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Material Lab

Test Report

Fire Resistance Test
on
ASMACO Gold Fire Retardant Multi-Foam B1 & ASMACO Mining Foam

Test Sponsor:

Anchor Allied Factory L.L.C.

المكتب الرئيسي : صندوق بريد : ١١٤٧١٧ ، دبي ، الإمارات العربية المتحدة هاتف : ٣٤٠٥٦٧٨ ٤ ٩٧١+، فاكس : ٣٤٠٥٦٧٧ ٤ ٩٧١+

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Test Sponsor:

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on

Fire Resistance of ASMACO Fire Retardant Multi-Foam B1 & ASMACO Mining Foam

Testing Laboratory	:	Material Lab
Lab Reference No.	:	CQ-170331/2290 SN 2/2
Lab Project No.	:	P-3833
Test Reference No.	:	170129438
Test Standard	:	BS 476: Part 22: 1987: Amd 2014.

Sample Description	:	ASMACO Fire Retardant Multi-Foam B1 & ASMACO Mining Foam of varying joint configuration when applied in gaps between concrete blocks
Test Sponsor	:	Anchor Allied Factory L.L.C.
Manufacturer	:	Anchor Allied Factory L.L.C.
Test Sponsor Address	:	P.O. Box: 21152, Industrial Area No. 15, Sharjah, U.A.E
Test Sponsor Tel. No.	:	+971 6 534 2091
Test Sponsor Fax No.	:	+971 6 534 2107
Test Sponsor Website	:	www.anchorallied.com

Date Samples Received	:	08/01/2017
Date of test	:	29/01/2017
Required Duration of test	:	240 Minutes
Report Date	:	10/03/2017
No. of Pages	:	27

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MATERIAL LAB is **ACCREDITED** by the **DUBAI ACCREDITATION CENTER (DAC)**, accreditation certificate no: LB-008-TEST, toconductFire Resistance Tests in accordance with the following standards:

BS EN 1364 – 1	:	1999	Fire resistance tests for non-loadbearing elements – Part 1: Walls
BS EN 1364– 3	:	2014	Fire resistance tests for non-loadbearing elements – Part 3: Curtain walling – Full configuration (complete assembly)
BS EN 1364 – 4	:	2014	Fire resistance tests for non-loadbearing elements – Part 4: Curtain walling – Part configuration
BS EN 1634 – 1	:	2014	Fire resistance and smoke control tests for doors and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows
BS 476 part 20	:	1987	Fire tests on building materials and structures- Part 20: Methods for determination of the fire resistance of elements of construction (general principles)
BS 476 part 22	:	1987	Fire tests on building materials and structures- Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction
ISO 834 – 1	:	2012	Fire-resistance tests – Elements of building construction – Part 1: General requirements
ISO 834 – 8	:	2002	Fire-resistance tests – Elements of building construction – Part 8: Specific requirements for non-loadbearing vertical separating elements
ISO 3008	:	2007	Fire-resistance tests – Doors and shutter assemblies
ISO 3009	:	2003	Fire resistance tests – Elements of building construction – Glazed elements

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LB-008-TEST

Dubai Accreditation Department

has accredited

Material Lab

Al Quoz Industrial Area 4

Dubai- United Arab Emirates

In accordance with the requirements of ISO/ IEC 17025: 2005 to undertake the tests in the fields of:

Construction Materials Testing
Geotechnical Investigation
Environmental Testing

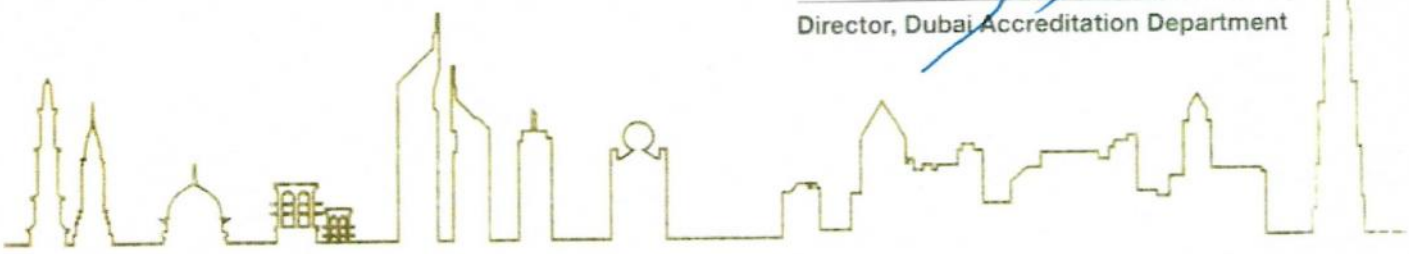
Listed in the attached Scope of Accreditation

