



REPORT NUMBER
QI1005673-2



America

PREPARED FOR

ATTENTION

REPORT DATE
JULY 16, 2010

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REPORTED / APPROVED BY:

TÜV SÜD America, Inc.

Reported by: David Splane, Project Coordinator
CERTIFICATION TEST PROGRAMS

Approved by: Timothy Fouchia, Test Technician
CERTIFICATION TEST PROGRAMS



PURPOSE

The purpose of this test report is to present the test results obtained during the performance of a test program. This report includes a brief description of the samples presented for test, a list of the documents presented as test instructions, and a summary of the testing performed and the results obtained. Applicable requirements and conclusions are based on the criteria provided by our client, or as specified in the reference document(s).

WORK REQUESTED / REFERENCE DOCUMENT(s)

ASTM F1292-09 – Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment.

TEST SEQUENCE

Determine the Maximum Critical Fall Height of a six inch compacted depth Permalife Softstuff/Pour and Play Rubber Playground Surfacing, loose fill rubber material.

Testing was performed on 07/14/10, and 07/15/10.

SAMPLE DESCRIPTION

material identified by Rubber Playground Surfacing. submitted approximately 12 cubic feet of loose fill rubber as Permalife Softstuff/Pour and Play



TESTING PERFORMED

IMPACT ATTENUATION

Procedure

Sample material, Permalife Softstuff/Pour and Play Rubber Playground Surfacing, (6 inch compacted depth), was tested to determine the maximum critical fall height, at temperatures -6°C, 23°C, and 49°C. An impact test consists of three (3) impacts at the same impact site, at each temperature and height. Calculate the average HIC and G-max values using the second and third impact data.

Requirements

ASTM F1292-09, using an average of the last two (2) of three (3) impacts, no value shall exceed 200 G-max or 1000 HIC.

Conclusion

The Maximum Critical Fall Height of a six inch compacted depth Permalife Softstuff/Pour and Play Rubber Playground Surfacing material, was determined to exceed TÜV SÜD America's maximum test parameters of seventeen, (17'), feet.

SAMPLE DISPOSITION

The sample material will be retained by TÜV SÜD America for fifteen (15) days then disposed of at the discretion of TÜV SÜD America unless otherwise requested by



TEST EQUIPMENT

TÜV SÜD America, Inc.'s calibration system meets the requirements of ISO 17025:2005.

TÜV ID	Description	Manufacturer	Model	Calibration Due
System 2	Surface Impact Tester	Alpha Automation	Triax 2000	Verified prior to use
13792	Tri-axial accelerometer	Dytran	3014M2	11/10
13050	Reference Pad	Alpha Automation	N/A	NCR
11510	Hemispherical Missile	Alpha Automation	Per figure 1	02/12
10613	Micro P Display	Unimeasure	MR-0-JR-2MV13	01/11
10616	Pancake Load Cell	Sensotec	BL114DL30A	01/11
10633	Digital Thermometer	Omega	HHII	04/11
11820	Penetration Probe	Omega	88311	04/11
11476Z	Measurement Rod	Surveyors	1	10/10
6	Environmental Chamber	Thermotron	F-40-chv-LN2	11/10
DE006	Environmental Chamber	Thermotron	SM-32C	04/11

NCR – No Calibration Required

APPENDICES: Appendix A: Test Data



Client:		TUV Report No.:	QI1005673-2
Manufacturer:		Report Date:	7/16/2010
Manufacturing Location:		Test Date:	7/14/10 & 7/15/10
Phone:		Initial Test:	<input checked="" type="checkbox"/>
Commercial Name of product:	Permalife Softstuff/Pour and Play Rubber Playground Surfacing	Follow up Test:	<input type="checkbox"/> Ref Job:
Date of Manufacture:	Unknown	Sample Receipt Date:	7/7/2010
No. of samples submitted:	12 Cu. Ft.	Ambient Air Temperature:	22.7°C
		Humidity:	38%
Test Equipment:			
Triax 2000 Accelerometer Calibration Due Date:	Nov-10	Environmental Chamber No.:	6
Temperature Probe Calibration Due Date:	4/11	Calibration Due Date:	11/11/10
		Environmental Chamber No.:	DE006
		Calibration Due Date:	4/12/11
Loose fill Material Sample Description:			
Loose Fill Wood:	<input type="checkbox"/>	Un-compacted Depth:	7 Inches
Engineered Wood Fiber:	<input type="checkbox"/>		
Loose Fill Rubber:	<input checked="" type="checkbox"/>	Compacted Depth:	6 Inches
Sand:	<input type="checkbox"/>		
Gravel:	<input type="checkbox"/>		
Other:	<input type="checkbox"/>		
Unitary Sample Description:			
Tiles	<input type="checkbox"/>	Thickness:	
Poured in Place	<input type="checkbox"/>	Thickness:	
Other	<input type="checkbox"/>	Thickness:	
Comments:			
<p><u>The Maximum Critical Fall Height of a six inch compacted depth Permalife Softstuff/Pour and Play Rubber Playground Surfacing was determined to exceed TÜV SÜD America's maximum test parameters</u></p>			
	17	Ft.	
<p>The results reported herein reflect the performance of the above described samples at the time of testing and at the temperature(s) reported. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. The following data sheet provides an accurate representation of the test results.</p>			
<p>Sample in compliance with ASTM F1292-09 at the temperature and rating specified? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>			



Client:		TUV Report No. <u>QI1005673-2</u>								
Manufacturer:		Test Date: <u>7/14/10 & 7/15/10</u>								
Drop	Maximum Test Parameters (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	17	93	584	33.2	98	626	33.1	95	578	33.2
2	17	117	773	33.2	127	889	33.2	102	633	33.2
3	17	99	590	33.2	109	660	33.2	115	715	33.1
Average		108	681.5		118	774.5		108.5	674	
Measured Surface Temperature		(-6°C)	Max. Change from reference + 5°C ,(9°F)		23°C	Max. Change from reference ± 3°C ,(5.4°F)		47°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		
Drop	One foot under (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	16	91	529	32.2	82	457	32.2	90	515	32.2
2	16	85	480	32.2	76	393	32.1	89	494	32.1
3	16	106	665	32.2	96	582	32.2	104	608	32.1
Average		95.5	572.5		86	487.5		96.5	551	
Measured Surface Temperature		(-5°C)	Max. Change from reference + 5°C ,(9°F)		24°C	Max. Change from reference ± 3°C ,(5.4°F)		47°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		
Drop	Two foot under (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	15	87	498	31.2	92	561	31.2	80	435	31.2
2	15	79	414	31.2	101	607	31.1	94	517	31.2
3	15	116	734	31.4	107	640	31.2	99	543	31.2
Average		97.5	574		104	623.5		96.5	530	
Measured Surface Temperature		(-6°C)	Max. Change from reference + 5°C ,(9°F)		23°C	Max. Change from reference ± 3°C ,(5.4°F)		48°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		