

Wed., Feb. 27, 10:00 Discussion notes:

We hear that the damp heat test causes failures that are not representative of field failure. Should we stop using a full 1000 h of 85°C/85% relative humidity damp heat? To make this change, we will need convincing data. If Task Group 3 finds a test protocol that correlates better with longevity in the field, then IEC 61215 might be changed, too. In the meantime, there have been cases in which field failures dropped after a product was modified to successfully pass 1000 h of 85/85, so the test currently provides value to the community.

Polyester back sheet failures observed in the field appear to be more related to UV and temperature than to hydrolysis. But, adequate testing for UV takes a long time and is costly. By using mini modules, the cost can be reduced and the reaction kinetics can be explored more carefully.

Potential-induced degradation (PID) can be solved at the system level by grounding the negative terminal. However, an ungrounded system may be safer, as it is less likely to cause a fire through a ground fault. We should bring the inverter and system designers into the conversation. At this time, the community is solving PID at the system level, by replacing the EVA with a high-resistance material or by modifying the cell design.

A new test for PID (using 65°C) is now being studied through a round robin. Some prefer to use 85°C. Data is needed to identify which temperature is the best.

Modules deployed in a horizontal configuration experience puddles of water and associated failures. Is it better to define our tests to include horizontal operation, or to forbid use of horizontal installation? (This question was not resolved).

PID includes competition of two processes. In chemistry, to find the equilibrium, watch how an extreme state relaxes back to equilibrium.

The damp heat test is primarily designed to identify issues with corrosion. If we flow I_{sc} through the module during damp heat, would the test more closely mimic failures seen in the field?

As companies replace EVA with other materials, how will the aging mechanisms change? Will we need to modify the test protocols?