

Customer details: Le Mark Self Adhesives Ltd  
Unit 1 Houghton Hill Industries  
Sawtry Way  
Houghton  
Cambridgeshire  
PE28 2DH

SATRA reference: FLO0240882/1549/4

Your reference: 000823

Date of report: 16 December 2015

Samples received: 4 December 2015

For the attention of: Keelan Cochrane

Date(s) work carried out: 4 December 2015 –  
9 December 2015

## TECHNICAL REPORT

Subject: Testing of one sample described by the customer as 'Two Tone' to  
BS EN ISO 9239-1:2010

### Conditions of Issue:

This report may be forwarded to other parties provided that it is not changed in any way. It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.

Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

Tests marked  $\neq$  fall outside the UKAS Accreditation Schedule for SATRA. All interpretations of results of such tests and the comments based upon them are outside the scope of UKAS accreditation and are based on current SATRA knowledge.

**A satisfactory test report in no way implies that the product tested is approved by SATRA and no warranty is given as to the performance of the product tested. SATRA shall not be liable for any subsequent loss or damage incurred by the client as a result of information supplied in the report.**

Please note uncertainty of measurement has not been applied to the results in this report. SATRA uncertainty of measurement values are available on request.

Report signed by: Philip Weal  
Position: Senior Technician  
Department: Furniture and Floor Coverings

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TECHNOLOGY

**Test Details****Purpose of test**

To determine the performance of specimens of a product when they are subjected to the conditions of the test procedure defined in the document BS EN ISO 9239-1:2010 – Reaction to Fire Tests For Floorings – Part 1: Determination of the Burning Behaviour Using a Radiant Heat Source. The test was performed in accordance with the procedure defined in BS EN ISO 9239-1:2010, and this report should be read in conjunction with that standard.

**Scope of test**

BS EN ISO 9239-1:2010 describes a European test procedure for assessing the burning behaviour, spread of flame and smoke development of horizontally mounted floorcovering systems exposed to a radiant heat gradient in a test chamber, when ignited with a pilot flame.

The measurements provide a basis for estimating one aspect of fire exposure behaviour of floor covering systems. The imposed Radiant Flux simulates the thermal radiation levels likely to impinge on the floors of a building whose upper surfaces are heated by flames or hot gases or both, from a fire in an adjacent room or compartment.

This method is applicable to all types of floor coverings such as textile carpet, cork, wood, rubber and plastic coverings as well as coatings. Results obtained by this method reflect the performance of the total floor covering system as tested. Modifications of the backing, bonding to a substrate, underlay, or other changes to the system may affect the test results. The test is intended for regulatory purposes, specification acceptance, design purposes, classification, or development and research.

**Instruction to test**

The test was conducted on the 8 and 9 December 2015 at the request of Le Mark Self Adhesives Ltd, the sponsor of the test.

**Provision of test specimen**

The specimens were supplied by Le Mark Self Adhesives Ltd, the sponsor of the test. SATRA Technology Centre Ltd was not involved in any selection or sampling procedure.

**Conditioning of specimens**

The specimens were received on the 4 December 2015. Prior to testing the specimens were conditioned either until constant mass was achieved or conditioned for a fixed period of time as defined in BS EN 13238:2010 - Conditioning Procedures and General Rules for selection of substrates.

**Number of specimens tested**

Three specimens were tested in a direction perpendicular to that of manufacture.

**Exposed Face**

The white decorative face of the specimen was exposed to the radiant heat of the test when the specimens were mounted in the test position.

**Substrate**

Fibre cement board supplied by Clarkes of Walsham Ltd.

## Description of Test Specimens

The description of the specimen given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

General description of flooring system		DANCE FLOORING	
Product reference of flooring system		H.S. CODE 39181090	
Colour reference		BLACK / WHITE	
Name of Manufacturer		RMG POLYVINYL INDIA LIMITED	
Overall weight per unit area		1600 GSM	
Overall Thickness		1.20 MM	
<b>Floor covering</b>	Configuration	N/A	
	Layer 1 (Silicon / Quartz Particulate)	Product Reference	N/A
		Generic Type	N/A
		Name of Manufacturer	N/A
		Application Rate	N/A
		Application method	N/A
		Specific gravity	N/A
		Colour reference	N/A
		Flame Retardant Details	N/A
	Layer 2 (Wear Layer)	Product Reference	DANCE FLOORING
		Generic Type	PVC CUSHION FLOORING WITH GLASS
		Name of Manufacturer	RMG POLYVINYL INDIA LIMITED
		% Composition	30%
		Weight per unit area	325 GSM
		Thickness	0.25 MM
		Trade name of flame retardant	(NO SPECIAL ADDITIVES ADDED)
		Generic form of flame retardant	
	Amount of flame retardant		
	Layer 3 (Printed film)	Product Reference	N/A
		Generic Type	N/A
		Name of Manufacturer	N/A
		% Composition	N/A
		Weight per unit area	N/A
		Thickness	N/A
		Flame Retardant details	N/A
		Generic form of flame retardant	N/A
	Amount of flame retardant	N/A	
	Glass fibre sheet incorporated in backing layer	Product Reference	DANCE FLOORING
		Generic Type	GLASS FIBER TISSUE IMPREGNATED WITH
		Name of Manufacturer	GFT IMPORTED BY RMG POLYVINYL INDIA
		Thickness	0.30 MM
Weight per unit area		325 GRAM PER SQ. MTR.	
Flame Retardant details		(NO SPECIAL ADDITIVES ADDED)	
Generic form of flame retardant			
Amount of flame retardant			

