



REPORT NUMBER
72135670



America

PREPARED FOR
GREELY SAND AND GRAVEL, INC
1971 OLD PRESCOTT ROAD
GREELY, ON, K49 1N6

ATTENTION
TARA HALL

PO#
2018-WC02

REPORT DATE
FEBRUARY 27, 2018

TÜV SÜD America, Inc.
1755 Atlantic Blvd.
Auburn Hills, MI 48326
Phone: 616.546.4600
Fax: 248.393.6994
www.TUVAmerica.com

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REPORTED / APPROVED BY:

TÜV SÜD America, Inc.

A handwritten signature in black ink, appearing to read 'RM'.

Reported by: Raymond Majszak, Project Coordinator
CERTIFICATION TEST PROGRAMS

A handwritten signature in black ink, appearing to read 'Timothy Fouchia'.

Approved by: Timothy Fouchia, Project Coordinator
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 February 27, 2018

SAMPLE DESCRIPTION

Greely Sand & Gravel, Inc., submitted approximately 60 cubic feet of engineered wood fiber playground surfacing material, identified as Adventure Playground Mulch.



TESTING PERFORMED

ACCESSIBILITY OF SURFACE SYSTEMS

Procedure

Sample material, Adventure Playground Mulch, was installed in four-inch layers, and tamped using a pneumatic pogo-stick style tamper until a depth of twelve 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).

Per ASTM F1951-14, section 5.1, no additional 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 surface in place, shall be less than the average work per foot values for straight propulsion and for turning, respectively, on a hard, smooth, surface with a grade of 7.1% \pm 2% (1:14).

Discard the high and low work per foot values and average the remaining three trials to determine the average work per foot required to negotiate the test surface and the hard, smooth surface with a grade of 7.1% \pm 2% (1:14).

Conclusion

The average work force over one foot, in pound force-inch values, measured **lower** when propelling the wheelchair over the Adventure Playground Mulch, 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 Greely Sand & Gravel, 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	03/18
PLYP00047	Reaction Torque Sensor	Lebow	2110220500	03/18
PLYP00015	Digital Protractor	Mitutoyo	Pro 360	05/18
PLYP00151	Wheelchair	Quickie	Q2	NCR
PLYP00175	Penetration Thermocouple	Omega	88311E	01/19
PLYP00143	Digital Thermometer	Fluke	51-2	01/19
PLYP00152	Accessibility Fixture	DTL	N/A	NCR
PLYP00136	Balance	Toledo Scale	4181	09/18
PLYP00145	Air Pressure Gauge	Westward	2HKX9	04/18
PLYP00071	Hygro-thermometer	Extech Instruments	445702	04/18
PLYP00078	Tape Measure	Craftsman	39678	09/18

NCR – No Calibration Required

REMARKS

- Per ASTM F1951-14, section 7.1.2 Test Wheelchair Rider; a 165 + 11, -4.4lbs., test wheelchair rider shall propel the wheelchair during testing. The rider's weight was measured at 174 pounds prior to testing.
 - The wheelchair rider weight was 174 pounds, which combined with the wheelchair for a total of 222.7 pounds.

Per section 7.1.3 Weight of Total System - The total weight of the wheelchair Rider System, including any distance measurement or data acquisition equipment residing on the wheelchair shall be a minimum of 187.2 lbs. and a maximum of 255 lbs.



Appendix A – Test Data

Test Date: 2/27/2018

Surface Temperature: 19.1°C

Project No.: 72135670

Ambient Temperature: 21.2°C

Customer: Greely Sand and Gravel, Inc.

Ambient Humidity: 23%

Product Brand Name: Adventure Playground Mulch

Run #	No Material (work per foot) (lbf-in)	With Material (work per foot) (lbf-in)
Straight Run 1:	132.068	110.097
Straight Run 2:	121.476	106.587
Straight Run 3:	123.177	105.083
Straight Run 4:	128.202	95.9114
Straight Run 5:	128.816	98.3891
Average:	126.731	103.353
Turn Run 1:	173.101	169.698
Turn Run 2:	161.36	147.184
Turn Run 3:	165.444	142.112
Turn Run 4:	165.741	139.923
Turn Run 5:	167.145	145.403
Average:	166.11	144.9

Wheelchair Rider Weight: 174 lbs.

Wheelchair tire pressures checked/confirmed:

Results are specific to the samples described above.