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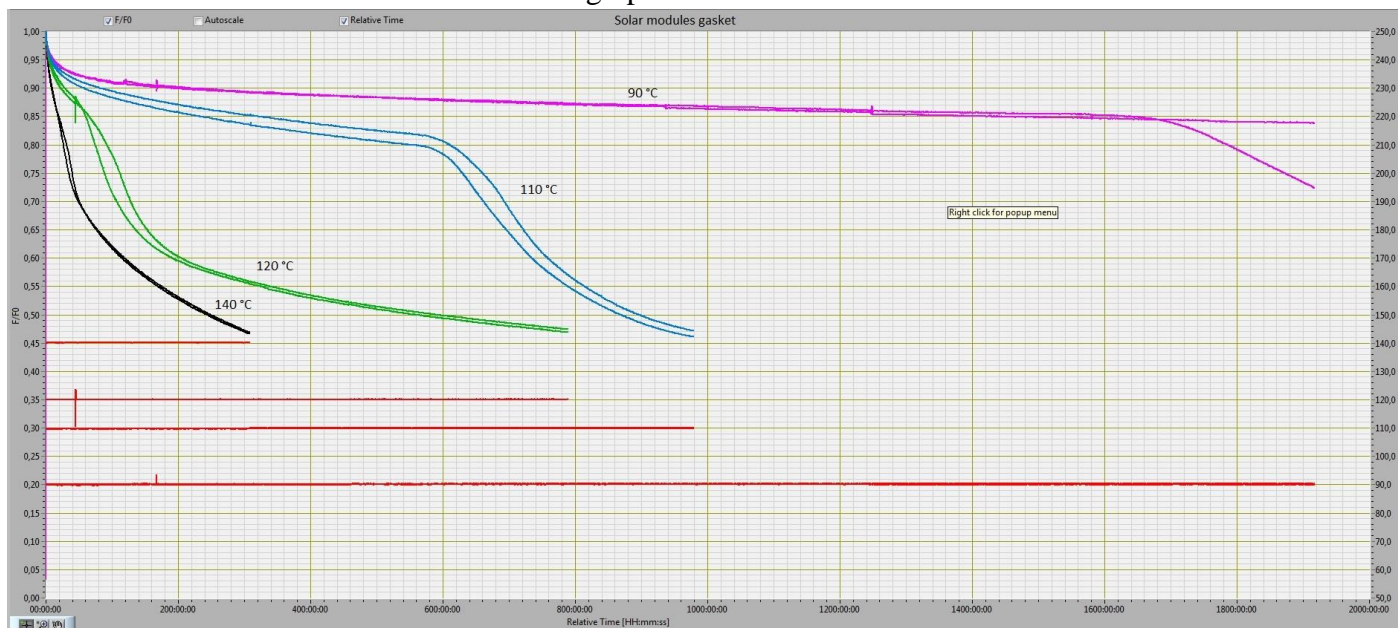
Lifetime estimation

Object	1 material designated: Rubber Gasket for Solar Photovoltaic Modules
Received	201508
Commission	Estimation of lifetime by Stress relaxation testing Evaluate the test result according to Arrhenius. Requirement: The highest working temperature for 30 years at 15 % relaxation
Performance	The stress relaxation testing was performed in an Elastocon EB 02 relaxation system according to ISO 3384 method A with 25 % compression. The lifetime estimation was done according to ISO 11346. The stress relaxation was done at 90 °C, 110 °C, 120 °C and 140 °C.

Results **Stress Relaxation**

Relaxation/ temp	90 °C	110 °C	120 °C	140 °C
15 %, h	1523	233	65	19

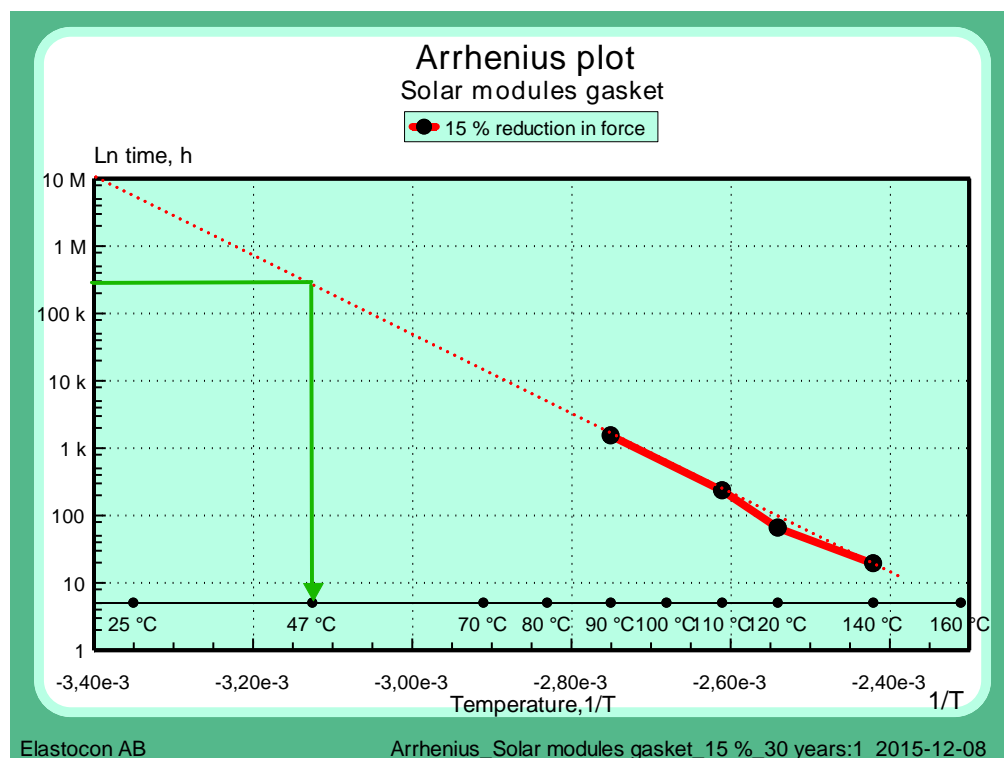
See also curves in graph No. 1



Arrhenius estimation

The max temperature at 30 years was estimated according to the procedure in ISO 11346.

Se the curve in graph 2



Comments

The material behaves very strange. The curve seems normal until about 15-20 % relaxation and then it falls fast. It seems to be another degradation process starting after some time.

This is why we used 15 % relaxation level.

Relaxation, %	Estimated Lifetime at 47 °C, years
15	30

Elastocon AB

Göran Spetz