TEST REPORT

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description:	NBR RUBBER FOAM
SGS Ref No.:	SDHG1407036119FB
Style / Item No.:	20mm
Manufacturer:	-
Supplier:	-
Sample Receiving Date:	Jul 23, 2017
Test Preforming Date:	Jul 23, 2017 to Aug 05, 2017

TEST RESULT SUMMARY

No.	Test(s) Requested	Result(s)	Comments
1	BS 476 Part 6:1989 + A1:2009: Fire tests on buildning materials and structures – Part 6: Method of test for fire propagation for products.	/	/
2	BS 476 Part 7:1997 – Fire tests on buildning materials and structures Part 7. Method of test to determine the classification of the surface spread of flame of products.	Classification: Class 1	/
For further details, please refer to the following page(s)			

Signed for and on behalf of
SGS-CSTC Ltd.

Jason Cheung
Approved Signatory

TEST CONDUCTED

TEST 1:

This test was conducted in accordance with the procedure specified in BS 476 Part 6:1989 + A1:2009 – Fire tests on buildning materials an structures – Part 6: Method of test for fire propagation for products.

I. General Information

Material	**Preformed Flexible Elastomeric Celluar Thermal Insulation**		**Thickness**	**About: 20mm**
Color	Black		Specimen Size	225mm x 225mm
Exposed Face	One face of specimen			
Conditioning of Test Specimen to constant mass	(23±2) °C	RH (50±10) %		96h

II. Test results

Throughout the test on each specimen, carefully observe the material's behaviour within the apparatus and take special note of any of the following phenomena listed in clause 9.2 of the standard. None of the listed phenomena was observed and the test results on all three specimens tested wewe valid.

The index of the preformance for the specimen was determined as follows:

$$S_1 = \sum_{t=0.5}^{t=3} \frac{\theta_s - \theta_c}{10t}, \quad S_2 = \sum_{t=4}^{t=10} \frac{\theta_s - \theta_c}{10t}, \quad S_3 = \sum_{t=12}^{t=20} \frac{\theta_s - \theta_c}{10t}, \quad S = S_1 + S_2 + S_3$$

Where:

S = index of preformance for each of the specimens tested and S_1, S_2 and S_3 are sub- indices

t = Time in minutes from the origin at which readings are taken

θ_s = Temperature rise in °C for the specimen at time, t

θ_c = Temperature rise in °C for the calibration sheet at time, t

Fire Propagation index $I = i_1 + i_2 + i_3$
Where, i_t, i_2 and i_3 are given by the expressions:

$$i_1 = \tfrac{1}{3}\left[(S_1)_A + (S_1)_B + (S_1)_C\right], \quad i_2 = \tfrac{1}{3}\left[(S_2)_A + (S_2)_B + (S_2)_C\right], \quad i_3 = \tfrac{1}{3}\left[(S_3)_A + (S_3)_B + (S_3)_C\right]$$

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The following test results were obtained for each specimen tested:

Specimen No.	Sub - indices			Index of preformance
	S_1	S_2	S_3	S
A	3.6	6.7	4.5	14.8
B	4.1	7.1	4.8	16.0
C	3.5	6.1	4.4	14.0

Number of Specimens tested	Sub-index i1	Sub-index i2	Sub-index i3	Fire Propagation index I
3	3.7	6.6	4.6	14.9

Test 2: (SGS Ref. No.: AJD201406322)

This test was conducted in accordance with the procedure specified in BS 476 Part 7:1997 – Fire test on building materials and structures Part 7. Method of test to determine the classification of the surface spread of flame of products.

I. Sample details

Materials	PREFORMED FLEXIBLE ELASTOMERIC CELLULAR THERMAL INSULATION
Thickness	About 20mm
Color	Black
Specimen size	About 885mm x 270mm

II. Test details

Conditioning:

Prior to testing, the sample was conditioned, to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 10 % and maintained in this condition until required for testing.

Exposed Face:

One face of specimen.

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IV. Test results

SPECIMEN No	1	2	3	4	5	6
Distance (mm)	Time to travel to indicated distance (minutes : seconds)					
75	00:02	00:03	00:03	00:02	00:02	00:02
165	--	--	--	--	--	--
190	--	--	--	--	--	--
215	--	--	--	--	--	--
240	--	--	--	--	--	--
265	--	--	--	--	--	--
290	--	--	--	--	--	--
375	--	--	--	--	--	--
455	--	--	--	--	--	--
500	--	--	--	--	--	--
520	--	--	--	--	--	--
600	--	--	--	--	--	--
675	--	--	--	--	--	--
710	--	--	--	--	--	--
750	--	--	--	--	--	--
785	--	--	--	--	--	--
825	--	--	--	--	--	--
Maximum distance traveled at 1.5 minutes (mm)	90	112	100	115	120	115
Maximum distance traveled during the whole test (mm)	90	112	100	115	120	115
Time to reach maximum distance traveled	00:03	00:04	00:04	00:04	00:04	00:03

Note:

Six specimens are usually tested. If the test on any specimen is deemed to be invalid, as defined in the standard, it is permissible for up to a maximum of nine specimens to be tested in order to obtain the six valid test results.

The classification limits specified in BS 476-7:1997 are given Appendix 1.

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Observations during test:

Existence of flame on or over the surface of the specimen for periods of less than 1s.

Criteria for classification:

If the prefix ”D” or suffix ”R” or ”Y” is included in the classification, this indicates yhat the result should be treated with caution. An explanation of the reason for prefix and suffix is given in Appendix 2

Appendix 1 Classification of spread of flame

Classification	Spread of flame at 1.5 min		Final spread of flame	
	Limit (mm)	Limit for one Specimen in sample (mm)	Limit (mm)	Limit for one Specimen in sample (mm)
Class 1	165	165+25	165	165+25
Class 2	215	215+25	455	455+25
Class 3	265	65+25	710	710+25
Class 4	Exceeding the limits for class 3			

Appendix 2 Explanation of prefix and sufixes which may be added to the classification

1. A suffix R is added to the classification if more than six specimens are required in order to obtain six valid test results (e.g class 2R).
2. A prefix D is added to the classification of any product which does not conform to the surface characteristics specified in the standard and has therefore been tested in a modified from (e.g class D3).
3. A suffix Y shall be added to the classification if any softening and/or other behaviour that may affect the flame spread occurs.

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Statements:

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test. They are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which were tested. Small differences in the composition or thickness of the product may significantly affect the preformance during the test and may therefore invalidate the results. Care should be taken to ensure that any product, which is supplied or used, is fully represented by the specimens, which were tested.

End of report