IEC 62716:2013
Photovoltaic (PV) modules
- Ammonia corrosion testing -
Confirmation of test results

VDE Renewables File Ref.: 10045/2019-40111

Applicant: Sunman (Hong Kong) Limited
Room 1401, 14/F., World Commerce Centre, Harbour City, 7-11
Canton Road, Tsimshatsui, Kowloon, Hong Kong, P.R. China

Product: Crystalline silicon Photovoltaic (PV)-Modules

Type:

A) SMFXXXM-6X12	A) SMFXXXP-6X12
B) SMFXXXM-6X10	B) SMFXXXP-6X10
C) SMFXXXM-6X06	D) SMFXXXM-4X12
D) SMFXXXP-4X12	E) SMFXXXM-4X10
E) SMFXXXP-4X10	F) SMFXXXM-4X09
G) SMFXXXM-4X06	G) SMFXXXP-4X06
H) SMFXXXM-4X04	I) SMFXXXM-2X12
I) SMFXXXP-2X12	J) SMFXXXM-2X10
J) SMFXXXP-2X10	K) SMFXXXM-2X06
K) SMFXXXP-2X06	L) SMFXXXM-2X04

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

275 - 340 for A)	230 - 280 for B)	140 - 170 for C)
185 - 225 for D)	155 - 190 for E)	140 - 170 for F)
90 - 110 for G)	60 - 75 for H)	90 - 110 for I)
75 - 95 for J)	45 - 55 for K)	30 - 35 for L)

Manufacturer: Sunman (Hong Kong) Limited

Standard: IEC 62716:2013, Ammonia corrosion testing

Test conditions

Hours including heating up:	8 h
NH3 -concentration (ppm):	6667
Chamber temperature:	60°C
Relative Humidity:	100 %
Hours including cooling:	16 h
NH3 -concentration (ppm):	0
Chamber temperature:	23°C
Relative Humidity:	75 %

Pass criteria

Power degradation:	< 5%
Dry Insulation:	> 40 MΩm²
Wet insulation:	> 40 MΩm²
Ground continuity:	< 0.1Ω

Bypass diode functionality: Shall be functional after test

Summary of test results:

Maximum power degradation:	allowed	max. 5 %
	measured	max. 1.18 %

The measured degradation is below the allowed degradation.

Dry insulation resistance:	required	min. 20.7 MΩ
	measured	>1000 MΩ

The measured dry insulation resistance is above the limit.

Wet insulation resistance:	required	min. 20.7 MΩ
	measured	>1000 MΩ

The measured wet insulation resistance is above the limit.

Ground continuity test:	required	max. 0.1Ω
	measured	max. 0.001Ω

Bypass diode functionality test: Still functional after test

The complete test results and the relevant bill of materials are given in Test Report No.: TRPVM-2019-40111-1.

VDE Renewables GmbH

Dean Wen ***Arnd Roth***

63755 Alzenau, 2019-06-12