

United States of America

United States Patent and Trademark Office

Kiddie Kushion

Reg. No. 4,655,826

Registered Dec. 16, 2014

Int. Cl.: 31

TRADEMARK

PRINCIPAL REGISTER

FOSTER BROTHERS WOOD PRODUCTS, INCORPORATED (MISSOURI CORPORATION)
6465 STATE ROAD E
AUXVASSE, MO 65231

FOR: WOOD CHIPS FOR USE AS GROUND COVER, IN CLASS 31 (U.S. CLS. 1 AND 46).

FIRST USE 5-1-1995; IN COMMERCE 5-1-1995.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

SER. NO. 86-261,959, FILED 4-24-2014.

KAPIL BHANOT, EXAMINING ATTORNEY



Michelle K. Lee

Deputy Director of the United States
Patent and Trademark Office



TUV SUD America, Inc., Product Safety Services

1755 Atlantic Blvd., Auburn Hills, MI 48326

Phone: (616) 546-4600

Tramp Metals Test Results

ASTM F2075

Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment, Section 4.6 and Section 9

Customer/Participant: Foster Brothers Wood Products, Inc. Report Date: 3/18/2022

Main Office Address: 6465 State Rd. E, Auxvasse, MO 65231 Test Date: 3/15/2022

All testing performed at location ID: Auxvasse, MO

Project No.: 72176067-1

Commercial Name of Product: Kiddie Kushion

4.6.1 Per 9.4 Tramp Metals

Level – 0" – 15"

<u>Quadrant 1</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 2</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 3</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 4</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Level – 15" – 30"

<u>Quadrant 1</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 2</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 3</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 4</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Level – 30" – 45"

<u>Quadrant 1</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 2</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 3</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 4</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Level – 45" – 60"

<u>Quadrant 1</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 2</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 3</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Quadrant 4</u>	
<u>Pass</u>	<u>Fail</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pass

Fail

Comments:

The results reported herein reflect the performance of the above described samples at the time of testing. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. This data sheet provides an accurate representation of the test results.

Performed By: Timothy Fouchia

Reviewed By: [Signature]

Title: Project Coordinator

Title: Regional Manager

Date: 3/18/2022

Date: 4/14/2022



TUV SUD America Inc.
Product Safety Services
 1755 Atlantic Blvd.
 Auburn Hills, MI 48326
 Phone: (616) 546-4600

IPEMA Impact Attenuation Report – ASTM F1292-18e1

Participant: Foster Brothers Wood Products, Inc. TUV Report No.: 72176067-3
 Main Office Address: 6465 State Rd. E Report Date: 4/06/2022
Test Date: 4/05/2022 & 4/06/2022
Auxvasse, MO 65231
 Phone: (800) 392-2271 Selection: Initial:
 Manufacturing Location ID: Auxvasse, MO Follow up: Ref Job:
 Commercial Name of product: Kiddie Kushion Sample Receipt Date: 3/18/2022
 Date of Manufacture: Unknown Ambient Air Temperature: 22.9 °C
 No. of samples submitted: Approx. 12cu. ft Humidity: 26 %

Test Equipment:

Alpha Automation, Triax, TUV System 5: Environmental Chamber No.: PLYP00069
 Alpha Automation, Triax, TUV System 7: Calibration Due Date: 9/07/2022
 Accelerometer ID: PLYP00215 Environmental Chamber No.: AE-029
 Accelerometer Calibration Date: 2/07/2022 Calibration Due Date: 9/07/2022

Loose Fill Material Sample Description:

Engineered Wood Fiber: Un-compacted Depth: 16 Inches
 Loose Fill Wood:
 Rubber Nuggets:
 Rubber Buffings:
 Sand: Compacted Depth: 12 Inches
 Gravel:
 Other:

Unitary Sample Description:

Tiles: Total Thickness: _____
 Poured in Place: Top Layer: _____
 Other: Base Layer: _____

Turf System Sample Description:

Turf: Turf Pile Height: _____ Inches
 Pad: Pad Thickness: _____ Inches
 Aggregate: Aggregate: _____ Inches
 Infill: Infill Amount: _____ Lbs./Sq. Ft.
 Infill Type: _____

Comments:

The maximum critical fall height of the above described sample was determined to be: 18 Ft.

The results reported herein reflect the performance of the above described samples at the time of testing and at the temperature(s) reported. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. The following data sheet provides an accurate representation of the test results.

