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Jiangsu TÜV Product Service Ltd.
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Ms. Alice Dai

No. 4001, Fuqiang Road, Futian District

518048 Shenzhen, P.R. China

Berlin, 2011-06-14
Customer no.: D002358
Vendor no.
Order no.: 748528870
Order of: 2011-04-22
Date of del.: 2011-06-14
Report no.: A110137

Dieser Bericht umfasst Seiten/ This report comprises pages: 6
Alle Blätter sind einseitig beschrieben / The text is on the front side only.

Untersuchungsbericht / Investigation Report A110137

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Auftraggeber/ Customer:	Jiangsu TÜV Product Service Ltd., Mr. Alexander Krenz
Bearbeiter / Person/s in charge:	Marco Kämpfert, Dirk Naujokat, Stephan Schüler
Eingangsdatum der Proben / Date of arrival of sample/s:	2011-04-16
Probenbeschreibung / Description of sample/s:	2 pieces solar module, dimensions 1640mmx992mm Cell 1: SH110324P630B-T-0078 Cell 2: SH110324P630B-T-0106
Prüfspezifikation / Test specification:	Test step 1 - Environmental Testing Salt mist, cyclic in accordance with DIN EN 60068-2-52 (1996-10) Test Kb, sodium-chloride solution, degree of severity (Level) 5
Ergebnis / Result:	No corrosion is visible on the surface of the samples after the salt fog test.

Berlin, 2011-06-14



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1. Untersuchungsgegenstände / Test objects



Probenbeschreibung	Technolab's Prüflings-Nr.	Proben
<p>Solar module 1 for salt fog: SH110324P630B-T-0078 dimensions 1640mmx992mm</p>	<p>110137-1</p>	 <p>Foto 1 – front side</p>
<p>Solar module 2 for salt fog: SH110324P630B-T-0106 dimensions 1640mmx992mm</p>	<p>110137-2</p>	 <p>Foto 2 – back side</p>

Tabelle 1

2. Untersuchungsauftrag / Test issue

Salt mist test parameters	
Standard	Salt mist, cyclic in accordance with DIN EN 60068-2-52 (1996-10) Test Kb, sodium-chloride solution, degree of severity 5
Salt concentration	5weight % sodium chloride (NaCl) in deionized water
Temperature during 2h salt spraying	2h 35°C±2°C, rel. humidity >100% (spraying phase)
High humidity store	22h climate 40°C±2°C, rel. humidity 90%-95% (spray break)
Test sequence (salt spray+climate)	2h salt spray phase, 22h climate =24h for 1 cycle
Test sequence (drying phase)	4 cycles=96h, after 96h-cycle following 72h drying phase
1 cycle duration, Test duration	168h=1week=7d, 4 main cycles=672h=4weeks=28d
Low humidity store	72h climate 25°C±2°C, rel. humidity 45%-55% (drying phase)
Power supply	The samples are not connected to a power supply during the test
After-treatment	The samples were cleaned after the test with deionized water

Table 2

3. Optische Inspektion / Optical / Visual Inspection

The visual inspection was carried out on those parts of the samples accessible from outside. The inspection was carried out before and after the test.

Inspection and documentation took place under artificial light (florescent tubes cool white).

The visual inspection was carried out with the naked eye and by means of a Canon PowerShot G12 digital camera.

4. Ergebnisse / Results

The test was carried out as described under 2.

The following photo pages illustrate the comparison before and after the tests and show the influence of salt mist on the parts of the sample (photopage 6).

No corrosion is visible on the surface of the samples after the salt fog test.

Function tests and evaluations are carried out by the customer.

