




# TEST REPORT

| SQM\_005\_2020 |

**DETERMINATION OF SLIP/SKID RESISTANCE (EN 13036-4) OF THE SURFACE OF THE PRODUCT "PLATIO SOLAR PAVER WITH OPAL SURFACE", OF THE COMPANY "INNOVATÍV TÉRBUKOLATFEJLESZTŐ KFT.**

PLACE AND DATE OF ISSUE:	Faenza, 03/02/2020
COMPANY:	<b>Innovatív Térburkolatfejlesztő Kft.</b>
ADDRESS:	4080 Hajdúnánás, Jókai utca 64 - Hungary
TYPE OF PRODUCT:	<i>Paving integrated systems for external uses</i>
STANDARD APPLIED:	EN 13036-4:2011
DATE OF RECEIPT IN LABORATORY:	22/01/2019
TESTS EXECUTED:	January 2020
TEST EXECUTED BY:	CertiMaC, Faenza

NOTE: Results contained in the present test report are exclusively referred to the samples subjected to the tests described hereafter. Moreover, this report is for the exclusive use of the Customer, within the limits set by mandatory legislation and cannot be reproduced, totally or partially (in digital or paper form), without a written approval of the Laboratory.

Test executed	Written	Approved
<u>_I.E. Germano Pederzoli_</u> 	<u>_Eng. Simone Bandini_</u> 	<u>_Eng. Luca Laghi_</u> 
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## 1 Introduction

This test report describes:

- *Determination of slip/skid resistance of a surface - the pendulum test,*

executed on a kind of product sent to the CertiMaC Laboratory in Faenza, by the company Innovatív Térburkolatfejlesztő Kft (Ref. 2-a, 2-b).

## 2 References

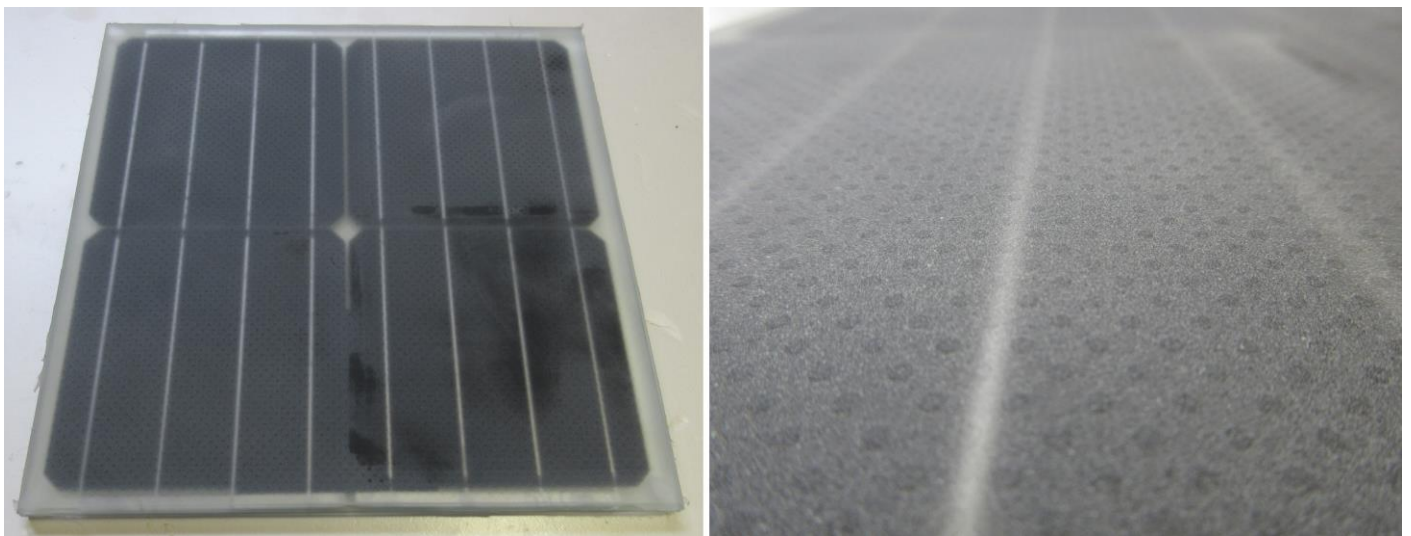
- Estimate: ref. n. 20009/lab on 16/01/2020.
- Order confirmation: e-mail on 17/01/2020.
- EN 13036-4:2011 Road and airfield surface characteristics – Test methods – method for measurement of slip/skid resistance of a surface – the pendulum test

## 3 Test object

Test has been executed on 6 surface layers [Figure 1] from 6 corresponding paving blocks with an integrated photovoltaic system, named:

- *PLATIO SOLAR PAVER WITH "OPAL" SURFACE*

with size approximately of 34 x 34 x 1 cm<sup>3</sup>. The specimens were selected from a sampling sent to the laboratory by the Customer on 22/01/2020.