This Accreditation is invalid without the attached scope of accreditation and shall remain in force within the validity period printed below, subject to continuing compliance with the requirements of the accreditation program.

Validity of Certificate: from 07- 03- 2016 to 06- 03- 2019

Initial Accreditation Date: 05- 02- 2004

Director, Dubai Accreditation Department



DAC is recognized for assessing and accrediting the competence of organizations in the field of testing, calibration, inspection and certification of systems, products and persons.

SCOPE OF ACCREDITATION

Construction Materials Testing

Material Lab

Al Quoz Industrial Area 4

Dubai- United Arab Emirates

Scope Issue No: 10 **Accreditation Certificate No: LB-008-TEST**

Scope Validity Period: 07-03-2016 to 06-03-2019 **Issued by (Head of Section):**

Type of Task	Materials/Products	Task Name	Standard method
Fire Resistance	Non load bearing Concrete blocks, Wall	Fire resistance tests for non-load bearing elements. Part 1. Walls Performance criteria Integrity ,Insulation and Radiation	BS EN 1364-1
	Non load bearing elements-Curtain wall-full configuration (complete assembly	Fire resistance tests for non-load bearing elements. Curtain walling. Full configuration (complete assembly) Performance criteria Integrity ,Insulation and Radiation	BS EN 1364-3
	Non load bearing elements-Curtain wall-(Part configuration)	Fire resistance tests for non-load bearing elements. Curtain walling. Part configuration Performance criteria Integrity ,Insulation and Radiation	BS EN 1364-4

Note: For history details of accredited conformity assessment activities, please refer to Dubai Accreditation Department, Dubai Municipality.

SCOPE OF ACCREDITATION

Construction Materials Testing

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Al Quoz Industrial Area 4

Dubai- United Arab Emirates

Scope Issue No: 10 **Accreditation Certificate No: LB-008-TEST**

Scope Validity Period: 07-03-2016 to 06-03-2019 **Issued by (Head of Section):**

Type of Task	Materials/Products	Task Name	Standard method
Fire Resistance	Doors, Shutters and open able windows	Fire resistance and smoke control tests for door and shutter assemblies, open able windows and elements of building hardware. Fire resistance test for door and shutter assemblies and open able windows Performance criteria Integrity ,Insulation and Radiation	BS EN 1634-1
	Building materials and structures	Fire tests on building materials and structures-method for determination of the fire resistance of elements of construction (general principles) (non load bearing only) Performance criteria Integrity ,Insulation and Radiation	BS 476.20

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Scope Validity Period: 07-03-2016 to 06-03-2019 **Issued by (Head of Section):**

Type of Task	Materials/Products	Task Name	Standard method
Fire Resistance	Building materials and structures	Fire tests on building materials and structures- method for determination of the fire resistance of non-load bearing elements of construction Performance criteria Integrity ,Insulation and Radiation	BS 476.22
		Fire-resistance tests - Elements of building construction - Part 1: General requirements (non load bearing only) Performance criteria Integrity ,Insulation and Radiation	ISO 834-1
		Fire-resistance tests -- Elements of building construction -- Part 8: Specific requirements for non-load bearing vertical separating elements Performance criteria Integrity ,Insulation and Radiation	ISO 834-8

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Scope Validity Period: 07-03-2016 to 06-03-2019 **Issued by (Head of Section):**

