



**Vescom by  
Sint-Jozefstraat 20  
5753 AV DEURNE  
Netherlands**

Through our consultant 'Floorcoverings'

**Your notice of**  
06-05-2024

**Your reference**  
SOBV1284410

**Date**  
31-05-2024

## Analysis Report 24.02531.00

Required tests :

**EN 16516 (2017)+A1 (2020)  
ISO 16000-3 (2011)**

**Emission of volatile organic compounds (chamber method)  
Determination of carbonyl compounds (eg formaldehyde) -  
DNPH method**

Sample id	Information given by the client	Date of receipt
T2409737	Thermoplastic Polyolefin Wallcovering	06-05-2024

[SIGNATURE]

Order responsible

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The results of the analysis cover the received samples. Centexbel is not responsible for the representativeness of the samples.  
In assessing compliance with the specifications, we did not take into account the uncertainty on the test results.

**Reference: T2409737 - Thermoplastic Polyolefin Wallcovering**

**Emission of volatile organic compounds (chamber method)**

Date of ending the test	29-05-2024
Standard used	EN 16516 (2017)+A1 (2020)
Product standard	AgBB (2021)
Preparation	Procedure of sampling, storage of samples and preparation of test specimens as described in the standard EN 16516
Sampling and conditioning	Emission test chamber method at 23°C and 50% RH under ½ air exchange per hour. Sampling (under continuous ventilation) on Tenax TA
Sampling after X days	3 days
Analytical method	Volatile compounds are thermally desorbed, cryo-trapped and injected into a GC-MS.
Detection	Gas chromatography with Agilent MSD detector.
Quantification	Target, non-target and unidentified components are quantified using toluene equivalents (TEQ). Target components are also particularly calibrated per component
Requirements	TVOC, TSVOC and $\Sigma$ VOC (w/o LCI) are reported in TEQ. Concentrations of components ( $C_i$ ), specific emission rate ( $SER_{ai}$ ), $TVOC_{spec}$ and $\Sigma$ VOC (with LCI) are calculated with component specific calibration if available. $R_i$ and R values are calculated based on LCI (lowest concentration of interest) of settlement AgBB 2021.
Results	
Determination limit $\mu\text{g}/\text{m}^3$ (emissions)	5
Determination limit $\mu\text{g}/\text{m}^3$ (carcinogenic, mutagenic and toxic substances)	1

Type of test method	Flec	-		
	Test-chamber	x		
Material of test chamber		Steel	Glass	Other
		x		
Test chamber volume		0.25 [m <sup>3</sup> ]		
Area of sample		0.25 [m <sup>2</sup> ]		
Air exchange rate		0.5 [h <sup>-1</sup> ]		
Area specific air exchange rate q		0.5 [mh <sup>-1</sup> ]		
Temperature		23 [°C]		
Rel. humidity		50 [%]		
Insert of sample into the test chamber	Date	13-05-24		
Sampling after 3 days		16-05-24		

Results	3 Days [µg/m <sup>3</sup> ]
TVOC (C6 - C16)	320
TSVOC (C16 - C22)	0
TVOC spec	490
Σ VOC with LCI	480
Σ VOC w/o LCI	7
Σ Carcinogenics	0
R (w/o dimension)	1.088

Table 1: Summary of conditions and results of the emission test

Annex 1

Annex.1\_report24.02531.00\_.pdf

**Reference: T2409737\_01d - Thermoplastic Polyolefin Wallcovering**

**Determination of carbonyl compounds (eg formaldehyde) - DNPH method**

Date of ending the test 30-05-2024  
Standard used ISO 16000-3 (2011)

Deviation from the standard  
Sample preparation The sample is conditioned in a simulation room at 23°C and 50% R.H.

Air exchange rate 0.5 air exchange per hour  
Sampling aldehydes Agbb are adsorbed on dinitrophenylhydrazine (DNPH) impregnated silica

Analytical method RP-HPLC (UV 360 nm)

Results  
Determination limit 0.002 mg/m<sup>3</sup> for formaldehyde and acetaldehyde, 0.005 mg/m<sup>3</sup> for the other components

	CAS	3 days mg/m <sup>3</sup>
Formaldehyde	50-00-0	< 0.002
Acetaldehyde	75-07-0	< 0.002
Acrolein	107-02-8	< 0.005
Propionaldehyde	123-38-6	< 0.005
Crotonaldehyde	123-73-9	< 0.005
Butyraldehyde	123-72-8	< 0.005
Isovaleraldehyde	590-86-3	< 0.005
Valeraldehyde	110-62-3	< 0.005
Hexaldehyde	66-25-1	< 0.005

## Sample history

**T2409737\_01d**

**Thermoplastic Polyolefin Wallcovering**

From sample T2409737 and the following procedure (Thermoplastic Polyolefin Wallcovering )

**Active sampling of carbonyl compounds (eg formaldehyde) - DNPH method**

Date of ending the test

17-05-2024

Standard used

ISO 16000-3 (2011)

Deviation from the standard

Sample preparation

The sample is conditioned in a simulation room at 23°C and 50% R.H.