Floorcovering	Backing Material (Calendared Layer)	Product Reference	DANCE FLOORING
		Generic Type	BACKING LAYER BY COATING PROCESS
		Name of Manufacturer	RMG POLYVINYL INDIA LIMITED
		Thickness	0.60
		Weight per unit area	900 GSM
		Flame Retardant details	(NO SPECIAL ADDITIVES ADDED)
		Generic form of flame retardant	
Amount of flame retardant			
Adhesive	Product Reference	NO ADHESIVE USED	
	Generic Type		
	Name of Manufacturer		
	Density (20°C)		
	Colour		
Substrate	Product reference	'Cembrit HD'	
	Generic type	Fibre cement board	
	Name of supplier	Clarkes of Walsham Ltd	
	Thickness	8 ± 2mm	
	Density	1800 ± 200 kg/m <sup>3</sup>	
Brief Description of the manufacturing process		FLOORING IS PRODUCED ON STORK SPREAD COATING LINE	

## Test Results

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

The distance between the flame front and the Zero point at 10 minute intervals together with the observations recorded during the tests in respect of each specimen tested are given in Table 1.

In accordance with the procedure defined in BS EN ISO 9239-1:2010, the following results were obtained:

Average maximum flame front distance = **153 mm**

Average critical radiant flux = **10.24 kW/m<sup>2</sup>**

Average Smoke Development = **124.45 %**

Average maximum light attenuation = **51.14 %**

## Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

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**Table 1 – Individual specimen results for sample referenced 'Two Tone'**

Distance (cm)	Specimen Number		
	1	2	3
	Time to Travel Indicated Distance (Seconds)		
5	135	139	135
10	140	139	135
15	184	-	-
20	-	-	-
25	-	-	-
30	-	-	-
35	-	-	-
40	-	-	-
45	-	-	-
50	-	-	-
55	-	-	-
60	-	-	-
65	-	-	-
70	-	-	-
75	-	-	-
80	-	-	-
85	-	-	-
90	-	-	-
95	-	-	-
100	-	-	-
Max. flame front Distance (cm)	20.0	12.0	14.0
Critical Radiant flux (kW/m <sup>2</sup> )	9.55	10.71	10.45
Smoke Development (%.min)	135.31	117.21	120.82
Max. Light attenuation (%)	57.16	52.50	43.75

Specimen Number	1	2	3
Flame front Distance at 10 min (cm)	20.0	12.0	14.0
Flame front Distance at 20 min (cm)	20.0	12.0	14.0
Flame front distance at 30 min (cm)	20.0	12.0	14.0
Radiant Flux at 10 minutes, R <sub>f10</sub> (kW/m <sup>2</sup> )	9.55	10.71	10.45
Radiant Flux at 20 minutes, R <sub>f20</sub> (kW/m <sup>2</sup> )	9.55	10.71	10.45
Radiant Flux at 30 minutes, R <sub>f30</sub> (kW/m <sup>2</sup> )	9.55	10.71	10.45

*P. WEAL*

## Observations

The following observations of the burning characteristics of the specimens during the testing exposure were made:

Specimens extinguished naturally.

A large, light blue watermark of the SATRA TECHNOLOGY logo is centered on the page, behind the main text. The word "SATRA" is in a very large font, and "TECHNOLOGY" is in a smaller font below it, all within a light blue rectangular background.

TECHNOLOGY

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  - ii. Where SATRA has given consent to disclosure, the Customer shall draw the attention of the third party to these terms of business and the basis on which SATRA undertakes test, reporting and advising. The Customer shall indemnify SATRA for any failure to do so.
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13. **CONSTRUCTION AND ARBITRATION**  
The laws of England shall govern all contracts and the parties submit to exclusive jurisdiction of the courts of England, unless otherwise agreed.

Issue Date: 1st October 2009

Le Mark Self Adhesives Ltd  
SATRA Reference: FLO0240882/1549/4  
Date: 16 December 2015

Signed:

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