Type of Task	Materials/Products	Task Name	Standard method
Fire Resistance	Doors and shutters	Fire resistance tests- Door and shutter assemblies. Performance criteria Integrity ,Insulation and Radiation	ISO 3008
	Building construction – glazed elements	Fire-resistance tests - Elements of building construction - Glazed elements Performance criteria Integrity ,Insulation and Radiation	ISO 3009
Mechanical/ Physical	Water proofing membrane	Standard Test Method for Water Absorption of Plastics	ASTM D570
		Special Directive for the Assessment of Reinforced Water proof Covering of Atactic Polypropylene (APP) polymer Bitumen and Styrene Butadiene-styrene(SBS) Elastomeric Bitumen- Heat Resistance	European Union of Agreement, UEA tc M.O.AT 30 & 31 Para E
		Flexible sheets for waterproofing. Determination of tensile properties. Bitumen sheets for roof waterproofing	EN 12311-1

Note: For history details of accredited conformity assessment activities, please refer to Dubai Accreditation Department, Dubai Municipality.

1: Introduction

Material Lab is accredited to perform fire resistance tests in accordance with British, European and International Standards by the Dubai Accreditation Centre (DAC), accreditation certificate no: LB-008-TEST. Material Lab is approved from the United Arab Emirates Ministry of Interior Civil Defence GHQ.

The Fire Testing Division of Material Lab, located in Al Quoz industrial area of Dubai, was commissioned by Anchor Allied Factory L.L.C. to perform a fire resistance test on ASMACO Intumescent Acrylic Sealant and ASMACO Gold Fire Retardant Multi-foam B1. The test was witnessed by representatives of the test sponsor and from C.C.S. (Conformity Certification Services).

The aim of this test report is to provide a comprehensive description of the procedure exercised to obtain the fire resistance properties of ASMACO Intumescent Acrylic Sealant and ASMACO Gold Fire Retardant Multi-foam B1 of varying joint configuration when applied in gaps in between concrete blocks. The sealants, manufactured by Anchor Allied Factory L.L.C., were tested in accordance with British Standard 476 part 22:1987/Amd: 2014 on 29th of January 2017 at Material Lab's main facility for a period of 240 minutes.

Although both the ASMACO intumescent acrylic sealant and ASMACO Gold Multi-foam B1 and ASMACO Mining Foam were tested simultaneously in the same frame, two separate reports for sealants have been generated upon the request of the client. This report contains details of components and results obtained for the ASMACO Gold Multi foam B1 and ASMACO Mining Foam only. Report containing component details and results of the ASMACO intumescent acrylic sealant can be found in test report with Lab Reference No. TPWQ-170131/2290 SN 1/2.

2: Instrumentation

A fully computerized and automated3.03m by 3.03m vertical fire resistance testing furnace employing the latest technology in PLC system by Siemens was used for this test. The furnace relies on its 10 powerful burners, which utilize a fixed proportion of liquefied petroleum gas and air, to raise temperature inside the furnace to around 1200 °C. All instruments vital for obtaining conclusive fire resistance data during the test have been identified in table 1.

Equipment ID	Equipment Description
FTF-1	Vertical Large Fire testing furnace, complete with LPG supply system
PLCS-1	PLC system for data acquisition by Siemens
WINCC-1	Visual and calculating software by Siemens
PS-1 to 2	Calibrated Pressure Transducers
IFTC-1 to 9	Calibrated Furnace Internal Thermocouple (K Type)
FSF-2	Steel Frame for sample assembly.
FTIR-1 to 5	Calibrated IR sensors for deflection measurements.
FGG6-1	Gap Gauge ϕ 6 mm
FGG25-1	Gap Gauge ϕ 25 mm
FCP-1	Cotton pad
FCPF-1	Cotton pad supporting frame
EFTC-1 to10	Calibrated Unexposed Surface Thermocouple (K Type)
FVRT-1	Calibrated Roving Thermometer
FATS-2	Calibrated Ambient temperature sensor
RPF-1	Ambient temperature sensor assembly

Table 1: Detail of equipment used to perform the test

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3: Specimen Conditioning

Before erection of the supporting construction wall in the frame began, it was ensured that the blocks used for the supporting construction had cured and achieved its specified compressive strength. It is essential that moisture content of the supporting construction blocks achieved equilibrium before testing as mentioned in clause 4.6 of BS 476-20. Hence prior to testing, the moisture content of the supporting construction constituents was determined using the dry oven technique i.e. the sample was weighed and then dried in oven at 105° C and two successive weighing at 24 hour intervals were taken. The difference between the successive weighing did not exceed 0.1%. Moisture content of the blocks was found to be complying with 1% to 3% moisture content requirement of BS 476-22.

