



PRECISION TESTING LABORATORIES

313 Hill Avenue; Nashville, TN 37210-4711
 Phone 615-254-3401 Fax 615-254-3488
www.precisiontesting.com

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Ms. Julianne Gietzen
 HexArmor
 2000 Oak Industrial Drive NE
 Grand Rapids, MI 49505

Cc: n/a

PO # n/a

Item: One (1) pair of overshoes and one (1) pair of size 10 boots (provided by Precision).

Identification: "Yuleys by HexArmor"

Purpose: Measuring the Coefficient of Friction for Evaluation of Slip Performance; ASTM F 2913-11

Test	Unit of Measure	Specimen Results						Average
Measuring the Coefficient of Friction for Evaluation of Slip Performance								
ASTM F 2913-11								
Temperature: 72°F (50% RH)								
Vertical Force: 500 (± 25) N								
<u>Coefficient of Friction - Forward Heel @ angle</u>								
SATRA Quarry	Dry	Left	0.69	0.68	0.68	0.67	0.67	0.68
		Right	0.68	0.67	0.68	0.67	0.67	0.67
	Wet	Left	0.37	0.37	0.37	0.37	0.37	0.37
		Right	0.39	0.39	0.38	0.38	0.38	0.38
SATRA Steel	Dry	Left	0.76	0.76	0.76	0.77	0.77	0.76
		Right	0.75	0.75	0.75	0.75	0.75	0.75
	Wet	Left	0.37	0.37	0.37	0.36	0.36	0.37
		Right	0.36	0.36	0.36	0.38	0.38	0.37
Hardwood Flooring	Dry	Left	0.75	0.75	0.75	0.75	0.74	0.75
		Right	0.73	0.73	0.73	0.72	0.71	0.72
	Wet	Left	0.37	0.37	0.36	0.36	0.35	0.36
		Right	0.37	0.37	0.37	0.37	0.37	0.37
Semi-smooth concrete	Dry	Left	0.67	0.67	0.67	0.66	0.67	0.67
		Right	0.72	0.71	0.70	0.70	0.69	0.70
	Wet	Left	0.73	0.75	0.76	0.74	0.75	0.75
		Right	0.72	0.72	0.73	0.75	0.75	0.73

Test	Unit of Measure	Specimen Results						Average
Measuring the Coefficient of Friction for Evaluation of Slip Performance								
ASTM F 2913-11								
Temperature: 72°F (50% RH)								
Vertical Force: 500 (± 25) N								
Coefficient of Friction - Backward Forepart @ angle								
SATRA Quarry	Dry	Left	0.96	0.97	0.98	0.99	0.99	0.98
		Right	0.99	0.98	0.99	0.99	0.99	0.99
	Wet	Left	0.59	0.59	0.58	0.57	0.57	0.58
		Right	0.60	0.60	0.59	0.58	0.57	0.59
SATRA Steel	Dry	Left	1.25	1.26	1.27	1.28	1.28	1.27
		Right	1.26	1.26	1.27	1.27	1.28	1.27
	Wet	Left	0.85	0.85	0.85	0.84	0.83	0.84
		Right	0.75	0.75	0.75	0.76	0.76	0.75
Hardwood Flooring	Dry	Left	1.25	1.24	1.25	1.25	1.25	1.25
		Right	1.19	1.20	1.19	1.20	1.21	1.20
	Wet	Left	0.70	0.68	0.69	0.69	0.68	0.69
		Right	0.81	0.82	0.81	0.78	0.78	0.80
Semi-smooth concrete	Dry	Left	0.90	0.91	0.92	0.94	0.94	0.92
		Right	0.88	0.88	0.88	0.88	0.88	0.88
	Wet	Left	0.90	0.93	0.93	0.92	0.87	0.91
		Right	0.89	0.91	0.90	0.88	0.85	0.89
Coefficient of Friction - Forward Flat Slip								
SATRA Quarry	Dry	Left	0.92	0.93	0.92	0.93	0.93	0.93
		Right	0.94	0.94	0.95	0.97	0.97	0.95
	Wet	Left	0.55	0.56	0.55	0.53	0.55	0.55
		Right	0.56	0.55	0.55	0.55	0.54	0.55
SATRA Steel	Dry	Left	1.22	1.22	1.22	1.24	1.24	1.23
		Right	1.25	1.25	1.26	1.26	1.26	1.26
	Wet	Left	0.69	0.71	0.69	0.66	0.68	0.69
		Right	0.62	0.64	0.61	0.60	0.61	0.62
Hardwood Flooring	Dry	Left	1.36	1.35	1.34	1.33	1.33	1.34
		Right	1.33	1.34	1.33	1.33	1.33	1.33
	Wet	Left	0.47	0.43	0.44	0.45	0.48	0.45
		Right	0.58	0.57	0.54	0.52	0.54	0.55
Semi-smooth concrete	Dry	Left	0.94	0.92	0.93	0.92	0.92	0.93
		Right	0.99	0.98	0.99	1.00	0.98	0.99
	Wet	Left	0.92	0.92	0.89	0.87	0.87	0.89
		Right	0.88	0.89	0.89	0.90	0.92	0.90
Testing note: Overshoes were place over a pair of size 10 boots for mounting to the test apparatus.								


ASTM F2913 Reagent Application

Dry= Dry.
Wet= Section 10.5.2 - Distilled or de-ionized water
SATRA Quarry Tile= SATRA Quarry tile
SATRA Steel = Stainless steel conforming to EN 10088-2
Hardwood Flooring= Quick-Step® Eligna Golden Wheat Oak Plank, U1275 Laminate
Semi-smooth concrete= Slab of semi-smooth concrete prepared by Precision

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Signed: 
Don G. Roney, Laboratory Manager

Signed: 
Suzanne Piispanen, COO