LABOSPORT

Technical Report

Assessment of impact absorbing playground surfacing in accordance with BS EN 1177 and BS 7188

for

Rosehill Polymers Ltd

Summary

Samples of impact absorbing playground surfacing have been tested in accordance with BS EN 1177: *Impact absorbing playground surfacing – Performance requirements and test methods* and selected properties detailed in BS 7188: *Impact absorbing playground surfacing – Performance requirements and test methods.* This report describes the samples tested; details the tests carried out and results obtained and compares the results to the recommendations of the British Standard.

Unit 3, Heanor Gate Road, Heanor, Derbyshire, England, DE75 7RJ
Tel. +44 (0)1773 765007 Fax. +44 (0)1773 765009
www.labosport.com

Labosport Limited is registered in England Number: 5185905 at 14 Birchview Close, Belper, Derbyshire DE56 1RS

1 Client

Rosehill Polymers Ltd
Rose Hills Mills
Beech Road
Sowerby Bridge
HX6 2JT

2 Samples

Samples of impact absorbing playground surfacing were supplied by Rosehill Polymers Ltd for test. They comprised a 35mm thick surface formed from two layers. The lower layer (based on descriptions provided by Rosehill Polymers Ltd) comprised a nominal 35mm thick base layer formed from 2mm – 8mm SBR granules bound with 10% *Flexilon* binder. The wearing surface was nominally 15mm thick and was formed from 1mm – 4mm T.P.V. *Inplay* bound with 18% *Flexilon* binder.

3 Methods of test

The surface was assessed in accordance with BS EN 1177: Impact Absorbing Playground Surfacing - *Safety Requirements and Test Methods* and BS 7188: 1998: *Impact absorbing playground surfacing – Performance requirements and test methods.*

3.1 Critical fall height

The critical fall height of the surface was measured in accordance with BS EN 1177: 1998: *Impact absorbing playground surfacing – Performance requirements and test methods*. At each drop height nine tests were made, the mean result for each height been calculated and plotted.

3.2 Slip resistance

Slip resistance was measured in accordance with Clause 5 of BS 7188. This test uses the TRRL skid resistance tester. Tests were made under dry and wet conditions.

3.3 Resistance to indentation

The samples resistance to indentation was measured in accordance with Clause 6 of BS 7188. In this test a 500N load is applied to the sample through a 11.3mm diameter indenter and the indentation under load and following removal of the load of the sample is recorded over a period of time.

3.4 Ease of ignition

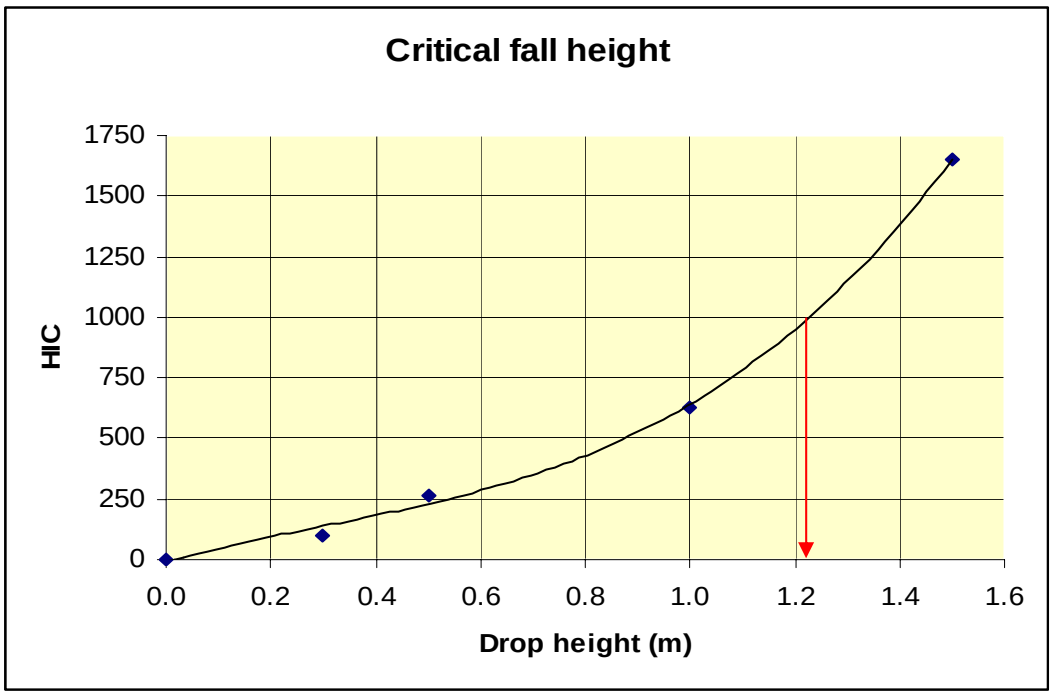
The ease of ignition of the surface was measured in accordance with Clause 7 of BS 7188 which specifies a surface is tested in accordance with BS 4790 (Hut Nut Test).