After completion of the supporting construction on 7th of January 2017, the ASMACO intumescent acrylic sealant and ASMACO Gold polyurethane foam were applied on the 8th of January 2017 and allowed to cure for a period of 21 days. The test was then conducted on 29th of January 2017 after ensuring that the applied sealants had been fully cured and had achieved their maximum strength and equilibrium moisture content.

4: Specimen Preparation

A rigid steel frame with fire resistive concrete blocks fixed on its internal perimeter having an opening of 3.03 x 3.03 meter was used to prepare the specimen for testing. Supporting construction comprising of only 8" solid blocks was prepared in the test frame by the laboratory's skilled workers.

Figure 1: Test specimen mounted in frame for testing

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During construction vertical block columns were erected with vertical gaps left in between adjacent columns for application of the intumescent sealant and polyurethane foam B1. In this manner a total of 14 vertical gaps having a height of 2.5m each starting from 100mm above the test frame bottom were left in the supporting construction wall, as shown in figure 1. The vertical gaps were then filled using various combinations of sealant by the sponsors' skilled workers. These combinations included:

1. Application of intumescent acrylic sealant to fire side with ceramic fiber backup on non-fire side.
2. Application of intumescent acrylic sealant to fire side followed by ceramic fiber backup and then again application of intumescent acrylic sealant on non-fire side.
3. Application of intumescent acrylic sealant to fire side with Rockwool backup on non-fire side
4. Application of intumescent acrylic sealant to fire side followed by Rockwool backup and then again application of intumescent acrylic sealant on non-fire side.
5. Application of Multi-Foam B1 in gap completely.
6. Application of Mining Foam in gap completely.

Configuration of width and depth (thickness) of gap and type of sealant applied to the particular gap, from right to left, is provided in table 1.1.

Joint No.	Width(mm)	Depth(mm)	Backup Type	Joint Type	Product
1.	30	200	None	Full	Fire Retardant Multi-Foam B1
2.	40	200	None	Full	Fire Retardant Multi-Foam B1
3.	10	200	None	Full	Fire Retardant Multi-Foam B1
4.	10	130	None	Full	Fire Retardant Multi-Foam B1
5.	25	25	(25 x25)mm Rockwool	Both Sides	Intumescent Acrylic Sealant
6.	25	25	(25 x25)mm Rockwool	Only Fire Side	Intumescent Acrylic Sealant
7.	25	20	Ceramic Fiber	Both Sides	Intumescent Acrylic Sealant
8.	75	200	None	Full	Mining Foam
9.	25	25	30mm dia Ceramic Fiber	Both Sides	Intumescent Acrylic Sealant
10.	25	25	30mm dia Ceramic Fiber	Only Fire Side	Intumescent Acrylic Sealant
11.	10	10	12mm dia Ceramic Fiber	Both Sides	Intumescent Acrylic Sealant
12.	10	10	12mm dia Ceramic Fiber	Only Fire Side	Intumescent Acrylic Sealant
13.	6	10	8mm dia Ceramic Fiber	Both Sides	Intumescent Acrylic Sealant
14.	6	10	8mm dia Ceramic Fiber	Only Fire Side	Intumescent Acrylic Sealant

Table 1: Details of sealant configuration used to fill in vertical gaps

5: Application of Instruments

Nine internal unshielded K type thermocouples were installed for measurement of internal temperature of the furnace. A positioning diagram, figure7, for the internal thermocouples has been provided in appendix 3.

In order to ensure the insulation properties of the sealants, 18K type thermocouples were installed on unexposed surface of the specimen as per the requirements of BS 476: Part 22. 1987: Amd 2014.

For measurement of insulation criteria only maximum rise in temperature on the unexposed surface of the sealants was determined. In addition, the thermocouples were only fixed to every ASMACO intumescent acrylic sealant joint where the sealant was applied on both sides and on every joint containing the ASMACO Gold Multi-Foam B1. Two thermocouples were applied per joint, one located at the head of the joint and the second at mid height of the joint. A positioning diagram, figure 13, for these thermocouples has been provided in appendix 3.

