Fibar Playground Surface Safety Testing Reports Summary

(Full Results of Testing Available on Request)

Testing Laboratory: Detroit Testing Laboratory, Inc.
Client: The Fibar Group, LLC
Sample Description: Engineered Wood Fiber
Compacted Depth: 12 inches

Impact Attenuation Test | ASTM F 1292-04

Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment

Test Equipment: DTL Guided Wire Impact Tower
Date: November 1, 2006
DTL Report Number: 6098001

Drop	Specified Drop Height (Feet)	Reference Temperature -6° C			Reference Temperature 23° C (Ambient)			Reference Temperature 49° C		
		HIC	**G-Max**	**Velocity (ft/s)**	**HIC**	**G-Max**	**Velocity (ft/s)**	**HIC**	**G-Max**	**Velocity (ft/s)**
1	14	213	54	29.7	217	52	29.8	190	55	29.9
2	14	296	84	29.9	343	80	30	325	75	30
3	14	481	96	30	436	87	30	417	87	30
Average of 2 & 3		388.5	90		389.5	81		371	81	

Conclusion: Sample passed ASTM F 1292-04 at the temperatures and ratings specified

Particle Size and Contamination Test | ASTM F 2075-04

Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment

Date: October 20, 2009
DTL Report Number: 091080022-2

1. Sieve Analysis (Section 4.4.2 per 7.4)

Test Equipment: Sieve Testing Apparatus

Sieve Size	Minimum %	Maximum %	Total % of Material Passing Each Sieve
3/4"	99	100	100
3/8"	75	100	78.1
No. 16	0	15	4.1

2. Magnetic Tramp Metal Test (Section 9.4)

Test Equipment: Magnetic Probe
Required: 28 probes in each quadrant around the sample (7 probes at 4 locations)

Quadrant #1 (Up to 15") – all 28 probes passed
Quadrant #2 (15" – 30") – all 28 probes passed
Quadrant #3 (30" – 45") – all 28 probes passed
Quadrant #4 (45" – 60") – all 28 probes passed

Conclusion: Sample passed ASTM F 2075-04

Handicapped Accessibility Test | ASTM F 1951-99

Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment

Test Equipment: DTL Wheelchair Accessibility Fixture
Strain gauge reaction torque sensor
Signal conditioner
Digital protractor,
Quickie wheelchair, Model Q2;
Taylor digital humidiguide, Model 5566
Date: May 22, 2003
DTL Test Number: 091080022-1

WORK REQUESTED / TEST SPECIFICATIONS

1. Wheelchair work measurement method – Straight propulsion, with no material, on a flat surface with a grade of 7.1%.
2. Wheelchair work measurement method – Straight propulsion with material (Fibar® Engineered Wood Fiber), and no grade.
3. Wheelchair work measurement method – Turning 90°, with no material, on a flat surface with a grade of 7.1%.
4. Wheelchair work measurement method – Turning 90°, with material (Fibar® Engineered Wood Fiber) and no grade.

ASTM F 1951-99, the average work per Newton meter measured lower when rolling over the Fibar Engineered Wood Fiber than when rolling on a flat surface with a grade of 7.1%. The tested material, (Fibar EWF), met the requirements of ASTM 1951-99.

TEST RESULTS
Test material, Fibar® Engineered Wood Fibar, was placed into test fixture in 4" layers and tamped using a 10" x 10" hand tamper until a depth of 12" was achieved. Material was tested, propelling the wheelchair with four (4) even pushes across the material within eight (8) seconds. This procedure was repeated five (5) times for each test trial, (Straight and 90° turn propulsion).

Wheelchair rider weight = 175.1 lbs.
Total weight (Rider and wheelchair combined) = 210.3 lbs.
Atmospheric temperature = 72.4°F

Run # and Type	No Material Work per Newton meter (N•m)	With Material Work per Newton meter (N•m)
Straight Run 1	12.895 N•m	11.593 N•m
Straight Run 2	13.153 N•m	11.836 N•m
Straight Run 3	13.139 N•m	11.142 N•m
Straight Run 4	12.860 N•m	11.078 N•m
Straight Run 5	13.561 N•m	11.520 N•m
Average	**13.062 N•m**	**11.418 N•m**
Turn Run 1	13.751 N•m	13.174 N•m
Turn Run 2	14.044 N•m	12.265 N•m
Turn Run 3	13.474 N•m	12.016 N•m
Turn Run 4	13.497 N•m	12.750 N•m
Turn Run 5	13.152 N•m	12.804 N•m
Average	**13.574 N•m**	**12.606 N•m**

ASTM F1951-99, work per Newton meter (N•m) average determined discarding the high and low work per Newton meter values and averaging the thee remaining trials.

- Average work per Newton meter, straight propulsion, no material, grade of 7.1% = 13.062 N•m.
- Average work per Newton meter, straight propulsion, with material (Fibar® Engineered Wood Fiber), and no grade = 11.418 N•m.
- Average work per Newton meter 90° turn, no material grade of 7.1% = 13.574 N•m.
- Average work per Newton mater 90° turn, with material (Fibar® Engineered Wood Fiber), and no grade = 12.606 N•m.

CONCLUSION: Sample passed ASTM F 1951-99

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:1999.

Detroit Testing Laboratory Reports signed by:
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