



REPORT NUMBER
QI1407408-5



America

PREPARED FOR
XGRASS, INC.
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ATTENTION
LYNETTE OGLE

PO#
5039

REPORT DATE
AUGUST 26, 2014

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REPORTED / APPROVED BY:

TÜV SÜD America, Inc.

Timothy Fouchia

Reported by: Timothy Fouchia, Project Coordinator
CERTIFICATION TEST PROGRAMS

David Splane

Approved by: David Splane, Regional Manager
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)

Perform testing in accordance with ASTM F1951-14, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

TEST SEQUENCE

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 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 and no grade.

Testing was performed August 26, 2014.

SAMPLE DESCRIPTION

XGrass, Inc., submitted approximately 50 cubic feet of loose fill wood material, identified as Engineered Wood Fiber.



TESTING PERFORMED

ACCESSIBILITY OF SURFACE SYSTEMS

Procedure

Sample material, Engineered Wood Fiber, was installed in TÜV SÜD America, Inc.'s, test fixture in four inch increments, and tamped using a 10 inch X 10 inch hand tamper, until a depth of 12 inches was achieved. The sample material was tested, propelling the wheelchair with four even propulsion strokes, per trial, across the material 5.56 feet, within eight seconds. This process was repeated five times for each test (straight and 90° turn propulsions).

Per ASTM F1951-14, section 5.1, no additional compaction or modification occurred between propulsion trials. Installation instructions were not provided by the manufacturer.

Results

The average work force over one foot, in pound force-inch values, for straight propulsion and for turning with material, should be less than the average work per foot values for straight and turning on a flat surface with a grade of 7.1%.

Conclusion

The average work force per foot, in pound force-inch values, measured lower when propelling the wheelchair over the material, Engineered Wood Fiber, than when propelling the wheelchair over a flat surface with a grade of 7.1%. The material met the requirements of ASTM F1951-14.

Sample Disposition

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



TEST EQUIPMENT

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

TÜV ID	Description	Manufacturer	Model	Calibration Due
PLYP00043	Signal Conditioner	Daytronics	3370	12/14
PLYP00047	Reaction Torque Sensor	Lebow	2110220500	12/14
PLYP00015	Digital Protractor	Mitutoyo	Pro 360	06/15
PLYP00151	Wheelchair	Quickie	Q2	NCR
PLYP00142	Penetration Thermocouple	Omega	88312K	12/14
PLYP00143	Digital Thermometer	Fluke	51-2	12/14
PLYP00152	Accessibility Fixture	DTL	N/A	NCR
PLYP00136	Balance	Toledo Scale	4181	06/15
PLYP00145	Air Pressure Gauge	Westward	2HKX9	03/15
PLYP00071	Thermohygrometer	Extech Instruments	445702	12/14

NCR – No Calibration Required

REMARKS, Deviation(s):

- None



Test Date: 8/26/2014

Surface Temperature: 21.8°C

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Ambient Temperature: 22.5°C

Customer: XGrass, Inc.

Ambient Humidity: 46%

Product Brand Name: Engineered Wood Fiber

Run #	No Material (work per foot) (lbf-in)	With Material (work per foot) (lbf-in)
Straight Run 1:	126.679	129.033
Straight Run 2:	128.394	126.98
Straight Run 3:	124.54	120.402
Straight Run 4:	129.968	114.112
Straight Run 5:	127.952	114.652
Average:	127.675	120.678
Turn Run 1:	176.149	152.663
Turn Run 2:	177.981	143.779
Turn Run 3:	172.066	149.019
Turn Run 4:	182.095	153.532
Turn Run 5:	174.897	160.954
Average:	176.342	151.738

Wheelchair Rider Weight: 176 Lbs.

Wheelchair tire pressures checked / Confirmed: Yes