Sample in compliance with ASTM F1292-18e1 at the temperature and rating specified? Yes No

Signature: Patrick Ashley Title: Project Coordinator Date: 4/06/2022

Reviewed by: Timothy Foulia Title: Project Coordinator Date: 4/14/2022

Participant: Foster Brothers Wood Products, Inc.

TUV Report No: 72176067-3

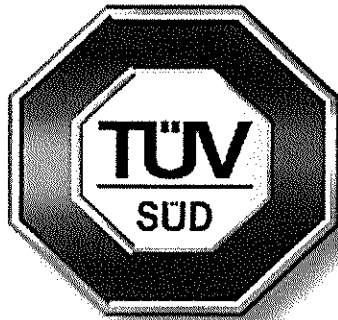
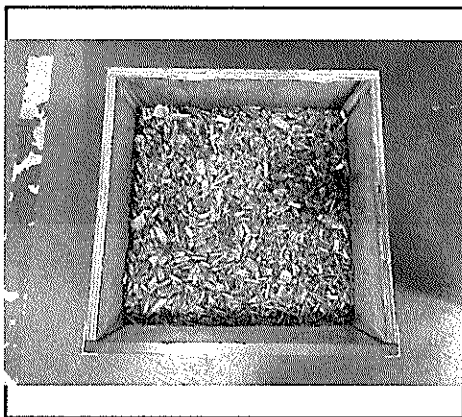
Manufacturing Location ID: Auxvasse, MO

Test Date: 4/05/2022 & 4/06/2022

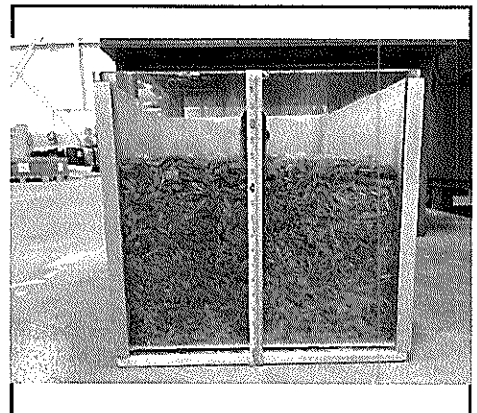
Drop	Critical Fall Height (Ft.)	Reference Temperature -4°C, (25°F)				Reference Temperature 23°C, (73°F)				Reference Temperature 49°C, (120°F)			
		G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)
1	18	85	474	33.8	17.76	75	471	33.7	17.66	71	375	33.7	17.66
2	18	119	840	33.9	17.87	103	633	33.8	17.76	103	631	33.8	17.76
3	18	142	1122	34.0	17.97	121	813	33.9	17.87	121	860	33.8	17.76
Average		130.5	981.0			112.0	723.0			112.0	745.5		
Measured Surface Temperature		-4°C	Max. Change from reference +5°C, (5°F)			23°C	Max. Change from reference +3°C, (5°F)			49°C	Max. Change from reference -3°C, (-5°F)		
Sample Condition:		Dry				Dry				Dry			

Drop	One foot over (Ft.)	Reference Temperature -4°C, (25°F)				Reference Temperature 23°C, (73°F)				Reference Temperature 49°C, (120°F)			
		G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)
1	19	92	533	34.7	18.72	79	467	34.7	18.72	74	434	34.7	18.72
2	19	134	1048	34.8	18.83	119	869	34.9	18.93	129	1016	34.9	18.93
3	19	147	1197	34.9	18.93	136	1070	34.9	18.93	145	1223	34.9	18.93
Average		140.5	1122.5			127.5	969.5			137.0	1119.5		
Measured Surface Temperature		-3°C	Max. Change from reference +5°C, (5°F)			23°C	Max. Change from reference +3°C, (5°F)			48°C	Max. Change from reference -3°C, (-5°F)		
Sample Condition:		Dry				Dry				Dry			

