

Partial Discharge Test

on reverse side foils of PV modules
according to IEC 60664-1, IEC61730

11. May 2007

Company / Examined foil:

Madico, Inc.		
TPE		
Tedlar	38 micron	outside
Polyester	51 micron	
EVA	102 micron	cell side

* The EVA is not part of the directly encapsulation of the PV cells

Number of measurements: 10

Remarks: None

Extinction voltage		Deviation from the mean value (%)
Min. value in (V)	955	-3,6
Mean value in (V)	991	
Max. value in (V)	1020	2,9

The mean value minus the experimental standard deviation will be used to calculate the max. permissible voltage.

Experimental standard deviation: 19 V

Calculation of the max. permissible operating voltage on the basis of the ascertain values

Basis: IEC 60664-1

$$U_{max} = U_e \times 1,414 / 1,2 \times 1,25$$

1,414 Calculation of the peak value
1,2 Safety factor (humidity, temperature, etc.)
1,25 Safety factor (double or reinforced insul.)

Maximum permissible system voltage	915 VDC
---	----------------


Testzentrum Energietechnik


Regenerative Energien

TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Am Grauen Stein, D-51105 Köln, Germany