Cleanroom (atmospheric)

valid until: January 16, 2031

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DEVICE

Strubl GmbH & Co. KG
SABIC2201H1
Report No. ST 2511-1682

Statement of
Qualification

Single product
Outgassing Behavior
VOC/SVOC

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Statement of Qualification · Single product

Customer

Strubl GmbH & Co. KG Kunststoffverpackungen
Richtweg 52
90530 Wendelstein
Germany

Tested product

Category: Materials

Subcategory: Consumables

Product name: Cleanroompackaging SABIC2201H1
(manufacturing date: 10/2025; color: transparent; article number: SA-BIC2201H1; charge number: 310431-1/2)

Emission chamber measurements with purge-and-trap thermodesorption method and gas chromatography combined with mass spectrometry (TD-GC/MS)

Standards/guidelines: ISO 14644-8, -15
The norms stated generally refer to the version valid at the time of the tests.

Test equipment:
- Measuring station: ..... PerkinElmer Clarus 600, Clarus SQ8, ATD 650
- Sampling chamber: ..... Markes International µCTE

Sample storage:
- Age of sample: ..... ~30 days
- Pre-conditioning:
  - Cleanroom Air Cleanliness Class (according to ISO 14644-1): ..... ISO 1
  - Airflow velocity: ..... 0.45 m/s
  - Airflow type: ..... vertical laminar flow
  - Temperature: ..... 22 °C ± 0.5 °C
  - Relative humidity: ..... 45 % ± 5 %
  - Purified air: ..... VOC-filtered

Test procedure parameters:
- Retention range (VOC): ..... C6 to C16
- Outgassing test temperature: ..... 23 °C

Test result / Classification

The outgassing behavior of Cleanroompackaging SABIC2201H1 at the stated temperatures was investigated according to ISO 14644-15. Based on the outgassing rates determined for the specific surfaces, the following material classification was made for the corresponding Contaminant Category:

Contaminant Category (x)	SER_a [1] [g/m²s]	ISO-ACC_m Class (x)
VOC	< 2.8 x 10^{-10}	**< -9.6**
SVOC [2]	4.4 x 10^{-10}	**-9.4**
Sum of VOC and SVOC	4.4 x 10^{-10}	--
Refractories [3]	7.5 x 10^{-10}	--
Siloxanes [4]	7.5 x 10^{-10}	--

[1] The emission rate is calculated using the detected mass based on the response of the standard, the analyzed unit and the sampling duration.
[2] according ISO 16000-25, SVOC is the sum of airborne and condensing SVOC. Condensing SVOC were collected by heating the emission chamber to 90 °C after removal of the sample.
[3] Refractories are compounds containing elements other than C, H and O (for example S, P, N, Si,…).
[4] Siloxanes and other Si-containing organic substances. Siloxanes also count as refractories.

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.

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

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on behalf of
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification

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