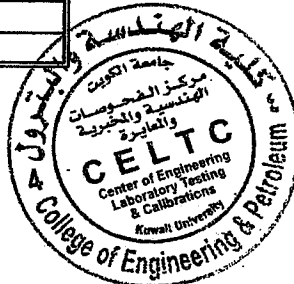
7- Polyester reinforcement (UEAtc M.O.A.T.30) :

Polyester Reinforcement - Unextracted Mat. →

395.2 g/m² ✓

8- Softening point (ASTM D-36) :

Specimen No	Temperature °C
1	149.5
2	149.0
Avg.	149.3



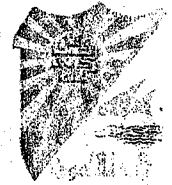
Test Certificates

2012



Center of Engineering Laboratories For Testing & Calibration

مركز الفحوصات الهندسية والمخبرية والمعايرة



Test of Water Proofing Membrane (Awazel DS 40)

Client Name : شركة ذاكونتركتور للمقاولات
 Test For : وزارة الأشغال العامة
 Project Name : العارضية
 Contract No. : 251 / أ هـ

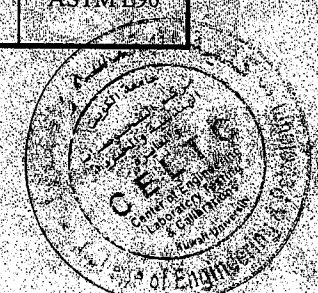
Report No. : 031212047
 Date : 28/03/2012
 Page : [1 / 1]

Sample Description : Water Proofing Membrane (Awazel DS 40) Sample in Good Condition.

Test Name	Units	Results					Average	Standard
		1	2	3	4	5		
Thickness:	mm	4.10	4.17	4.09	4.16	4.12	4.13	ASTM D5147
Unit Weight:	g/m ²	4279.7	-	-	-	-	4279.7	UEATC M.O.A.T.30
Tensile Strength:								
- Longitudinal	N/5cm	1427	1346.5	1347.5	1464.5	1398	1396.7	UEATC M.O.A.T.30
- Transverse		900.5	963.0	882.0	952.0	896.5	918.8	
Ultimate Elongation:								
- Longitudinal	%	45.3	45.0	46.3	46.8	46.0	45.9	UEATC M.O.A.T.30
- Transverse		44.50	44.25	43.75	44.75	44.00	44.3	
Tear Resistance:								
- Longitudinal	N	645.5	711.0	685.0	-	-	680.5	ASTM D4073
- Transverse		596.0	597.0	592.0	-	-	595.0	
Water Absorption:	%	0.274	0.281	0.353	-	-	0.303	ASTM D5147
Polyster Reinforcement:	gm/m ²	437.4	485.2	-	-	-	461.3	UEATC M.O.A.T.30
Resistance to Heat @ 120°C for 2hrs		No Flow at all					-	ASTM D5147
Water Vapour Transmission for 24hrs	gm/m ²	0.570	0.396	0.787	0.336	0.288	0.475	ASTM E96

Center of Engineering Laboratories
 Testing & Calibration

Dr. Abdulazim H. Falah
 CELTC Manager



Kuwait University will not be held liable for consequent action based upon the results so obtained in this report