



**REPORT NUMBER**  
**72123828**



**America**

**PREPARED FOR**  
RUBBERECYCLE, LLC  
1985 RUTGERS UNIVERSITY BLVD.  
LAKEWOOD, NJ 08701

**ATTENTION**  
MORRIS HASSAN

**CUSTOMER PURCHASE ORDER NUMBER**  
59724

**REPORT DATE**  
FEBRUARY 3, 2017

**TÜV SÜD America, Inc.**  
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**REPORTED / APPROVED BY:**

**TÜV SÜD America, Inc.**

*Timothy Fouchia*

Reported by: Timothy Fouchia, Project Coordinator  
CERTIFICATION TEST PROGRAMS

A handwritten signature in black ink, appearing to read 'D. 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, and witnessed by Customer, February 2, 2017.

## SAMPLE DESCRIPTION

Rubbecycle, LLC, submitted one (1), playground surfacing system, identified as Genesis Turf System.



## TESTING PERFORMED

### ACCESSIBILITY OF SURFACE SYSTEMS

#### Procedure

Sample material, Genesis Turf System, was installed in TÜV SÜD America, Inc.'s test fixture by Customer and TÜV personnel. 3.0in. x 36in. x 36in. rubber mats were placed side by side in rows, then 3.0in. x 18in. x 36in. rubber mats installed along side, to make required sample size. Rubber mats were then infilled with loose fill rubber mulch, at approximately 2lbs. per sq. ft. (80lbs. total). A 57in. x 109in. piece of Genesis Turf was placed over rubber mat/loose fill rubber mulch layer. Genesis Turf was then infilled with 100lbs. of sand (approximately 2.5lbs. per sq. ft.). The sample material was then 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 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 Genesis Turf System sample material, 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 samples 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 Rubberecycle, LLC.



## TEST EQUIPMENT

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

TÜV ID	Description	Manufacturer	Model	Calibration Due
PLYP00043	Signal Conditioner	Daytronics	3370	04/17
PLYP00047	Reaction Torque Sensor	Lebow	2110220500	04/17
PLYP00015	Digital Protractor	Mitutoyo	Pro 360	05/17
PLYP00151	Wheelchair	Quickie	Q2	NCR
PLYP00084	Penetration Thermocouple	Omega	K Type	01/18
PLYP00068	Digital Thermometer	Omega	HH11	01/18
PLYP00152	Accessibility Fixture	DTL	N/A	NCR
PLYP00136	Balance	Toledo Scale	4181	10/17
PLYP00145	Air Pressure Gauge	Westward	2HKX9	04/17
PLYP00141	Stopwatch/Hygrometer	Extech Instruments	HW30	07/17
PLYP00114	Tape Measure	Stanley	25ft. (7.6m) LeverLock	01/19

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 176 pounds prior to testing.
  - The wheelchair rider weight was 176 pounds, which combined with the wheelchair for a total of 224.7 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 lb and a maximum of 255 lb.

**APPENDICES:** Appendix A: Test Data (1 page)



**Test Date:** 2/2/2017 Surface Temperature: 26.4°C  
**Project No.:** 72123828 Ambient Temperature: 21.4°C  
**Customer:** Rubberecycle, LLC Ambient Humidity: 19%  
**Product Brand Name:** Genesis Turf System

Run #	No Material (work per foot) (lbf-in)	With Material (work per foot) (lbf-in)
Straight Run 1:	105.13	92.74
Straight Run 2:	105.94	94.47
Straight Run 3:	105.28	91.46
Straight Run 4:	104.49	92.12
Straight Run 5:	105.27	91.98
<b>Average:</b>	105.23	92.28
Turn Run 1:	94.2	83.19
Turn Run 2:	93.11	82.51
Turn Run 3:	92.76	78.1
Turn Run 4:	94.14	81.31
Turn Run 5:	94.04	80.48
<b>Average:</b>	93.76	81.43

Results are specific to the samples described above.

Wheelchair Rider Weight: 176 Lbs.  
 Wheelchair tire pressures checked / Confirmed: **X** Yes