3.5 Tensile properties

The tensile strength of the wearing surface of the surfacing system was measured in accordance with Clause 8 of BS 7188.

4 Results

4.1 Critical Fall Height



Result = 1.2m

The critical fall height is quoted to one decimal place without rounding. An example of a time/deceleration graph is included in Appendix A.

4.2 Slip resistance

Test condition	
Dry	Wet
99	54

Requirements specified in BS 7188

Minimum slip resistance of 40 under dry or wet conditions.

4.3 Resistance to indentation

Test piece	Phase	Indentation value (mm) after time of			
		90 sec	15 min	150 min	22 hr
1	Loading	8.64	11.92		
	Recovery	3.05	2.88	2.46	1.55
2	Loading	10.78	11.19		
	Recovery	3.69	2.87	1.84	1.07
3	Loading	9.44	10.20		
	Recovery	2.29	1.52	1.19	1.00
mean	Loading	9.62	11.10		
	Recovery	3.01	2.42	1.83	1.21
Visual assessment					
1	No cracking, splitting or penetration of sample				
2	No cracking, splitting or penetration of sample				
3	No cracking, splitting or penetration of sample				

Requirements specified in BS 7188

Residual indentation: No greater than 5.0mm at conclusion of recovery period

Visual assessment: No cracking, splitting or penetration of sample

4.4 Ease of ignition

The test results obtained relate only to the behaviour specimens after application of a small source of ignition; they shall not be used s a means of assessing how the product will contribute to an established fire.

Measurement	Unit	Test piece			Max
		1	2	3	
Application of nut to extinction of flame	Sec	180	143	132	180
Extinction of flame after removal of nut	Sec	150	113	102	150
afterglow after flame extinction	Sec	38	23	25	38
Radius of burn*	mm	20	20	20	20

* the radius of burn is quoted to the nearest 5mm

Requirements specified in BS 7188

Surfaces having a radius of burn of 35mm or less shall be classified as having a 'low radius of effects of ignition'.

4.6 Tensile properties

Mean tensile strength of wearing surface = 1.41 Mpa

Requirements specified in BS 7188

Mean tensile strength of wearing surface: greater than 0.4Mpa.

5 Conclusions

5.1 Critical Fall Height

There are no minimum values of critical fall height. When installing impact absorbing playground surfacing the Critical Fall Height of the surfacing has to be greater than the potential fall height of the play equipment.

5.2 Slip Resistance

The sample satisfies the Slip Resistance requirement of BS 7188 undr dry and wet conditions.

5.3 Resistance to indentation

The sample satisfies the Resistance to Indentation requirement of BS 7188.

5.4 Ease of ignition

The sample satisfies the Ease of Ignition requirement of BS 7188.

5.5 Tensile properties

The wearing course layer satisfies the tensile properties requirement of BS 7188.

Report prepared by:

.....

Alastair Cox

Director

Appendix A – example of time / deceleration graph