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Customer: R - Tek Manufacturing Limited  
Unit 1  
Hamiltownsbawn Industrial Estate  
Armagh  
County Armagh  
BT60 1HW

SATRA Ref: FLO0182952/1009/4

Report Date: 21 April 2010

Samples received: 1 March 2010

Contact: Peadar Hurson

## TECHNICAL SERVICES REPORT

Subject: Testing of materials to BS EN 434:1994

Your reference:

### 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 It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.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 † 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.**

Report signed by: Jacqueline Glasspool  
Position: Business area manager  
Department: Flooring

(Page 1 of 6)



## TESTING OF MATERIALS TO BS EN 434:1994

As requested by R – Tek Manufacturing Limited, an assessment of the dimensional stability of samples submitted has been undertaken, as detailed below.

### SAMPLES SUBMITTED

Reference: 7mm Textured, 5mm Studded, 5mm Slate  
Description: Profiled PVC floor covering  
Colour: Black, Grey  
Appearance:



*7mm Textured*



*5mm Studded*



*5mm Slate*

Date received: 1<sup>st</sup> March 2010  
Testing completed: 31<sup>st</sup> March 2010  
Testing conducted by: Mandy De Wet

### TESTS CARRIED OUT

- BS EN 434: 1994, Resilient floor coverings – Determination of dimensional stability and curling after exposure to heat

#### Note:

*(1) The results have been assessed in accordance with BS EN 649: 1997, Resilient floor coverings – Homogeneous and heterogeneous polyvinyl chloride floor coverings – Specification.*

## RESULTS

Sample	Property	Requirements	Results
5mm Studded	<i>Dimensional stability after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 0.25\%$	0.16%
	<i>Curling after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 2\text{mm}$	<0.04 mm

Sample	Property	Requirements	Results
5mm Slate	<i>Dimensional stability after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 0.25\%$	0.13%
	<i>Curling after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 2\text{mm}$	0.10 mm

Sample	Property	Requirements	Results
7mm Textured	<i>Dimensional stability after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 0.25\%$	0.19%
	<i>Curling after exposure to heat:</i>	<i>(Sheets and tiles intended for dry joint laying)</i> Tolerance allowed: $\leq 2\text{mm}$	0.40 mm

See annex 1.0 for raw data

## COMMENTS

This test determines the dimensional stability and curling of a resilient floor covering on exposure to heat. Three test specimens are prepared in accordance with EN 434 and placed on to a metal support plate. One hour after preparation measurements are carried out to ascertain the dimensions of the test specimens and the vertical distance between the specimen and the support plate. The specimens are then transferred to an oven for 360 min at a temperature of 80°C.

After completion of the testing the test specimens are removed from the oven and allowed to cool / recondition at a temperature of 23°C ± 2°C and relative humidity 50% ± 5% for a further 24 hours. Further measurements are then taken after reconditioning period.

The sample referenced "5mm Studded" demonstrated an average dimensional change of 0.16% therefore satisfying the requirements as stated in BS EN 649:1997.

With regard to curling, the sample referenced "5mm Studded" demonstrated an average value of <0.04mm satisfying the requirements as stated in BS EN 649:1997.

The sample referenced "5mm Slate" demonstrated an average dimensional change of 0.13% therefore satisfying the requirements as stated in BS EN 649:1997.

With regard to curling, the sample referenced "5mm Slate" demonstrated an average value of 0.10mm satisfying the requirements as stated in BS EN 649:1997.

The sample referenced "7mm Textured" demonstrated an average dimensional change of 0.19% therefore satisfying the requirements as stated in BS EN 649:1997.

With regard to curling, the sample referenced "7mm Textured" demonstrated an average value of 0.40mm satisfying the requirements as stated in BS EN 649:1997.

## Annex 1.0

### 5mm Studded

Sample no.	Length	Measurement			Measurement after conditioning			Dimensional change +/-	% change
		1	2	Average	1	2	Average		
1	A	200.31	200.23	200.27	200.32	199.81	200.07	-0.20	0.10
	B	200.77	200.93	200.85	200.70	200.85	200.78	-0.07	0.03
2	A	200.38	200.68	200.53	199.82	200.43	200.13	-0.40	0.20
	B	199.97	200.27	200.12	199.92	199.92	199.92	-0.20	0.10
3	A	200.26	200.26	200.26	199.35	199.61	199.48	-0.78	0.39
	B	200.24	200.24	200.24	200.04	199.83	199.94	-0.30	0.15