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Graph used for determining the maximum temperature rise on the unexposed side, for evaluation against insulation criteria, can be examined in appendix 2, figures 5 to 8.

Two pressure sensing heads, located at 1 m and approximately 2.5 m above the furnace floor, were installed to monitor furnace pressure as per the requirements of clause 3 of BS 476: Part 22. 1987: Amd 2014.

Configuration of thermocouples applied to joints is provided in table 1.2 below:

Joint No.	Width (mm)	Depth (mm)	TC No. @ Head	TC No. @ Mid-Height	Product
1.	30	200	2	1	Fire Retardant Multi-Foam B1
2.	40	200	4	3	Fire Retardant Multi-Foam B1
3.	10	200	6	5	Fire Retardant Multi-Foam B1
5.	25	25	8	7	Intumescent Acrylic Sealant
7.	25	20	10	9	Intumescent Acrylic Sealant
8.	75	200	12	11	Mining Foam
9.	25	25	14	13	Intumescent Acrylic Sealant
11.	10	10	16	15	Intumescent Acrylic Sealant
13.	6	10	18	17	Intumescent Acrylic Sealant

Table 2: Details of thermocouples configuration used to measure unexposed surface temperature of vertical gaps

6: Test Procedure

The preparation and fixation of the thermocouples were followed by mounting of the test frame in front of the furnace. Prior to test commencement, proper functionality of all sensors and thermocouples were ensured for accurate display and data acquisition.

Ambient air temperature surrounding the laboratory was noted. Values characterizing ambient environment directly before and after the test are given in table 3.

Ambient temperature @ 11:08 a.m. before start of test (°C)	Ambient temperature @ 03:08 p.m. at end of test (°C)	Difference between ambient temperature at start and end of test (°C)
26.3	28.7	2.4

Table 3: Ambient air temperature surrounding the laboratory

The furnace was then initiated to commence the actual test and a trained fire testing engineer was instructed to take specimen observations throughout the test duration. These observations have been tabulated in Test Results section. A video camera was set up to record the full duration of the test. A DVD containing a PDF copy of the test report, pictures from the test and complete video recording of the test has been provided along with this report.

Furnace conditions during the test, such as temperature and pressure, were kept in accordance with clause 3 of BS 476: Part 22: 1987: Amd 2014. During the test a neutral pressure plane was set up 1m above the furnace floor and the pressure at the top of the furnace was not allowed to exceed 20 Pa.

The temperature inside the furnace did not deviate and remained within the tolerance limits set in BS 476: Part 22. The graph representing regulation of internal temperature of the furnace in accordance with BS 476-22 has been provided in figure 3 of appendix 2.

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7: Test Results

OBSERVATIONS:

Observations shown in table 4 is an integral part of this report.

Time [min]	Observation on unexposed side of the sealants (Joint No. 1 to Joint No. 14)
0	Commencement of Test.
45	Formation of moisture patches all over supporting construction block work.
81	Light smoke observed escaping from top edge and at mid height of joint no. 8.
85	Formation of dark brown and black spots at top edge of joint no. 8.
87	Charring observed at joint no. 8 from top edge for a height of 700mm.
92	Application of cotton pad to joint no. 8 at top edge. Ignition of cotton pad observed. **Joint no. 8 (Mining Foam 75mm x 200mm) has sustained integrity criteria for 92 minutes.**
93	Application of 6mm and 25mm gap gauge to top edge of joint no. 8. Penetration of 6mm and 25mm gap gauge through joint and into the furnace.
93	700mm length of failed joint no. 8 filled in with ceramic fiber packing and continuation of test.
106	Light smoke observed escaping from top edge of joint no. 2.
111	Formation of dark brown and black spots at top edge of joint no. 2.
113	Charring observed at joint no. 2 from top edge for a height of 600mm.
115	Application of cotton pad to joint no. 2 at top edge. Ignition of cotton pad observed. **Joint no. 2 (B1 Multi-Foam 40mm x 200mm) has sustained integrity criteria for 115 minutes.**
116	Application of 6mm and 25mm gap gauge to top edge of joint no. 2. Penetration of 6mm and 25mm gap gauge through joint and into the furnace.
116	600mm length of failed joint no. 2 filled in with ceramic fiber packing and continuation of test.
121	Formation of dark brown and black spots at mid height and bottom of joint no. 8.
125	Formation of dark brown and black spots at bottom of joint no. 2.
136	Complete charring of vertical joint no. 8. Joint no. 8 completely filled with ceramic fiber from top to bottom.
145	Formation of dark brown and black spots at top edge of joint no. 1.
149	Charring observed at joint no. 1 from top edge for a height of 300mm.
151	Application of cotton pad to joint no. 1 at top edge. Ignition of cotton pad observed. **Joint no. 1 (B1 Multi-Foam 30mm x 200mm) has sustained integrity criteria for 151 minutes..**
152	Application of 6mm and 25mm gap gauge to top edge of joint no. 1. Penetration of 6mm and

