

## TEST REPORT

No. : SHIN170802569CCM

Date : Sep. 07, 2017

Page: 1 of 7

CUSTOMER NAME: DONGSUNG CHEMICAL CO., LTD.  
ADDRESS: 472, SINPYEONG-DONG, SAHA-GU, BUSAN 604-030, KOREA

Sample Name : VIXUM  
Product specification : Melemine Foam  
Manufacturer : Dongsung Chemical Co., Ltd.

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

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Test Required : To determine the flammability (building materials class B1) in accordance with DIN 4102-1 (May 1998) Fire behaviour of building materials and elements Part 1: Classification of building materials, Requirements and testing

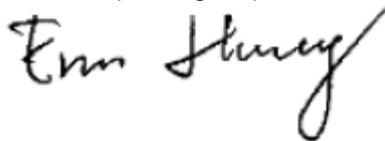
Date of Receipt : Aug. 10, 2017

Testing Start Date : Aug. 10, 2017

Testing End Date : Sep. 07, 2017

Test result(s) : For further details, please refer to the following page(s)  
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for  
SGS-CSTC Standards Technical  
Services ( Shanghai ) Co., Ltd.



Erin Huang  
Authorized signatory



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.  
Testing Center Commercial Construction Material Laboratory

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### I. Test conducted

This test was conducted as per DIN 4102-15:1990, DIN 4102-16:1998 and DIN 4102-1:1998 Clause 6.2, and Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials.

### II. Sample details

General description / Color	VIXUM / Gray
Density	About 8.8 kg/m <sup>3</sup>
Size of sample	1000mm×190mm & 190mm×90mm

### Conditioning

Prior to testing, the sample was conditioned at least 14 days to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 6 %.



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### III. Test results

1) "Brandschacht" Test according to DIN 4102-15 &16

Exposed surface: The front face

Results of "Brandschacht" Test (part 1)						
Line No.	Unit	Test assemblies No.				
		A	B	C	D	
1	Specimen fixings according to DIN 4102 part 15, table	-	1	1	1	
2	Max. flame height above lower sample edge;	cm	60	60	60	
3	Time <sup>1)</sup>	min:s	01:32	01:47	01:38	
4	Melting/burning through	min:s	/	/	/	
5	Time <sup>1)</sup>	min:s	03:36	03:44	03:41	
6	Back of specimen	min:s	/	/	/	
7	Flaming/glowing, Time <sup>1)</sup>	min:s	/	/	/	
8	Discolouring, Time <sup>1)</sup>	min:s	02:26	02:32	02:41	
9	Burning droplets	min:s	NO	NO	NO	
	Begin <sup>1)</sup>	min:s	/	/	/	
	Amount		/	/	/	
	Specimen material falling off in separate droplets		/	/	/	
	Specimen material falling off continuously		/	/	/	



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Results of "Brandschacht" Test (part 2)					
Line No.	Unit	Test assemblies No.			
		A	B	C	D
10	Burning parts Begin <sup>1)</sup>	min:s	/	/	/
11	Parts of sample falling off separately		√	√	√
12	Parts of sample falling off continuously		/	/	/
13	Duration of continued combustion on mesh base (max.)	min:s	NO	NO	NO
14	Burner flame impairment by dripping/falling material Time <sup>1)</sup>	min:s	NO	NO	NO
15	Premature ending of test End of burning at specimen <sup>1)</sup>	min:s	/	/	/
16	Time when test terminated (if applicable) <sup>1)</sup>	min:s	/	/	/
17	Burning after end of test Duration	min:s	NO	NO	NO
18	Number of specimens		/	/	/
19	Front of specimen		/	/	/
20	Back of specimen		/	/	/
21	Height of flame	cm	/	/	/