Berlin, 2011-06-14

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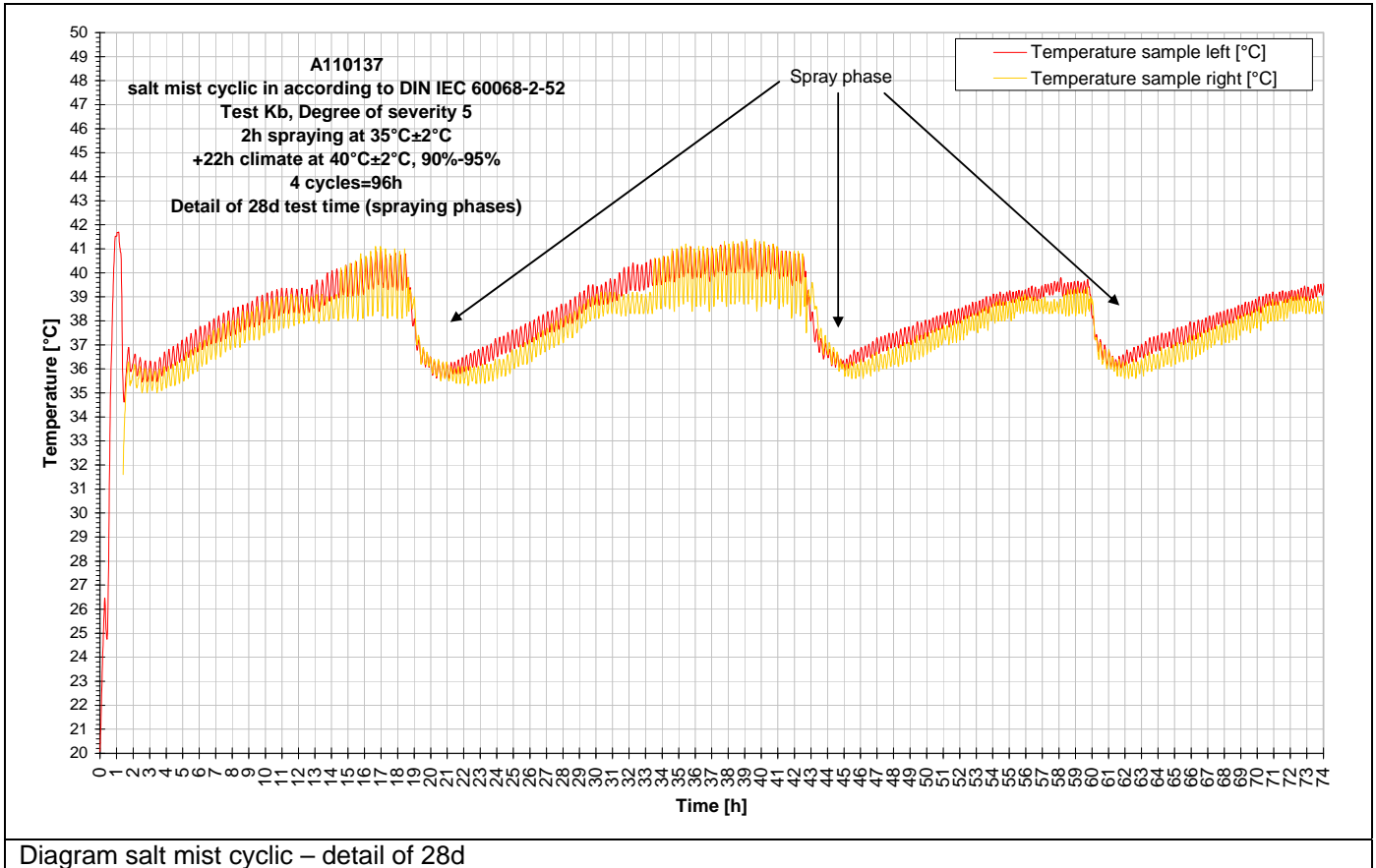


Diagram salt mist cyclic – detail of 28d

Table 3

**Illustrated documentation of test
Test set-up**



Photo 3
sample (initial state) inside the 8m³ test chamber
The connector are closed, angle 30° from vertical



Photo 4
sample (initial state) inside the 8m³ test chamber
1-Heating element, 2- atomizing nozzle



Photo 5
sample after salt mist test

Optical / Visual Inspection after salt mist test
before cleaning with deionized water



Photo 6 sample after salt mist test:
strong salt deposit at the surface
(before cleaning process)



Photo 7 sample after salt mist test:
The aluminium frame show **no** corrosion on the
surface, etch and corner.



Photo 8 sample after salt mist test:
Electronic case with salt deposit on the surface.
The case has not been opened.



Photo 9 sample after salt mist test:
Plug and socket with salt deposit on the surface
but **no** salt inside.

Table 4