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

SATRA Ref: FLO0182952/1009/6

Report Date: 21 April 2010

Samples received: 1 March 2010

Contact: Peadar Hurson

## TECHNICAL SERVICES REPORT

Subject: Testing of materials to DIN 51130

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 It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.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. All comments and interpretations 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

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# Technical Services Report

## TESTING OF MATERIALS TO DIN 51130

As requested by R-Tek Manufacturing Limited, SATRA has conducted an assessment of the slip resistance of the flooring samples submitted, as detailed below.

### SUMMARY

With regards to the requirements laid out in DIN 51130 the floor sample submitted under reference “7mm Textured” achieved a category rating R10

With regards to the requirements laid out in DIN 51130 the floor sample submitted under reference “5mm Studded” achieved a category rating R10

With regards to the requirements laid out in DIN 51130 the floor sample submitted under reference “5mm Slate” achieved a category rating R10

### SAMPLE 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

- DIN 51130: 1992 Testing of Floor coverings - Determination of Slip resistance work rooms and areas of work with an increased risk of slipping - Walking method - Ramp test.†<sup>(1)</sup>

#### Note:

1) The test method DIN 51130 has been modified. The standard shoe described in DIN 51130 clause 4 is no longer available and no replacement has yet been finalised. To ensure the slip testing is completed according to the method and on the advice sort from the German Standards the standard shoe has been replaced with the UVEX Athletic Boots (9453/9). Verification testing has been carried out using the three standard floor coverings E, P and R to ensure the replacement shoes meet the requirements described in the method DIN 51130.

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## RESULTS:

Below are the corrected figures for each of the samples tested along with their final classifications.

### 7mm Textured

Test No.	Operator 1 Inclined Platform Shod (°)	Operator 2 Inclined platform shod (°)
1	10.4	10.9
2	10.4	12.7
3	11.6	10.0
Mean	<b>11.0</b>	
Rating	<b>R10</b>	

### 5mm Studded

Test No.	Operator 1 Inclined Platform Shod (°)	Operator 2 Inclined platform shod (°)
1	11.8	11.7
2	11.4	10.8
3	12.1	11.6
Mean	<b>11.6</b>	
Rating	<b>R10</b>	

### 5mm Slate

Test No.	Operator 1 Inclined Platform Shod (°)	Operator 2 Inclined platform shod (°)
1	11.0	13.0
2	12.7	11.5
3	11.9	11.2
Mean	<b>11.9</b>	
Rating	<b>R10</b>	

*Note: For raw data and un-corrected results see annex 1.0*

# Technical Services Report

## DISCUSSION:

This test measures slip through the use of a human subject, who walks backwards and forwards over contaminated flooring at ever increasing angles of inclination. The resulting angle at which slip occurs classifies the flooring via a rating using a designation such as R9 up to R14.

The test surface is coated with specific viscosity grade oil and is tilted from the horizontal at a rate of one degree per second. Two people perform the test separately with the subject wearing safety footwear and each determine the angle three times; the overall average of the six results is used to categorise the surface with the R rating as detailed below.

### R rating category

R Value	Category Static Friction is:	Angle of Inclination
<b>R9</b>	Low	6° to 10°
<b>R10</b>	Normal	>10° to 19°
<b>R11</b>	Above Average	>19° to 27°
<b>R12</b>	High	>27° to 35°
<b>R13</b>	Very High	>35°

### Note to end use applications:

R9 Floors in work rooms and work areas without a high risk of slipping. General and private areas.  
 R10 to R13 Floors in workrooms and work areas where there is an increased risk of slipping due to grease, oil, water, foods, left-overs, dust, flour, plant clippings, etc.

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Annex 1.0

Verification results and correction values for sample referenced “7mm Textured”

Verification Board	Operator A Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.0	11.2	11.4	11.2	0.5	Y
<b>P (18.2 ± 2.7)</b>	18.0	18.3	18.2	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.1	28.0	26.2	26.8	0.0	Y

Test Run	Operator A			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	10.0	0.4	10.4	<b>10.8</b>
<b>2</b>	10.0	0.4	10.4	
<b>3</b>	11.2	0.4	11.6	

Verification Board	Operator B Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.7	11.9	11.6	11.7	1.0	Y
<b>P (18.2 ± 2.7)</b>	18.4	17.7	18.4	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.5	26.9	26.9	26.8	0.0	Y

Test Run	Operator B			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	10.2	0.7	10.9	<b>11.2</b>
<b>2</b>	12.0	0.7	12.7	
<b>3</b>	9.3	0.7	10.0	

# Technical Services Report

Verification results and correction values for sample referenced “5mm Studded”

Verification Board	Operator A Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.0	11.2	11.4	11.2	0.5	Y
<b>P (18.2 ± 2.7)</b>	18.0	18.3	18.2	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.1	28.0	26.2	26.8	0.0	Y

Test Run	Operator A			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	11.5	0.3	11.8	<b>11.8</b>
<b>2</b>	11.1	0.3	11.4	
<b>3</b>	11.8	0.3	12.1	

Verification Board	Operator B Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.7	11.9	11.6	11.7	1.0	Y
<b>P (18.2 ± 2.7)</b>	18.4	17.7	18.4	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.5	26.9	26.9	26.8	0.0	Y

Test Run	Operator B			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	11.0	0.7	11.7	<b>11.4</b>
<b>2</b>	10.10	0.7	10.8	
<b>3</b>	10.90	0.7	11.6	

# Technical Services Report

Verification results and correction values for sample referenced “5mm Slate”

Verification Board	Operator A Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.0	11.2	11.4	11.2	0.5	Y
<b>P (18.2 ± 2.7)</b>	18.0	18.3	18.2	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.1	28.0	26.2	26.8	0.0	Y

Test Run	Operator A			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	10.7	0.3	11.0	<b>11.9</b>
<b>2</b>	12.4	0.3	12.7	
<b>3</b>	11.6	0.3	11.9	

Verification Board	Operator B Verification					
	Test Run			Average	Difference	Proceed?
	1	2	3			
<b>E (10.7 ± 3.7)</b>	11.7	11.9	11.6	11.7	1.0	Y
<b>P (18.2 ± 2.7)</b>	18.4	17.7	18.4	18.2	0.0	Y
<b>R (26.8 ± 2.3)</b>	26.5	26.9	26.9	26.8	0.0	Y

Test Run	Operator B			
	Mean result	Correction factor	Corrected result	Mean corrected result
<b>1</b>	12.3	0.7	13.0	<b>11.9</b>
<b>2</b>	10.8	0.7	11.5	
<b>3</b>	10.5	0.7	11.2	

# Technical Services Report

## 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.
2. **PRICES**  
Prices are based on current material and production costs, exchange rates, duty and freight and are subject to change without notice.
3. **DELIVERY ESTIMATES**  
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.
4. **CANCELLATION AND RETURNS**  
Cancellation of orders for goods, services, training or consultancy is only acceptable by prior agreement of SATRA and a charge will normally be made.
5. **CLAIMS**  
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.
8. **GUARANTEE**  
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.
11. **RESPONSIBILITY**  
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.
12. **CONFIDENTIALITY**  
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