

Test instruction

Outgassing of thermal insulation materials in solar-thermal flat-plate collectors

Structure of the test:

- The sample is heated up on one side, in accordance to the real use.
- The heating up is made inside a insulated box of metal with condensation trap.
- For test temperatures of 220°C and more, the condensation trap should be a AR glass (including measurement on spectrometer, see below).
- The test is always carried out on two samples in parallel at the same time.

Size of samples in test:

- Approx. 75 x 75 mm, thickness max. 50 mm

Test temperature:

- Surface temperature T_O on the heated side of sample according to instructions of the customer
- Thermostatic controlled, tolerance within $\pm 1^\circ\text{C}$

Duration of Exposition:

- 150 hours

Analysis, criterias:

- In every case, the condensation traps are checked visual by eye, and pictures will be taken. Based on this, a classification follows into one of four categories v1 to v4 (see Table 1 below).
- If the condensation trap is a AR glass, the transmittance of this glass is measured before and after the exposition (by spectrometer). The resulting change of values decides about the classification into one of four categories t1 to t4 (see Table 2 below).
- The test has been successfully passed, if both samples are classified in categories v1 to v3 and t1 to t3.
- If there is a classification in v4 and / or t4 , the test has failed.

Table 1: Categories for visual classification of the condensation traps


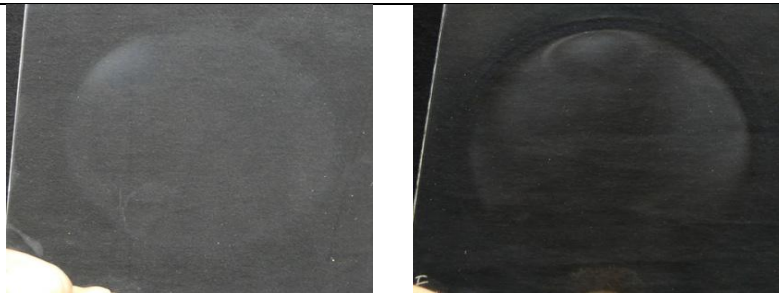
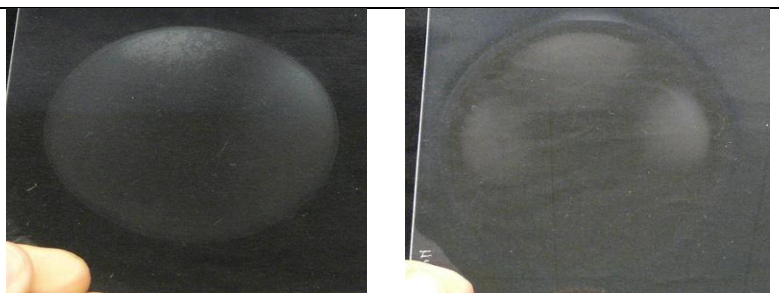
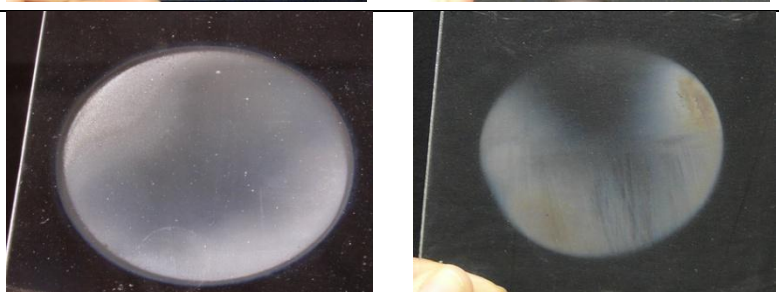
Category:	Description:	Examples of pictures:	
v1	No visible condensate precipitation is to be expected		
v2	Only few visible condensate precipitation is to be expected		
v3	Markedly visible condensate precipitation is to be expected		
v4	Strong visible condensate precipitation is to be expected		

Table 2: Change of transmittance on the condensation traps

Category:	Change of the single values of τ_{Sol} :	Judgement:
t1	up to 0.003	acceptable
t2	up to 0.010	acceptable
t3	up to 0.015	acceptable
t4	More than 0.015	not acceptable

Testreport, certificate:

- In every case a **Test report** is given to the customer (3 or 4 pages A4) with the following content :
 - Name / address of customer
 - Designation / description of tested sample (incl. picture)
 - Test conditions (test temperature, with or without analysis of effect on antireflective glazings)
 - Results (pictures of condensation traps, values of transmittance, classification into v1...v4 , resp. t1...t4, decision failed / passed)
 - Password for i-Report
- If the test has been passed successfully and an official datasheet of the tested sample is present at SPF, the customer is free to order a **Certificate** (single page A4) with the following content :
 - Name / Address of customer
 - Designation / description of tested sample (incl. picture)
 - Test conditions (test temperature, with or without analysis of effect on antireflective glazings)
 - Date of validity (3 years after test)
 - Results (classification v1...v3 , resp. t1...t3)

Publication of test report, resp. certificate:

- The test report is a so called **i-Report**. It contains a password, which enables the reader to compare it with the original report on the SPF-Webside. So the reader of a test report can verify validity and authenticity of this report.
- If the customer orders a certificate, then this certificate will be published in every case on the SPF-Webside, free accessible for everybody.

Limitation of liability:

Our GTC apply, see www.solarenergy.ch/docu/en/



Felix Flückiger

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