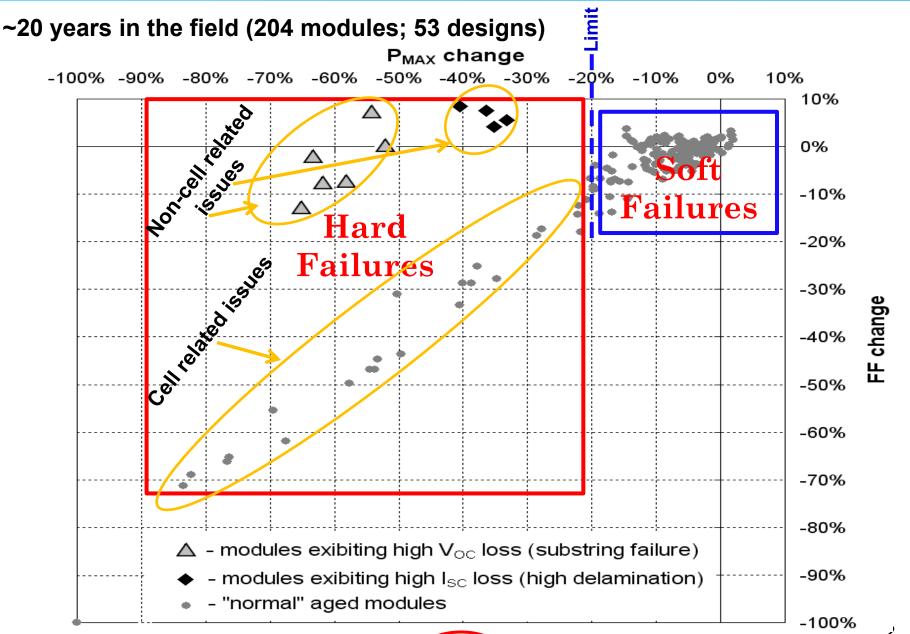


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Field Failure Classifications: Hard & Soft Failures – Some Thoughts!



Marking on the Product: Some Thoughts!

Solar Water Heaters

Certification: OG-100 of SRCC (Collector)

OG-300 of SRCC (System)

• Warranty: ≥ 10 years on solar collector

≥ 6 years on storage tank

≥ 2 years on controls

≥ 1 year for piping and parts

• Solar Factor: ≥ 50%



Solar Photovoltaics

• Certification: Design Quality (IEC 61215/61646)

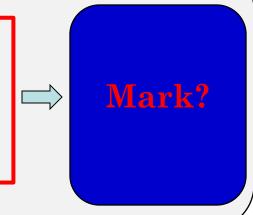
Comparative Quality (Extended/Sequential Testing?)

Manufacturing Quality (QA Guideline with HASA)

Predicted Energy Yield (kWh/kW based on IEC61853)

• Warranty: ≥ 20 years on PV module

≥ 10 years on BOS



Difference of transmittance spectra change Mitsui Chemicals UV absorber Initial(EVA-1) Field-exposed at Miyakojima is active. Total light transmittance [%] 00 80 Transmittance spectra of EVA of 60 modules **outdoor-exposed** at Miyakojima for over 20y. 40 20 This difference indicates that 0 high UV intensity irradiation 30Ò 400 500 700 800 200 600 is not suitable for reliability Wavelength [nm] 100 test of lifetime prediction Total light transmittance [%] **UV** absorber is not active High UV intensity (180W/m²/BPT110^oC) partially. ow UV intensity 60 Example of Transmittance (60W/m²/BPT110°C) Same YI(7) spectra of EVA-1 exposed 40 using XWOM with high and low intensities of UV 20 Without cell rays. 200 300 700 400 500 600 800 Wavelength [nm]