### 5mm Slate

Sample no.	Length	Measurement			Measurement after conditioning			Dimensional change +/-	% change
		1	2	Average	1	2	Average		
1	A	199.69	200.58	200.14	199.89	199.89	199.89	-0.25	0.12
	B	200.22	200.22	200.22	199.87	199.77	199.82	-0.40	0.20
2	A	199.88	200.72	200.30	199.68	200.17	199.93	-0.37	0.18
	B	200.17	199.89	200.03	200.13	199.88	200.01	-0.02	0.01
3	A	200.69	200.69	200.69	200.68	200.24	200.46	-0.23	0.11
	B	200.11	199.81	199.96	199.61	199.58	199.60	-0.36	0.18

### 7mm Textured

Sample no.	Length	Measurement			Measurement after conditioning			Dimensional change +/-	% change
		1	2	Average	1	2	Average		
1	A	200.62	199.95	200.29	200.49	199.18	199.84	-0.45	0.22
	B	199.95	200.10	200.03	199.70	199.51	199.61	-0.42	0.21
2	A	200.37	199.72	200.05	201.12	199.07	200.10	+0.05	0.02
	B	200.02	200.30	200.16	199.57	199.26	199.42	-0.74	0.37
3	A	201.55	200.77	201.16	201.13	200.72	200.93	-0.23	0.11
	B	200.77	200.76	200.77	200.70	199.77	200.24	-0.53	0.26

## TERMS AND CONDITIONS OF BUSINESS

1. **GENERAL**  
Work done or services undertaken are subject to the terms and conditions detailed below and all other conditions, warranties and representations, expressed or implied are hereby excluded.
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Delivery estimates are made in good faith and date from receipt of a written order and full information to enable us to proceed. While SATRA or its subsidiaries (hereafter referred to as "SATRA") make every effort to fulfil them, such estimates are subject to unforeseen events and if not maintained, cannot give rise to any claim. Offers "ex stock" are subject to prior sale.
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Cancellation of orders for goods, services, training or consultancy is only acceptable by prior agreement of SATRA and a charge will normally be made.
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Claims for errors, shortages etc should be notified within 10 days of date of receipt. In the event of goods damaged in transit, packing materials should be retained for examination; otherwise no liability can be accepted.
6. **PAYMENT TERMS**  
Payment terms are net 21 days from date of invoice. Failure to comply with the terms of payment may result in delayed delivery of goods and services and a review of the Customer's credit account. Should the customer become subject to an administration order, or becomes bankrupt or goes into liquidation, SATRA has a right to cancel any contract and discontinue any work. SATRA reserves the right to adjust US Dollar and Euro sales price where customer exceeds credit terms and where the exchange rate has moved more than 10% since invoicing.
7. **RETENTION OF TITLE**  
All goods remain the property of SATRA until paid in full. Under no circumstances will a customer's purchase order override our Retention of Title clause. In the case of software, the ownership of the software remains with SATRA. Payment of invoices in full will entitle the customer to use the software under licence until (a) they cease to be a member of SATRA or (b) they cease trading. In both instances, the licence shall then revert to SATRA.
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All goods manufactured by SATRA are guaranteed both as regards material and workmanship. Any part returned carriage paid, within twelve months from date of supply and found defective, will be repaired or replaced at SATRA's option free of charge. SATRA admits no liability for loss, damage or delay consequent on any defect in any goods supplied by SATRA.
9. **TEST REPORTS**  
Results given in test reports refer only to samples submitted for analysis and tested by SATRA. 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 a test report.
10. **TEST SAMPLES**  
Unless otherwise agreed in advance, test samples will be disposed of 6 weeks after the date of the final report. If required, samples can be returned at the Customer's expense.
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Every effort is made to ensure accuracy in description, drawings and other information in correspondence, catalogues, etc but no warranty is given in this respect and SATRA shall not be liable for any error therein. SATRA carries out all tests and/or advises only on the basis that the same are carried out, made or given without any responsibility whether for negligence or otherwise. SATRA and its servants or agents will not be liable for any damage or loss direct or indirect of whatsoever kind, whether or not the same results directly or indirectly from negligence on the part of SATRA or its servants or agents.
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Unless specifically excluded in the terms of an individual contract between SATRA and its Customer, the following shall apply to all reports, advice, drawings, photographs, specifications or data:
  - i. The above shall not be disclosed to third parties or used in litigation without the consent of SATRA.
  - 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.
  - iii. The above items are submitted to the Customer as confidential documents. Confidentiality shall continue to apply after completion of the business, but shall cease to apply to information or knowledge which may come into the public domain.
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

R - Tek Manufacturing Limited  
Job: FLO0182952/1009/4  
Date: 21 April 2010

Signed:

  