Drop	One foot under (Ft.)	Reference Temperature -4°C, (25°F)				Reference Temperature 23°C, (73°F)				Reference Temperature 49°C, (120°F)			
		G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)
1	17	77	407	32.8	16.72	76	380	32.8	16.72	81	450	32.8	16.72
2	17	116	781	33.0	16.93	119	796	33.0	16.93	110	732	32.9	16.83
3	17	128	961	33.0	16.93	133	987	33.0	16.93	125	922	32.9	16.83
Average		122.0	871.0			126.0	891.5			117.5	827.0		
Measured Surface Temperature		-4°C	Max. Change from reference +5°C, (5°F)			23°C	Max. Change from reference +3°C, (5°F)			49°C	Max. Change from reference -3°C, (-5°F)		
Sample Condition:		Dry				Dry				Dry			



America



TUV America Inc.
1755 Atlantic Blvd.
Auburn Hills, MI 48326

Phone: (616) 546-4600
E-mail: info@tuvam.com
www.TUVamerica.com



Hazardous Metals Test ASTM F2075, Section 4.5.2 per 8.0

Manufacturer: Foster Brothers Wood Products, Inc.

Main Office Address: 6465 State Rd. E, Auxvasse, MO 65231

Manufacturing Location ID: Auxvasse, MO

Commercial Name of Product: Kiddie Kushion

PURCHASE ORDER: # 2000048789

PROJECT NO.: 72176067-4

The following ISO 17025-accredited Laboratory performed testing:

St. Louis Testing Laboratories, Incorporated

2810 Clark Avenue

St. Louis, MO 63103

St. Louis Testing Laboratory report attached (1 page).

Test Result: Pass

Fail

Prepared By:

Ray Majozak

4/13/2022

Date

Project Coordinator

Title

Reviewed and Approved By:

Timothy Foulin

4/14/2022

Date

Project Coordinator

Title

The results reported herein reflect the performance of the above described samples at the time of testing. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. This data sheet provides an accurate representation of the test results.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085
 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

TÜV SÜD AMERICA, INC.
 1755 Atlantic Blvd.
 Auburn Hills, MI 48326

April 12, 2022
 WO# C-0189041
 Invoice No. INSTL18946
 P.O. No. 2000048789
 Page 1 of 1

Attention: Tim Fouchia

REPORT OF ANALYSIS

MATERIAL: 72176067-4
SUBJECT: Soluble Heavy Metals Analysis
STANDARD: ASTM F2075-20, Section 4.3, per 8 Hazardous Metal Test Method
TEST METHOD: ASTM F2075-20
UNITS: Soluble Heavy Metals - Parts per Million (ppm)

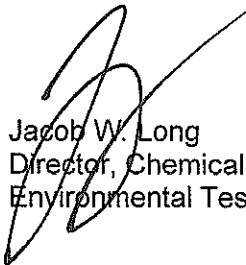
RESULTS:

Substance	72176067-4	Maximum Allowable Limit	Method Detection Limit
Soluble Antimony	<5	60	5
Soluble Arsenic	<5	25	5
Soluble Barium	29	1000	---
Soluble Cadmium	<5	75	5
Soluble Chromium	<5	60	5
Soluble Lead	<5	90	5
Soluble Mercury	<5	60	5
Soluble Selenium	<5	500	5

The soluble heavy metal content of the tested product is in compliance with the requirements of the above-indicated standard.

Identification of tested specimens provided by the client

JWL/gs


 Jacob W. Long
 Director, Chemical and
 Environmental Testing

St. Louis Testing Laboratories decision rule is "Simple Acceptance"



Sieve Analysis Data Collection Form ASTM F2075-20 per Section 4.4 and Section 7

TUV SUD America, Inc
1755 Atlantic Blvd.
Auburn Hills, MI 48326
Ph: (616) 546-4600

Customer/Participant: Foster Brothers Wood Products, Inc.

Test Date: 3/22/2022

Main Office Address: 6465 State Rd. E

Project No.: 72176067-2

(City, State, Zip): Auxvasse, MO 65231

Ambient Air Temp.: 21.2°C

Location ID: Auxvasse, MO

Relative Humidity: 23%

Commercial Name of Product: Kiddie Kushion

Test Equipment Used

<u>TUV Asset No.:</u>	<u>Equipment Type</u>	<u>Manufacturer</u>	<u>Model</u>	
PLYP00100	Environmental Chamber	Russells	RB-8-1-1, (QE496)	
PLYP00163	Data Logger	Omega	OM-CP-RHTEMP101A	
PLYP00216	Hygro-thermometer	Extech Instruments	445703	<input type="checkbox"/>
PLYP00211	Hygro-thermometer	Extech Instruments	445702	<input checked="" type="checkbox"/>
PLYP00055	Test Sieve	W.S. Tyler	No. 16 (1.19 mm)	
PLYP00056	Test Sieve	W.S. Tyler	3/8" (9.53 mm)	
PLYP00057	Test Sieve	W.S. Tyler	3/4" (19.05 mm)	
PLYP00059	Sieve Shaker	W.S. Tyler	RX 812	
PLYP00083	Balance	Denver Instruments	18453642	

