



TESTING SERVICES, INC.
 817 SHOWALTER AVE. • P.O. BOX 2041
 DALTON, GEORGIA 30722-2041
 PHONE: (706) 226-1400 • FAX: (706) 226-6118



TEST REPORT

CLIENT:	X-Grass	REPORT NUMBER:	51658
	PO Box 579	LAB TEST NUMBER:	2316-7888
	Rocky Face, GA 30740	DATE:	April 30, 2011
		PAGE:	1 of 2

Test Material: 70 oz Turf

Infill: 2.0 lbs/ft² EnviroFill

Pad: 1" Playground Pad

Tested Dimension: 18" x 18"

Sub Base: 3" Crushed Rock

Impact Location: Center of Test Material

Date of Receipt: April 18, 2011

Testing Period: April 26--28, 2011

Authorization: Lynette Ogle

Test Procedure: The submitted sample was evaluated for Shock Absorbing Properties in Accordance with the procedures outlined in ASTM F 1292-09; Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment. A deviation to this standard was made at the request of the client who instructed Tsi to substitute the above listed sub-base in place of concrete to comply with the client's installation protocol.

Missile: Hemispherical (Triaxial Accelerometer): Total Drop Assembly Weight (46g) 10 lbs

Test Equipment: Triax 2000 Surface Impactor
 Date of Last Calibration: 3/21/2011 by Alpha Automation

Sample Pre-Condition: 50±10 RH, 70F±5F for a minimum of 24 hrs prior to testing

Sample Conditioning: 8 hrs @ each reference temperatures prior to testing

**Maximum Drop Height That Gives a
 Gmax of 200 or Less and A HIC of 1000 or less**

Temperature:

Ambient, 72°F (23°C)	6'
Hot, 120°F (49°C)	7'
Cold, 25°F (-6°C)	6'

Critical Fall Height (CFH):	6'
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Reference Gmax Curves Included

Prepared and signed by:

Erle Miles, Jr. VP
 Testing Services Inc.



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AMBIENT Sample Condition: Dry Temperature: 70°F (23°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	18.0	3	5'	5.04	123	529	
	2	18.1	3	5'	5.09	118	494	
	3	18.1	1	5'	5.09	127	537	
	Average				Drops 2, 3		123	516
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	19.8	5	6'	6.09	149	768	
	2	19.8	2	6'	6.09	152	798	
	3	19.8	0	6'	6.09	142	720	
	Average				Drops 2, 3		147	759
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	21.2	4	7'	6.98	186	1142	
2	21.2	1	7'	6.98	186	1146		
3	21.3	3	7'	7.05	176	1067		
Average				Drops 2, 3		181	1107	

HOT Sample Condition: Dry Temperature: 120°F (49°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	19.7	3	6'	6.03	173	942	
	2	19.7	1	6'	6.03	157	818	
	3	19.8	4	6'	6.09	157	821	
	Average				Drops 2, 3		157	820
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	21.3	1	7'	7.05	171	997	
	2	21.3	1	7'	7.05	152	822	
	3	21.3	0	7'	7.05	162	908	
	Average				Drops 2, 3		157	865
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	22.7	0	8'	8.01	176	1059	
2	22.7	1	8'	8.01	164	982		
3	22.7	2	8'	8.01	171	1033		
Average				Drops 2, 3		168	1008	

COLD Sample Condition: Dry Temperature: 25°F (-6°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	18.0	0	5'	5.04	124	560	
	2	18.0	4	5'	5.04	136	637	
	3	18.0	5	5'	5.04	136	631	
	Average				Drops 2, 3		136	634
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	19.8	6	6'	6.09	145	765	
	2	19.8	5	6'	6.09	153	815	
	3	19.8	5	6'	6.09	155	834	
	Average				Drops 2, 3		154	825
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC	
	1	21.3	2	7'	7.05	166	958	
2	21.2	6	7'	6.98	169	1009		
3	21.3	6	7'	7.05	181	1088		
Average				Drops 2, 3		175	1049	

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