



Fraunhofer

**TESTED[®]
DEVICE**

SHIELD Scientific BV
Orange Nitrile 300 DI
Report No. SH 1402-694

DUPLICATE

Statement of
Qualification

Outgassing Behavior

Statement of Qualification

Customer: SHIELD Scientific BV
Dr Willem Dreeslaan 1
6721 ND Bennekom
The Netherlands

Component tested

Category: Working Place and Operator

Sub-category: Working Place and Operator/Work Equipment

Product name: SHIELDskin Xtreme Orange Nitrile 300 DI
(Date of manufacturing: April-2013; Lot: 3D01498PB)

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

Standards/Guidelines: ISO 14644-8; ISO 16000-6, -9, -11, -25; VDI 2083-17
The norms stated refer to the relevant editions applicable at the time of the tests.

Testing equipment:

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

Sample storage: Age of sample: Measurement at 23 °C directly after unpacking

Test parameters used:

- Retention range:..... VOC (C6 to C16)
- Outgassing test temperatures: 23 °C and 90 °C

Test result / Classification:
(in acc. with ISO 14644-8, VDI 2083-17)

The outgassing behavior of the named material at the stated temperatures was investigated according to VDI 2083-17. Based on the outgassing rates determined for the specific surfaces, the following material classification was made for the corresponding contaminant group:

Test temperature	Contaminant group	Specific emission rate [g/m ² s]	ISO-ACC _m - Class (x)
23 °C	VOC	1.09 x 10 ⁻⁹	-9.0
90 °C	Amines	Not detectable	--
	Organophosphates	Not detectable	--
	Siloxanes	9.5 x 10 ⁻¹⁰	--
	Phthalates	Not detectable	--

The detection limit at the time of the test was ISO-ACC_m Class = -9.6 (VOC). The ISO-ACC_m Class (x) was assigned for the named contaminant group x at the test temperature of 23 °C (room temperature).

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.

For further information about the test environment and parameters, please refer to the Fraunhofer IPA test report.

Fraunhofer Institute for
Manufacturing Engineering and Automation IPA

Department of Ultraclean Technology
and Micromanufacturing

Nobelstraße 12
70569 Stuttgart
Germany

Stuttgart, March 12, 2014

Place, date of first document issued

--

Place, current date

Frank Bürger
i. A. Frank Bürger, Project Manager Fraunhofer IPA

DUPLICATE

DUPLICATE