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**ASSESSMENT OF TWO POLYURETHANE ANTI-SLIP  
COATINGS; REFERENCE STANDARD AND SIX MONTHS  
WEATHERED, SUPPLIED BY NEW VENTURE PRODUCTS  
LIMITED**

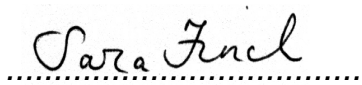
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THE OPINIONS AND INTERPRETATIONS EXPRESSED HEREIN ARE OUTSIDE THE  
SCOPE OF THE UKAS ACCREDITATION

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REQUESTS FOR ADDITIONAL INFORMATION ON THE SUBJECT OF THIS REPORT OR OTHER QUERIES SHOULD BE ADDRESSED TO THE AUTHOR.

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## 1. Introduction

4-RAIL Services Limited were requested by Mr. Stephen Rudge of New Venture Products Limited to carry out a laboratory slip resistance assessment of two Polyurethane anti-slip coatings and their respective six months weathered version, as detailed below.

A brief description of the flooring sample received on 6<sup>th</sup> August 2013 is given below:

SAMPLE REFERENCE	DESCRIPTION	APPROX SIZE / MM
130406/060813/1	Protectakote UVR White (single component aliphatic polyurethane coating)	300 x 200
130406/060813/2	Protectakote UVR White (Weathered for 6 months) (single component aliphatic polyurethane coating)	300 x 200
130406/060813/3	Protectakote Black (single component aromatic polyurethane)	300 x 200
130406/060813/4	Protectakote Black (Weathered for 6 months) (single component aromatic polyurethane)	300 x 200

The samples will be retained for a period of one month from sample receipt, unless otherwise specified.

## 2. Test Methods

### 2.1 Slip Resistance Assessment

Slip resistance was measured in accordance with 4-Rail Services Limited Test Procedure 4R-M125, which is based on the guidelines recommended by the UK Slip Resistance Group in the booklet 'The Measurement of Floor Slip Resistance' and the British standard BS 7976.

Slip resistance was measured with a portable slip tester designed by the Transport Research Laboratory (TRL). Testing was carried out under both dry and wet conditions, using the standard Four S contact rubber as specified by the Rubber and Plastics Research Association.

The sample was slip tested in three directions; along a defined principal axis and at 90° and 45° to the principal axis. Each individual test comprised testing of the flooring material eight times under both dry and wet conditions, with the first three readings being discarded and an average calculated from the last five.

### 2.2 Surface Roughness

Surface Roughness Measurements were taken using a Surtronic 10. Ten readings were taken in random locations on the surface of the test piece and the average calculated.

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**3. Results**

**3.1 Slip Resistance**

Slip Resistance measurements were made on the samples on 6<sup>th</sup> August 2013.

The samples were tested under the following environmental conditions:

Air Temperature: 23.9 °C  
 Floor Temperature: 23.9 °C  
 Humidity: 44% RH

SAMPLE NUMBER	TEST DIRECTION	TEST CONDITION	SLIP RESISTANCE VALUES	AVERAGE VALUE	OVERALL AVERAGE
130406/ 060813/1	Principal Axis	Dry	52, 52, 52, 53, 53	52	<b>Dry: 52 Wet: 41</b>
		Wet	40, 40, 40, 40, 40	40	
	90° to Principal Axis	Dry	52, 52, 52, 52, 53	52	
		Wet	41, 42, 41, 40, 41	41	
	45° to Principal Axis	Dry	51, 51, 51, 51, 51	51	
		Wet	41, 41, 41, 42, 42	41	
130406/ 060813/2 Weathered	Principal Axis	Dry	57, 57, 57, 57, 57	57	<b>Dry: 56 Wet: 46</b>
		Wet	45, 45, 45, 45, 45	45	
	90° to Principal Axis	Dry	56, 56, 56, 56, 56	56	
		Wet	47, 47, 47, 47, 47	47	
	45° to Principal Axis	Dry	56, 56, 56, 56, 57	56	
		Wet	45, 45, 47, 46, 46	46	

The average surface roughness of the standard panel is 36.6 µm  
 The average surface roughness of the weathered panel is 24.5 µm

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SAMPLE NUMBER	TEST DIRECTION	TEST CONDITION	SLIP RESISTANCE VALUES	AVERAGE VALUE	OVERALL AVERAGE
130406/ 060813/3	Principal Axis	Dry	51, 51, 51, 51, 51	51	<b>Dry: 52 Wet: 39</b>
		Wet	39, 38, 39, 39, 39	39	
	90° to Principal Axis	Dry	52, 52, 52, 52, 52	52	
		Wet	36, 37, 37, 36, 37	37	
	45° to Principal Axis	Dry	51, 52, 52, 52, 52	52	
		Wet	40, 40, 40, 40, 40	40	
130406/ 060813/4 Weathered	Principal Axis	Dry	59, 59, 59, 59, 59	59	<b>Dry: 60 Wet: 41</b>
		Wet	42, 40, 40, 40, 40	40	
	90° to Principal Axis	Dry	63, 63, 63, 63, 63	63	
		Wet	41, 41, 41, 41, 41	41	
	45° to Principal Axis	Dry	59, 58, 58, 59, 59	59	
		Wet	41, 41, 42, 41, 41	41	

The average surface roughness of the standard panel is 38.3 µm  
The average surface roughness of the weathered panel is 37.5 µm

**4. Comments**

The criteria generally accepted in the U.K. are given in the ‘Guidelines Recommended by the UK Slip Resistance Group’. However, it should be noted that no single piece of information can be used to assess a floor’s potential for slip. A brief summary is given below:

<u>4S Pendulum Value</u>	<u>Potential for Slip</u>
25 and below	High
25 to 35	Moderate
36 and above	Low

The criteria apply under both dry and wet conditions. Only flooring in the “Low” category are deemed acceptable for general pedestrian use.

Based on these guidelines all the products tested fell into the low potential for slip classification under both dry and wet test conditions.

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<u>Rz Surface Roughness</u>	<u>Potential for Slip</u>
Below 10	High
Between 10 and 20	Moderate
Above 20	Low

The surface roughness values are applicable for water wet low activity pedestrian areas. Generally surfaces contaminated with pure water require a surface roughness of at least 10µm RZ to provide a reasonable level of slip resistance.

Based on these guidelines for surface roughness values all the products tested fell into the low potential for slip.

Results are presented for final comments and opinions from New Venture Products Limited and the ultimate client.