



# IEC 60068-2-68

## Blowing Sand Test Lc 2

Confirmation of test results

**Ref.:** 10056/2017-40205

**Applicant:** SolarWorld Americas, Inc.  
25300 NW Evergreen Rd, Hillsboro OR 97124, USA

**Product:** Crystalline Photovoltaic (PV)-Modules

**Type:** A) Sunmodule Plus SWA XXX mono Y  
A) Sunmodule Plus SWA XXX poly Y  
B) Sunmodule SWA XXX XL mono Y  
B) Sunmodule SWA XXX XL poly Y  
C) Sunmodule Protect SWA XXX mono Y  
C) Sunmodule Protect SWA XXX poly Y  
D) Sunmodule Bisun SWA XXX duo  
E) Sunmodule Bisun SWA XXX XL duo

XXX in the type replace the power in watt and can be any number between:

200 – 320 for A), C), D); 260 – 360 for B), E).

Y in the type replaces a potential suffix and can be black or clear.

**Manufacturer:** SolarWorld Americas, Inc.

**Standard:** IEC 60068-2-68, Test method Lc 2 plus  
TechnoLab Sand Test PA03/01 and AECTP 300,  
method 313

**Test sequence and pass/fail criteria:** Based on IEC 61701:2011

**Average particle size:** 380µm

**Concentration:** (2,5 ± 0,5) g/m<sup>3</sup>

**Sand composition:** ASIA Desert Rub'al Khali, Saudi Arabia, 97% SiO<sub>2</sub>

**Wind speed:** 9 m/s

**Testing time:** 6 h (4 positions, 90 minutes testing time each)



### Summary of test results:

<b>Maximum power degradation:</b>	allowed	max. 5 %
	measured	1,51 %

The measured degradation is below the allowed degradation.

<b>Dry insulation resistance:</b>	required	23,81 M $\Omega$
	measured	>500 M $\Omega$

The measured dry insulation resistance is far above the limit.

<b>Wet insulation resistance:</b>	required	23,81 M $\Omega$
	measured	>500 M $\Omega$

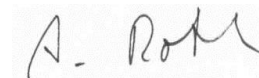
The measured wet insulation resistance is far above the limit.

**Visual inspection:** No findings

The complete test results are given in Test Report No.: TRPVM-201-40205-7.

### VDE Renewables GmbH

  
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63755 Alzenau, 2017-08-03