

DUPLICATE





Fraunhofer TESTED[®] DEVICE igus GmbH Igumid TE Report No. IG 2110-1268

Statement of Qualification

Single product Outgassing Behavior Ammonia

Statement of Qualification • Single product

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igus GmbH Spicher Strasse 1a 51147 Cologne Germany

Component tested

Category:	Materials
Subcategory:	Plastics
Product name:	Tile made from igumid TE material (manufacturing date: 7/13/2021; color: black; article number: MAT0060008)

Emission chamber measurements with impingement in combination with ion chromatography (IC)

Standards/Guidelines:	ISO 14644-8, -15; VDI 2083 Part 17; VDI 2452 Part 1 (impinger); ISO 14911 (cations) The norms stated generally refer to the version valid at the time of the tests.
Testing equipment:	 Measuring station:
Sample storage:	 Pre-conditioning: Cleanroom Air Cleanliness Class (according to ISO 14644-1): Airflow velocity: Airflow type: Vertical laminar flow Temperature: 22 °C ± 0.5 °C Relative humidity: 45 % ± 5 % Purified air:
Test procedure parameters:	Outgassing test temperatures:

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

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Category (x

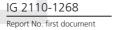
Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

Test result/Classification

Department of Ultraclean Technology and Micromanufacturing

Nobelstrasse 12 70569 Stuttgart Germany



Report No. current document

on behalf of RTRi Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA



The outgassing behavior of the tile made from igumid TE material the stated temperatures was investigated according to VDI 2083 Part 17 and ISO 14644-15. Based on the outgassing rates determined for the specific surfaces, the following material classification was made for the corresponding Contaminant Category:

t	SER ¹⁾ 23°C	SER ₁ ¹⁾ 90°C	ISO-ACC _m Class (x)
()	[g/m ² s]	[g/m ² s]	based on 23°C
H ₃)	< 2.9 x 10 ⁻⁹	1.2 x 10 ⁻⁸	< - 8.5

¹⁾SER₂: Area-specific emission rate

Place, date of first document issued

Place, current date

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