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	25mm gap gauge through joint and into the furnace.
152	300mm length of failed joint no. 1 filled in with ceramic fiber packing and continuation of test.
154	Charring at joint no. 2 has increased from a height of 600mm to 800mm.
168	Charring at joint no. 1 has increased from a height of 300mm to 700mm.
170	Formation of dark brown and black spots from mid-height to bottom of joint no. 1
199	Complete charring of vertical joint no. 2. Joint no. 2 completely filled with ceramic fiber from top to bottom.
240	No change. Remaining all joints still stable.
240	Termination of test upon request of client.

Table 4: Observations of specimen behavior during the test

After being exposed for a total duration of 4 hours, the various combinations of ASMACO Gold B1 multi-foam were evaluated against the integrity and insulation criteria set in clause 5.6 of BS 476: Part 22: 1987: Amd 2014. The sealant configurations were found to achieve the following fire resistance properties illustrated in table 5.1. to 5.5.

Fire Resistance of ASMACO Gold Fire Retardant Multi-foam B1 Configurations after testing:

ASMACO Gold Fire Retardant Multi-Foam B1 (Width x Depth : 30mm x 200mm), Ref.: Joint No. 1		
Test Parameters	**Results**	**Remarks**
Insulation: 151 Minutes		
1. Maximum Temperature	**151 minutes**	Joint sustained integrity criteria for 151mins. Maximum temperature recorded at 115mins was 79°C on TC-2
Integrity: 151 Minutes		
1. Sustained Flaming	-	No failure. No Sustained flaming for 10 seconds observed for 151minutes.
2. Cotton Pad	**151 minutes**	Ignition of cotton pad observed upon application to top edge after 151minutes of testing.
3. 6mm Gap Gauge	**152 minutes**	Penetration of 6mm gap gauge through gap formed at top edge after 152 minutes.
4. 25mm Gap Gauge	**152 minutes**	Penetration of 25mm gap gauge through gap formed at top edge after 152 minutes.

Table 5.1: Integrity & Insulation Evaluation of B1 Multi-Foam (30mm x 200mm) According to BS 476: Part 22: 1987: Amd 2014

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ASMACO Gold Fire Retardant Multi-Foam B1 (Width x Depth : 40mm x 200mm), Ref.: Joint No. 2		
Test Parameters	**Results**	**Remarks**
Insulation: 115 Minutes		
1. Maximum Temperature	**115 minutes**	Joint sustained integrity criteria for 115mins. Maximum temperature recorded at 115mins was 92°C on TC-4
Integrity: 115 Minutes		
1. Sustained Flaming	**-**	No failure. No Sustained flaming for 10 seconds observed for 115minutes.
2. Cotton Pad	**115 minutes**	Ignition of cotton pad observed upon application to top edge after 115 minutes of testing.
3. 6mm Gap Gauge	**116 minutes**	Penetration of 6mm gap gauge through gap formed at top edge after 116 minutes.
4. 25mm Gap Gauge	**116 minutes**	Penetration of 25mm gap gauge through gap formed at top edge after 116 minutes.

