

UL Environment, Inc.
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Test Report No. 50273-007:

Client:	UL Environment, Inc. Marietta
Sample description by client:	PU Montage Adhesive (610) 457612-405194, Sample ID: 1020
Sampling by:	Akkim Yapi Kimyasallari, Mr. Ender Sarigul
Date of arrival of sample:	05.05.2015
Date of report:	15.07.2015
Number of pages of report:	7
Testing parameter:	see table of contents
Testing laboratory:	eco-INSTITUT Germany GmbH, Cologne

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Sample view

Internal Sample-no.	Description by customer	Condition upon delivery	Type of sample
A004	Sample ID: 1020	without objection	sample

Test Report

1 Emission test

1.1 Volatile Organic Compounds (VOC)

Definition of terms:

VOC
(volatile organic compounds)

All individual materials with a concentration $\geq 0,001 \text{ mg/m}^3$ in retention range C₆ (n-Hexane) to C₁₆ (n-Hexadecane)
Substances refer to LCI lists / AgBB (DIBt)

TVOC_{tol}
(Total volatile organic compounds)

Sum of all individual substances in retention range C₆ to C₁₆ as toluene equivalent (DIN ISO 16000-6).

Identified and calibrated substances (C_{id sub}), substance specific calculated

Spectrum and retention time are concordant with the calibrated comparison substance

Test method TS 16516 with following parameters:

Preparation of test sample:	Date:	09.06.2015	
	Pre-treatment:	According to GEV-emicode requirements for sealants. Sample preparation using a custom made form. Width: 10 mm, depth: 3 mm	
	Masking of backside:	not applicable	
	Masking of edges:	not applicable	
	Relationship of unmasked edges to surface:	not applicable	
	Charging:	related to area	
	Dimensions:	8.75 cm x 1 cm (3 mm depth)	
	Test chamber conditions::	Chamber volume:	0.125 m ³
		Temperature:	23 °C
		Relative humidity:	50 %
Air pressure:		normal	
Air:		cleaned	
Air change rate:		0.5 h ⁻¹	
Air velocity:		0.3 m/s	
Loading:		0.007 m ² /m ³	
Specific air flow rate:		71.429 m ³ /m ² · h	
Air sampling:		28 days after test chamber loading	
Analytics:	DIN ISO 16000-3		
	Limit of determination:	2 µg/m ³	
	DIN ISO 16000-6		
	Limit of determination:	1 µg/m ³	

Measurement time 28 days after test chamber loading

1.1.1 VOC / TVOC_{28d}

Test parameter:

Volatile organic compounds (VOC), test chamber, air sampling 28 days after test chamber loading

Test result:

Sample: A004: Sample ID: 1022

No.	Substance	CAS No.	Concentration (Test chamber air) [µg/m ³]
VOC_{28d}: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated (c_{id sub})			
1	Aromatic hydrocarbons		
1-1	Toluene	108-88-3	n.d.
1-2	Ethylbenzene	100-41-4	n.d.
1-4	p-Xylene	106-42-3	4
1-5	m-Xylene	108-38-3	
1-6	o-Xylene	95-47-6	2
1-11	1,2,4-Trimethylbenzene	95-63-6	n.d.
1-25	Styrene	100-42-5	n.d.
6	Glycols, Glycol ethers, Glycol esters		
6-3	Ethylene glycol monobutyl ether	111-76-2	n.d.
11	Chlorinated hydrocarbons		
11-1	Tetrachlorethene	127-18-4	n.d.
VOC_{28d}: Further identified and calibrated substances in addition with LCI list/AgBB, substance specific calculated (c_{id sub})			
1	Aromatic hydrocarbons		
	Benzene	71-43-2	n.d.
11	Chlorinated hydrocarbons		
	1,4-Dichlorbenzene	106-46-7	n.d.

n.d. = not detectable

Total volatile organic compounds (Toluene Equivalent DIN ISO 16000-6)	Concentration (test chamber air) [µg/m³]
TVOC_{tol,28d}	70

1.1.1.1 Formaldehyde_{28d} and Acetaldehyde_{28d}

Test parameter:

Formaldehyde and Acetaldehyde, test chamber, air sampling 28 days after test chamber loading

Test method:

Preparation of test sample: according to DIN EN 717-1
see Volatile organic compounds

Test chamber conditions: DIN EN 717-1 with the following deviations:

- No determination of the equilibrium concentration; the formaldehyde emission is indicated at a measuring point as determined above.
- Chamber volume: see Volatile organic compounds
- Relative humidity: 50%
- Air change rate and loading: see Volatile organic compounds

Emission chamber parameters: see volatile organic compounds

Air sampling: 28 days after test chamber loading

Analytics: DIN ISO 16000-3

Limit of determination: 2 µg/m³ ≈ 0.002 ppm

Test result:

Sample: A004: Sample ID: 1022

Substance	Concentration (Test chamber air) [µg/m ³]	Concentration (Test chamber air) [ppm]
Formaldehyde	< 2	< 0.002
Acetaldehyde	< 2	-

2 Phthalates, chamber air analytics

Test parameter:

Phthalates, chamber air analytics

Test method:

Analytiks: | DIN ISO 16000-6
Limit of determination: | 1 µg/m³

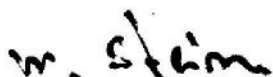
Test result:

Sample: A004: Sample ID: 1022

Substance	Content (Test chamber air) [µg/m ³]
Dibutylphthalate (DBP)	n.d.
Diethylhexylphthalate (DEHP)	n.d.

n.d.: not detectable

Cologne, 15.07.2015



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