**Figure 1 Platio solar paver with "Opal" surface**

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## 4 Test apparatus

The pendulum tester incorporates a spring loader slider made of a standard rubber attached to the end of a pendulum. On releasing the pendulum from a horizontal position, the loss of energy as the slider assembly passes over the test surface is measured by the reduction in length of the upswing using a calibrated scale.

The pendulum apparatus therefore measures the friction that develops between the rubber slider and the surface of the test sample, providing a reference value of resistance to slippage, called PTV (Pendulum Test Value), which must be evaluated in conditions both dry and wet.

The tests to determine the skid resistance were carried out in accordance with the requirements of the standard referred in Ref. 2-c, by means of a device very similar to that shown Figure 1 and consisting of:

- 1- C unit scale (126 mm sliding length);
- 2- F unit scale (76 mm sliding length);
- 3- Pointer;
- 4- Pendulum;
- 5- Rubber slider;
- 6- Levelling screw;
- 7- Support for sample;
- 8- Spirit level;
- 9- Vertical adjustment screw.

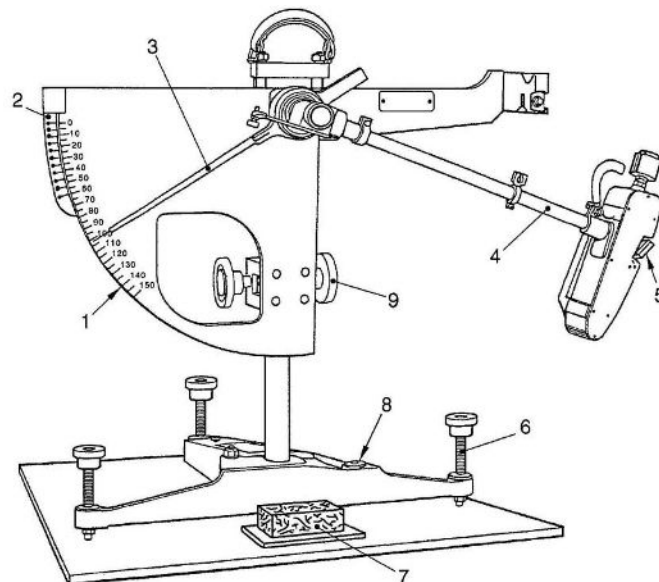


Figure 2 Scheme of the pendulum tester

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## 5 Test Execution and Description of the Results

For tests in dry conditions the 5 samples were conditioned at T = 20 °C for at least 2 hours.

For tests in wet conditions the 5 samples were immersed in water at T = 20 °C for at least 2 hours.

The slip resistance value in the absence of polishing was obtained with a pendulum equipment at the end of which is connected a rubber slider (width 76.2 mm, length 25.4 mm, thickness 6.4 mm), spring loaded and adjusted to cross the surface of the tested sample for a length of 126 mm. By making the pendulum oscillate and measuring the reduction in the length of the return oscillation by means of a calibrated scale, a measurement of the friction force developed between the slider and the surface of the test sample is obtained. The specimen is placed with the longitudinal axis placed along the travel of the pendulum and in a central position with respect to the slider.

Before each measurement in wet conditions, the surface of the specimen and that of the rubber pad were thoroughly wet with water.

The slip resistance (PTV) of each individual specimen is the average rounded to the unity of the two average values measured in the opposite directions.

The slip resistance (PTV) of the product is the mean of the average values of the single specimens.

Sample	Dry conditions		Wet conditions	
	PTV single sample	PTV mean value	PTV single sample	PTV mean value
1	69	69	59	58
2	67		59	
3	69		57	
4	70		59	
5	69		59	
6	68		56	

**Table 1 PTV slip resistance with pendulum test equipment in dry and wet conditions**

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## 6 Conclusions

The product named “**Platio solar paver with Opal surface**” shows an average **PTV** in dry conditions equal to **69** while in wet conditions decreases to **58**.

## 7 Distribution List

<b>ENEA</b>	Archives	1 copy
<b>CertiMaC</b>	Archives	1 copy
<b>Customer</b>	Innovatív Térburkolatfejlesztő Kft	1 copy

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