Data

Initial Sample and Container Weight	<u>960.6</u>
Tare weight of Container	<u>178.9</u>
Initial Sample Dry Weight (g)	<u>781.7</u>
Sample and Container Weight for 3/4" Sieve	<u>179.9</u>
Tare weight of Container	<u>179.9</u>
Sample Remaining on 3/4" Sieve (g)	<u>0.0</u>
Sample and Container Weight for 3/8" Sieve	<u>339.6</u>
Tare weight of Container	<u>178.4</u>
Sample Remaining on 3/8" Sieve (g)	<u>161.2</u>
Sample and Container Weight for #16 Sieve	<u>785.2</u>
Tare weight of Container	<u>177.9</u>
Material Remaining on # 16 Sieve (g)	<u>607.3</u>

<u>Sieve Size</u>	<u>Min / Max Requirements</u>	<u>% Passing</u>
3/4" (19.05 mm)	99 - 100%	100.0
3/8" (9.53 mm)	78 - 100%	79.4
No. 16 (0.0469 in.)	0 -15%	1.7

Sample in compliance with ASTM F2075-20 for Sieve Analysis Section 4.4 per 7.4

Yes

No

Tare weights of containers verified prior to testing.

Note: Testing performed at TÜV SÜD America in Auburn Hills, MI.

Performed By: Timothy Fouchia

Title: Project Coordinator

Date: 3/22/2022

Reviewed By: [Signature]

Title: Regional Manager

Date: 4/14/2022

The results reported herein reflect the performance of the above described samples at the time of testing and at the temperature(s) reported. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. The following data sheet provides an accurate representation of the test results.

NORTHWEST LABORATORIES of Seattle, Incorporated

ESTABLISHED 1896

Technical Services for: Industry, Commerce, Legal Profession & Insurance Industry

241 South Holden Street • Seattle, WA 98108-4359 • Phone: (206) 763-6252 • Fax: (206) 763-3949 • www.nwlabsl896.com

Report To: Foster Brothers Wood Products January 20, 2000

Report On: Compliance of Kiddle Kushion Lab No. E73572
with the American Disabilities Act.

Test Method: ASTM F1951-99
Standard Specification for Determination of
Accessibility of Surface Systems Under and
Around Playground Equipment.

Test Date: January 12, 2000
The test was performed indoors. The product temperature
was 68°F and the air temperature was 68°F.

Product Name: Kiddie Kushion

Product Description: Debarked 100% Missouri hardwood timber. Product is
ground and sized to a minus one (1) inch screen.

Test Wheelchair:

Builder: Northwest Laboratories

Rear Wheels: 24-inch pneumatic tires
Spacing of 20.5 inches between center lines of tires.

Front Wheels: 8-inch pneumatic tires
Spacing 17.5 inches between center lines of casters.

Front axle to
rear axle
spacing: 16 5/16 inch

Weight: Rear Wheels 131.00 lbs.
Front Wheels 80.29
Total 211.29 lbs.

Propulsion: The Wheelchair is propelled with an electric motor.
Two clutches provide the four power strokes. Power
is supplied to the rims of the rear wheels in the
same manner as push rims do in a manual chair.

Guide: The wheelchair straddles a metal pipe which ensures
travel in a straight line.

NORTHWEST LABORATORIES of Seattle, Incorporated

Foster Brothers Wood Products

Page -2-

E 733572

January 24, 2000

Turn Guide: A rigid metal arm is affixed to the chair on a pivot point. The other end of the arm is affixed with a pivot point to the center of the circle described in Fig. 2 of the standard. This guide ensures that the wheelchair always maintains the proper radius as it is propelled through the 90° turn.

