

MANUFACTURER'S DECLARATION AMMONIA

No adverse effects whatsoever were detected during the ammonia test.

- No reduction in performance
- No loss in dielectric strength
- No defects or corrosion damage in connection technology, foil and frame material

SOLARWATT hereby confirms that the components used in the modules

Vision 60M high power
 Vision 60M style
 Vision 60P
 Vision 36M glass
 EasyIn 60M style
 Black 60M style
 Blue 60P

are suitable for use in environments with an elevated ammonia concentration.

SOLARWATT Product Management

BA high concentration of ammonia may thus build up in photovoltaic systems on buildings of this type if such systems are inadequately ventilated at the rear. SOLARWATT modules offer maximum long-term reliability and optimum yields under such operating conditions.

Materials

This is because comprehensive quality management and strict materials selection ensure that SOLARWATT modules only contain materials which have been subject to exhaustive internal and external tests.

For this reason, SOLARWATT has developed accelerated ageing tests to study modules and components with regard to resistance to corrosion, mechanical stability and range of functions in the case of exposure to ammonia.

Tests

The tests are based on standards DIN EN 60068-2-60 and DIN EN ISO 3231, and are combined and extended in such a way that installation conditions can be re-created in step with actual practice. Unlike in other ammonia tests, for example, high relative humidity (85 %) combined with a cyclic fluctuation in temperature (15 °C to 45 °C) are used to reproduce the build-up and subsequent drying of condensate on modules at different times of day. The ammonia concentration is also greatly increased to re-create total exposure over a module's life cycle in a much shorter space of time.

After the test, complex analysis methods were used to check modules and individual materials with regard to mechanical and electrical properties.

The result showed that all materials used featured optimum SOLARWATT quality.

Concentration of Ammonia	City < 0,5 Mio inhabitants ⁽¹⁾	City > 2 Mio. inhabitants ⁽¹⁾	Cattle sheeds ⁽²⁾	SOLARWATT Test
Concentration NH ₃ [ppm]	0.03	0.11	5–15	1200

Sources::

(1) Dolezel B., „Die Beständigkeit von Kunststoffen und Gummi“, Carl Hanser Verlag, München Wien, 1978;

(2) Untersuchungen des IKS, Dresden

