



Suitability Test Report

Issued To:
perkEpave LLC
418 Wilson St
Pottstown, PA 19464
USA

Standard:
Tested According To:
ASTM E303(2022) – Standard Test Method for Measuring Surface Frictional Properties
Using the British Pendulum Tester

Classified According To:
AS 4586 (2013) – Slip Resistance Classification of New Pedestrian Surface Materials.

System Name:
Multiple perkEpave Systems
Date of Suitability Testing Dec 27, 2023
Report Number E303-122723-01

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Effective Jan 1, 2023 – ASET has removed suggested retest dates from our reports. Every product involves materials that change over time. The older a report is, the less likely it is to reflect the current performance. Regular retesting and quality control programs help insure that performance reports accurately represent the current product. Specifiers should choose the maximum age of reports that will be accepted.

ASTM E303 Results and AS 4586 Classifications

Product Name→	1:1 Mix – Walk, Run, Tree Pit	3:1 Mix - Ride, Drive Park	0:1 Mix Play Safe
ASTM E303 Values	60	56	50
AS 4586 Slip Classification	P5	P5	P5

Notes:

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To: perkEpave LLC
418 Wilson St
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Subject: Suitability test carried out on pervious surface system according to ASTM E303 (2022)

ASET Services, Inc was commissioned by PerkePave LLC, USA to conduct suitability testing of the Multiple perkEpave Systems surfaces.


A single 14 inch diameter x 2 inch thick sample of each system was provided for testing.

The date of the testing was Dec 27, 2023.


1) System Construction Summary

The sample was constructed using the following materials and construction methods.

System1:

<p>Name: 1:1 Mix – Walk, Run, Tree Pit</p>	<p>1 part stone to 1 part rubber blend in an MDI binder</p> <p>Rubber- 5/9 mesh granulated wire free recycled tires</p> <p>Stone: 1/8" – 1/4" kiln dried stone</p> <p>Binder MDI Moisture Cured Binder</p>
<p>Photo:</p>	

System2:

Name: 3:1 Mix – Ride, Drive, Park	3 part stone to 1 part rubber blend in an MDI binder Rubber- 5/9 mesh granulated wire free recycled tires Stone: 1/8" – 1/4" kiln dried stone Binder MDI Moisture Cured Binder
Photo:	

System3:

Name: 0:1 Mix – Play Safe

Rubber blend in an MDI binder

Rubber- 5/9 mesh granulated wire free recycled tires

Binder MDI Moisture Cured Binder

Photo:



2) Testing Procedures

Testing was conducted using ASTM E303(2022) with the following conditions:

- The '55' slider was used for testing.
 - The 55 slider was selected for testing based on the slip resistance testing handbook (SA-HB 198: 2014) developed by the Council of Standards Australia. The guide states that the 55 slider "*provides relatively good discrimination (small changes in slip resistance corresponding to large changes in wet pendulum test reading).*" It also states that "*comparatively rough surfaces, such as exhibited by clay or concrete pavers, have been traditionally tested*" with 55 sliders.
- Tests were conducted in wet conditions only.
- Note: ASTM E303 is harmonized with AS 4586 (2013), EN 13036-4 (2011), meaning that all of the standard utilize the same method and test equipment. This method has been used for pedestrian and sporting applications in several standards.

Slipperiness was classified using the Australian Standard, AS 4586(2013).

- AS 4586 is a complete specification and defines slipperiness categories for pedestrian surfaces in wet conditions using the values generated from ASTM E303.
- AS 4586 establishes 5 classes of slipperiness using the 55 slider in wet conditions. Those are as follows:

Class	Pendulum Reading
P5	> 44
P4	40-44
P3	35-39
P2	20-34
P1	<20

- Within the friction handbook, SA-HB 198:2014:
 - The P5 classification is recommended for external ramps, footpaths, etc with a slope steeper than 1 in 14
 - The P4, or higher, classification is recommended for external ramps, footpaths, etc with a slope under 1:14
 - The P3, or higher, classification is recommended for areas not exposed to rain or water.

3) Test Results

The following table contains the average performance values obtained on the evaluated sport surface system, as well as the requirements of ASTM C1701 (2023). Direction 1 and 2 are perpendicular to each other, direction 3 is at an angle of 45 degrees to both directions 1 and 2.

Product - 1:1 Mix – Walk, Run, Tree Pit
55 Slider Wet

Slider Wear Length: 1.5 mm		Date: Jan 16, 2024 / Temp: 70°F		
		Dir 1	Dir 2	Dir 3
Swing	1	65	60	55
	2	70	60	56
	3	65	60	53
	4	65	60	58
	5	65	60	55
	Average	66	60	55.4
Overall Average			60	
AS4586 Classification			P5	

Product - 3:1 Mix – Ride, Drive, Park
55 Slider Wet

Slider Wear Length: 1.75 mm		Date: Jan 16, 2024 / Temp: 70°F		
		Dir 1	Dir 2	Dir 3
Swing	1	60	55	54
	2	60	55	54
	3	60	55	53
	4	60	55	55
	5	59	54	55
	Average	59.8	54.8	54.2
Overall Average			56	
AS4586 Classification			P5	

Product - 0:1 Mix – Play Safe
55 Slider Wet

Slider Length: 1.5 mm		Date: Jan 16, 2024 / Temp: 70°F		
		Dir 1	Dir 2	Dir 3
Swing	1	52	51	50
	2	50	51	49
	3	50	50	51
	4	50	51	50
	5	50	50	52
	Average	50.4	50.6	50.4
Overall Average			50	
AS4586 Classification			P5	

4) Conclusions

The Multiple perEpave Systems surface system described in previous sections was found to produce the friction levels using ASTM E303, and the stated friction classifications using AS 4586.

Testing and report generation was performed by Paul W. Elliott, Ph.D., P.E. of ASET Services, Inc.

I hereby certify that the results presented in this report were obtained on the samples as described, on said date and are believed to be accurate representations of the performance of these surface systems.

Paul W Elliott

Date: Jan 16, 2024

Paul W Elliott, PhD, PE