Table 5.2: Integrity & Insulation Evaluation of B1 Multi-Foam (40mm x 200mm) According to BS 476: Part 22: 1987: Amd 2014

ASMACO Gold Fire Retardant Multi-Foam B1 (Width x Depth : 10mm x 200mm), Ref.: Joint No. 3		
Test Parameters	**Results**	**Remarks**
Insulation: 240 Minutes		
1. Maximum Temperature	**240 minutes**	No failure. Maximum temperature recorded after 240 minutes of testing was 134°C on TC-6 which did not exceed standard limits.
Integrity: 240 Minutes		
1. Sustained Flaming	**240 minutes**	No failure. No Sustained flaming for 10 seconds observed throughout 240 minutes duration of test.
2. Cotton Pad	**240 minutes**	No failure. No ignition or glowing of cotton pad observed throughout 240 minutes duration of test.
3. 6mm Gap Gauge	**240 minutes**	6mm gap gauge did not penetrate any gap.
4. 25mm Gap Gauge	**240 minutes**	25mm gap gauge did not penetrate any gap.

Table 5.3: Integrity & Insulation Evaluation of B1 Multi-Foam (10mm x 200mm) According to BS 476: Part 22: 1987: Amd 2014

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ASMACO Gold Fire Retardant Multi-Foam B1 (Width x Depth : 10mm x 130mm), Ref.: Joint No. 4		
Test Parameters	**Results**	**Remarks**
Insulation: -		
1. Maximum Temperature	-	-
Integrity: 240 Minutes		
1. Sustained Flaming	**240 minutes**	No failure. No Sustained flaming for 10 seconds observed throughout 240 minutes duration of test.
2. Cotton Pad	**240 minutes**	No failure. No ignition or glowing of cotton pad observed throughout 240 minutes duration of test.
3. 6mm Gap Gauge	**240 minutes**	6mm gap gauge did not penetrate any gap.
4. 25mm Gap Gauge	**240 minutes**	25mm gap gauge did not penetrate any gap.

Table 5.4: Integrity & Insulation Evaluation of B1 Multi-Foam (10mm x 130mm) According to BS 476: Part 22: 1987: Amd 2014

Fire Resistance of ASMACO Mining Foam after testing:

ASMACO Mining Foam (Width x Depth : 75mm x 200mm), Ref.: Joint No. 8		
Test Parameters	**Results**	**Remarks**
Insulation: 92 Minutes		
1. Maximum Temperature	**92 minutes**	Joint sustained integrity criteria for 92mins. Maximum temperature recorded at 92mins was 98°C on TC-12
Integrity: 92 Minutes		
1. Sustained Flaming	-	No failure. No Sustained flaming for 10 seconds observed for 92minutes.
2. Cotton Pad	**92 minutes**	Ignition of cotton pad observed upon application to top edge after 92minutes of testing.
3. 6mm Gap Gauge	**93 minutes**	Penetration of 6mm gap gauge through gap formed at top edge after 93 minutes.
4. 25mm Gap Gauge	**93 minutes**	Penetration of 6mm gap gauge through gap formed at top edge after 93 minutes.

Table 5.5: Integrity & Insulation Evaluation of Mining Foam (75mm x 200mm) According to BS 476: Part 22: 1987: Amd 2014

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8: Limitations

This report details the method of construction, specimen and test preparations, test conditions and the results which were obtained strictly following only the procedures outlined in BS 476: Part 22: 1987: Amd. 2014 and BS 476: Part 20:1987 (General Requirements).

The results only relate to the behavior of the specimen of the elements of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the elements in use nor do they reflect the actual behavior in fires.

The test results refer only to the items tested and does not apply to compounds with different dimensions or different components. Any interpretations or opinions expressed in this report are outside the scope of DAC accreditation. The test was carried out under standard conditions using testing equipment that is property of the Material Lab, Dubai. This report shall not be reproduced except in full, without the written approval of the laboratory.

Material Lab is an accredited independent laboratory. It is not associated / affiliated with any certification agency, manufacturer or producer in or out side of United Arab Emirates. Material Lab was not involved in any selection of the sampling procedure. The specimens were supplied by representatives of the client and certification agency.

Although both the ASMACO intumescent acrylic sealant and ASMACO Gold Multi-foam B1 and ASMACO Mining Foam were tested simultaneously in the same frame, two separate reports for sealants have been generated upon the request of the client. This report contains details of components and results obtained for the ASMACO Gold Multi foam B1 only. Report containing component details and results of the ASMACO intumescent acrylic sealant can be found in test report with Lab Reference No. TPWQ-170131/2290 SN 1/2.

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