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Results of "Brandschacht" Test (part 2)									
Line No.	Unit	Test assemblies No.							
		A		B		C		D	
	Glowing after end of test	NO		NO		NO			
22	Duration min:s	/		/		/			
23	Number of specimens	/		/		/			
24	Front of specimen	/		/		/			
25	Back of specimen	/		/		/			
26	Top half of specimen	/		/		/			
27	Bottom half of specimen	/		/		/			
	Smoke density	NT		NT		NT			
28	≤400%xmin 100%xmin	/		/		/			
29	>400%xmin 100%xmin	/		/		/			
30	Diagram No. in annex	/		/		/			
	Residual length	/		/		/			
31	Single results cm	35	35	36	32	36	38		
		33	38	37	35	35	35		
32	Average of the single results cm	35.3		35.0		36.0			
33	Photo of No. in annex	/		/		/			
	Smoke temperature	/		/		/			
34	Max. of average °C	144.2		140.5		142.5			
35	Time <sup>1)</sup> min:s	07:41		07:50		08:01			
36	Diagram No. in annex	/		/		/			

Note: <sup>1)</sup> time from start of testing

\*Reduction in number of test (DIN 4102 Part 16, clause 5.2)



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Class B1 materials:

If the residual length measured after the first test is 45cm or greater, further tests are not required.

## 2) Normal Flammability Test according to DIN 4102-1 Clause 6.2

Bottom edge ignition

Flame application time: 15s

Parameter	1	2	3	4	5
Whether or not flaming extinguished before reach the gauge mark(Yes/No)	YES	YES	YES	YES	YES
Whether or not flaming reach the measuring mark within 20 seconds(Yes/No)	NO	NO	NO	NO	NO
Time for the flame tip to reach the gauge mark(s)	NA	NA	NA	NA	NA
Time of flaming extinguished from fire application (s)	0	0	0	0	0
Max. flame height (cm)	2	2	2	2	2
Molten dripping(Yes/No)	No	No	No	No	No
Smoke developments (visual impression)	Slight				

Note:

NA---Not applicable

## DIN 4102-1:1998 Criteria for classification

- 1) All materials, except flooring, may be classed as B1 materials if they meet the following requirements a) and b):
  - a) The test using the 'Brandschacht' apparatus described in DIN 4102-15 (cf. subclause 6.1.3.1) shall be deemed passed if
    - The mean value for the residual length (portion of specimen that has not burned or charred; cf. subclause 9.1 of DIN 4102-16) of each specimen is at least 15 cm and no individual values are lower than 0 cm,
    - The mean effluent temperature does not exceed 200 °C in any test,
    - The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.



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b) Pass DIN 4102-1: 1998 sub-clause 6.2.3 Ignitability Test if

For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

2) Materials may be classed as B2 materials if they pass the ignitability test specified in DIN 4102-1: 1998 subclause 6.2.5.

For each specimen, flaming doesn't reach the gage mark (150mm marks) within 20s after flame application.

3) Combustible materials which cannot be classed as B1 or B2 materials shall be classed as B3 materials.

### STATEMENTS:

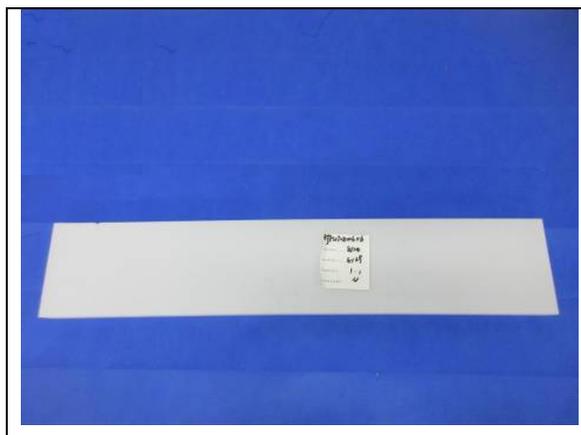
This test report does not replace any mandatory certification of the product that may be required.

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 and smoke hazard of the product in use.

Note: The test was performed by SGS other internal laboratory.

Classification: The tested sample meets class B1 building materials requirements of DIN 4102-1 (May 1998).

Sample photo:



\*\*\*\*\* End of report\*\*\*\*\*



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