Residence time (in days)

3 days

Air exchange rate

0.5 air exchange per hour

Sampling

Carbonyl compounds on dinitrophenylhydrazine (DNPH) impregnated silica

Preview

Abundance

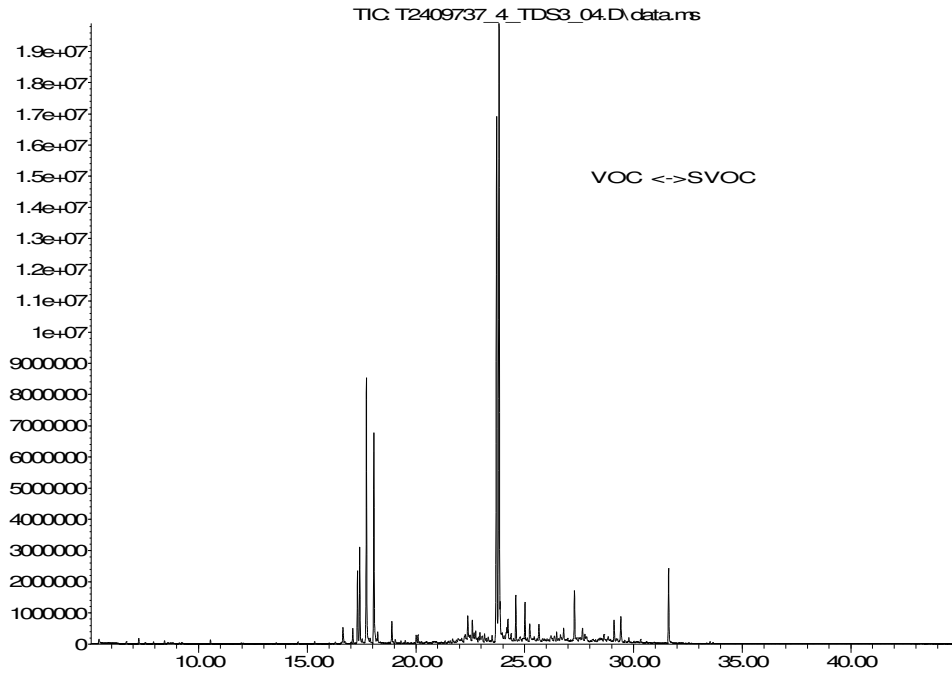


Fig 1: Chromatogram of the emission (3 days – 5l sampling)

Name	CAS nr	Rt (min)	Tol eq ( $\mu\text{g}/\text{m}^3$ )	Conc ( $\mu\text{g}/\text{m}^3$ )	SERi ( $\mu\text{g}/\text{m}^2\text{h}$ )	LCI code	LCI value	Ri
Acetic acid	64-19-7	7,58	7	58	72,4	09-01	1200	0,048
1-Butanol	71-36-3	7,98	7	23	29,1	04-06	3000	0,008
tert-Butyl Hydroperoxide	75-91-2	8,95	<5	<5				
Acrylic acid	79-10-7	9,31	<5	<5				
Hexanal	66-25-1	11,43	<5	<5		07-03	900	
Cyclohexanol	108-93-0	13,98	6	10	12,3	04-09	2000	0,005
Butylacrylate	141-32-2	14,22	<5	<5		10-15	110	
n-Butyl propionate	590-01-2	14,57	<5	<5				
Benzaldehyde	100-52-7	16,30	11	10	12,7	07-19	90	0,113
Octanal	124-13-0	17,38	<5	<5		07-06	900	
Ethylhexanol	104-76-7	18,06	<5	<5		04-10	300	
Acetophenon	98-86-2	19,33	<5	<5		08-08	490	
Branched dodecenes		20,05	56	56	69,9			
Nonanal	124-19-6	20,18	17	22	27,8	07-07	900	0,025
Naphthalene	91-20-3	22,65	<5	<5		01-30	10	
Ethylhexylacrylate	103-11-7	23,36	<5	<5		10-16	380	
4-Phenyl-cyclohexene	4994-16-5	26,22	8	<5		01-24	300	

Table 1: Detailed results of the emitted compounds ( $>1\mu\text{g}/\text{m}^3$ ) for the 3 day emission