Distance-Time Measurements:

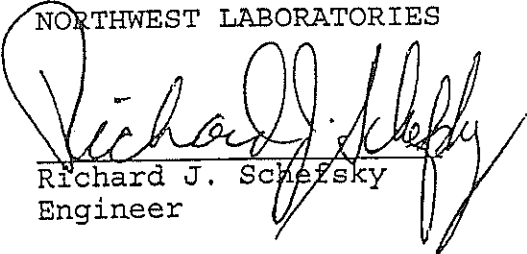
The total distance/90° arc that the wheelchair will travel to a kill switch is measured to 1/16". Propulsion time and the speed of the motor are adjusted until the acceptance criteria are all met by the time the wheelchair trips the kill switch.

Test Results:

	<u>Kiddie Kushion</u>			<u>Inclined</u>		
	<u>Average Ft.</u> <u>x Lbs./Ft.</u>	<u>Avg.</u> <u>Time</u> (sec.)	<u>Standard</u> <u>Deviation</u>	<u>Average Ft.</u> <u>x Lbs./Ft.</u>	<u>Avg.</u> <u>Time</u> (sec.)	<u>Standard</u> <u>Deviation</u>
Straight	3.0	7.269	0.132	3.0	7.201	0.328
90° Turn	2.4	7.496	0.287	2.5	7.435	0.125

This product passes ASTM F1951.

NORTHWEST LABORATORIES


Richard J. Schezsky
Engineer

wbm



To verify product certification,
visit www.ipema.org



To verify product certification,
visit www.ipema.org

Foster Brothers Kiddie Cushion Installation and Maintenance Instructions

Installation

Foster Brothers Wood Products, Inc. produces an engineered playground surfacing material called Kiddie Cushion. Kiddie Cushion is an environmentally safe, biodegradable wood material that has been produced and tested to meet IPEMA standards for playground surfacing material. This material is specifically designed to cushion the impact of muscle, bone, and ligaments onto the playground surface while walking, running, standing, or playing. Its unique design also allows Kiddie Cushion to retain the ability to give disabled individuals stability to move wheelchairs across its surface. Kiddie Cushion is produced from 100% Missouri hardwoods, primarily oak, through an engineered system.

Foster Brothers recommends that all materials provided by Foster Brothers, including product data, specifications, installation instructions and maintenance procedures, as well as all site specific plans, instructions and specifications, be reviewed by a certified engineer, architect or landscape architect familiar with local soil and climatic conditions.

Further, purchaser should determine and specify fall heights and equipment use zones as required by the Consumer Product Safety Commission's Handbook for Playground Public Safety, applicable ASTM standards, and state and local codes and regulations.

1. Prepare the site according to any project engineer directions, project specifications, and/or equipment specifications. This should include: Grading and compacting the surface so that there is a slight slope to ensure proper moisture drainage while keeping a necessary depth for the Kiddie Cushion to be installed. All foreign material such as roots, dirt, rock, concrete, and vegetation must be removed. Install a retention border if that is equal to the depth required for the Kiddie Cushion, this will help to contain the Kiddie Cushion within the playground. Keep in mind that the retaining border should be at least 15 feet from any playground object.
2. Install playground equipment.
3. Install Kiddie Cushion evenly across the entire playground area checking depth as you install. Loose-fill materials will compress at least 25% over time due to use and weathering, this must be considered when planning the playground. Kiddie Cushion should be installed at a minimum of 16" unimpacted to ensure a 12" compaction factor to help prevent injuries for equipment that is up to 12 feet in height. After two weeks recheck depth and level surface again, add Kiddie Cushion if needed.

Maintenance

1. Check the depth of the Kiddie Cushion to ensure that it is equal to the necessary fall zone depth of 12 inches. If section is low redistribute and/or add Kiddie Cushion to reach required depth. The proper level of Kiddie Cushion must be maintained in order to ensure the product does what it is designed to do. Failure to maintain Playground Material at the initial installation depth (12 inches) may result in an injury.
2. Always keep the playground clear of foreign material such as rocks, sticks, broken glass and trash.

3. Inspect drainage to ensure playground is draining properly. If blockage has occurred remove debris. Without proper drainage ice can form and will keep the Kiddie Kusion from functioning as a protective surface.

4. Remove any unwanted plant growth from playground.

Warning: Failure to install Kiddie Kusion properly, lack of maintenance, improper use with other material not designed as a certified playground material and/or mixing material could result in serious injury or death.

While following these requirements and guidelines will reduce the risk of serious injury or death no engineered wood fiber or playground material such as Kiddie Kusion can prevent all accidents, injuries, or death.