Vescom bv
Sint-Jozefstraat 20
5753 AV DEURNE
Netherlands

Through our consultant 'Floorcoverings'

Your notice of	Your reference	Date
06-05-2024	SOBV1284410	31-05-2024

Analysis Report 24.02531.00

Required tests :

EN 16516 (2017)+A1 (2020) **Emission of volatile organic compounds (chamber method)**
ISO 16000-3 (2011) **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

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 Σ VOC (w/o LCI) are reported in TEQ. Concentrations of components (C_i), specific emission rate (SERai), TVOC $_{spec}$ and Σ 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 µg/m³ (emissions)	5
Determination limit µg/m³ (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 [m³]
Area of sample	0.25 [m²]
Air exchange rate	0.5 [h-1]
Area specific air exchange rate q	0.5 [mh-1]
Temperature	23 [°C]
Rel. humidity	50 [%]

	Date
Insert of sample into the test chamber	13-05-24
Sampling after 3 days	16-05-24

Results	3 Days [µg/m³]
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/m³ for formaldehyde and acetaldehyde, 0.005 mg/m³ for the other components

	CAS	3 days
		mg/m³
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

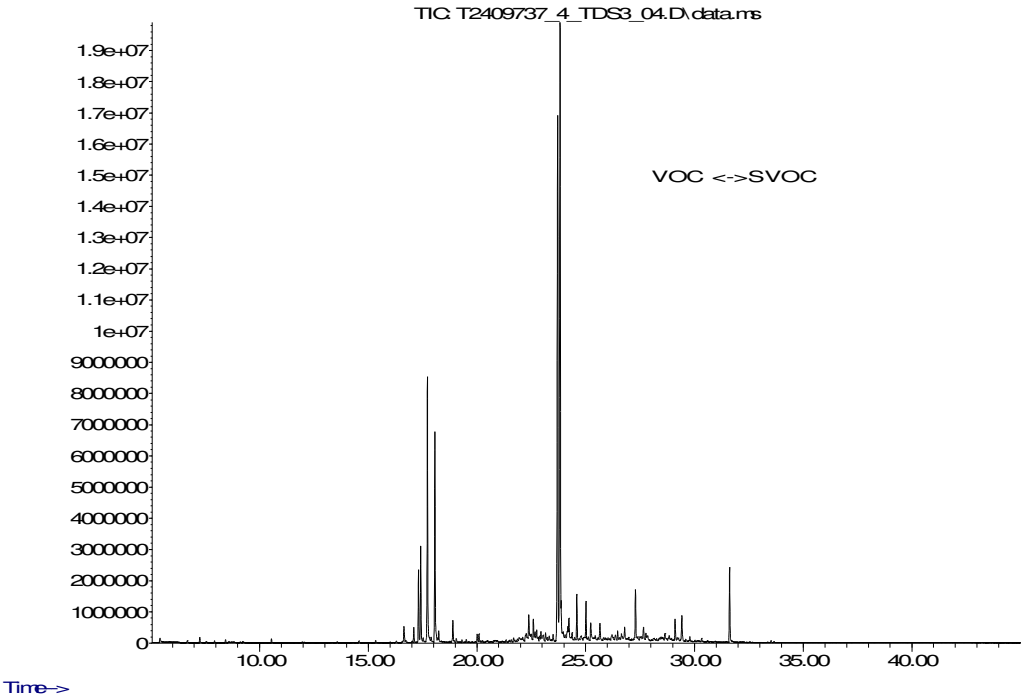

Fig 1: Chromatogram of the emission (3 days – 5l sampling)

Name	CAS nr	Rt (min)	Tol eq ($\mu g/m^3$)	Conc ($\mu g/m^3$)	SERi ($\mu g/m^2h$)	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 (>1µg/m^3) for the 3 day emission