

Vescom bv  
Dhr. Twan Ramaekers  
P.O. Box 70  
5750 AB DEURNE  
Nederland



Through our consultant

Your notice of  
03-04-2018

Your reference

Date  
24-07-2018

## Analysis Report 18.01991.01

Required tests :

EN 16516 (2017)

ISO 16000-3 (2011)

Emission of volatile organic compounds (chamber method)  
determination of aldehydes after emission

Identification number	Information given by the client	Date of receipt
T1807975	TONGA	03-04-2018

Jo Wynendaele

Order responsible

This report may be reproduced, as long as it is presented in its entire form, without written permission of Centexbel.  
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.

**CENTEXBEL • textile competence centre • [www.centexbel.be](http://www.centexbel.be) • [www.vkc.be](http://www.vkc.be)**

Inrichting erkend bij toepassing van de besluitwet van 30-01-1947 • Établissement reconnu par application de l'arrêté-loi du 30-01-1947  
GENT • Technologiepark 7 • BE-9052 Zwijnaarde, Belgium • phone +32 9 220 41 51 • fax +32 9 220 49 55 • [gent@centexbel.be](mailto:gent@centexbel.be)  
GRÂCE-HOLLOGNE • Rue du Travail 5 • BE-4460 Grâce-Hollogne, Belgium • phone +32 4 296 82 00 • [g-h@centexbel.be](mailto:g-h@centexbel.be)  
KORTRIJK • Etienne Sabbelaan 49 • BE-8500 Kortrijk, Belgium • phone +32 56 281828 • fax +32 56 281830 • [info@vkc.be](mailto:info@vkc.be)  
VAT BE 0459.218.289 • IBAN BE44 2100 4729 6545 • BIC GEBABEBB

**Reference: T1807975 - TONGA**

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

Date of ending the test	23-07-2018
Standard used	EN 16516 (2017)
Product standard	décret Français sur les COV
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	28 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 compounds are calibrated, non-target and unidentified compounds are quantified using toluene equivalents (TEQ)
Results	
Determination limit µg/m <sup>3</sup> (emissions)	5
Determination limit µg/m <sup>3</sup> (carcinogenic, mutagenic and toxic substances)	1

	Limits	Measured $\mu\text{g}/\text{m}^3$
Rating	a+	
Formaldehyde	<10	< 5
Acetaldehyde	<200	< 5
Toluene	<300	< 5
Tetrachloroethylene	<250	< 5
Ethylbenzene	<750	< 5
Xylene	<200	< 5
Styrene	<250	< 5
2 butoxyethanol	<1000	< 5
1,2,4-trimethylbenzene	<1000	< 5
1,4-dichlorobenzene	<60	< 5
TVOC	<1000	482
Benzene	<1	< 1
DBP	<1	< 1
DEHP	<1	< 1
Trichloroethylene	<1	< 1

### Sample identification

#### Type of test method

Flec -  
Test-chamber x

#### Material of test chamber

Steel  
x      Glass      Other

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

06-04-18

Sampling after 28 days

04-05-18

Table 1: Summary of conditions and results of 28 day emission test

Annex 1

Annex.1\_report18.01991.01.pdf

**Reference: T1807975\_01d - TONGA**

**Determination of aldehydes after emission**

Date of ending the test 18-05-2018  
 Standard used ISO 16000-3 (2011)  
 Product standard décret Français sur les COV

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 formaldehyde and acetaldehyde 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

	28 days
	mg/m <sup>3</sup>
Formaldehyde	< 0.002
Acetaldehyde	< 0.002
Acrolein	< 0.005
Propionaldehyde	< 0.005
Crotonaldehyde	< 0.005
Butyraldehyde	< 0.005
Isovaleraldehyde	< 0.005
Valeraldehyde	< 0.005
Hexaldehyde	< 0.005

## Sample history

### **T1807975\_01d TONGA**

From sample T1807975 and the following procedure (TONGA)

#### **Quantitative determination of aldehydes (chamber method)**

Date of ending the test	16-07-2018
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)	28 days
Air exchange rate	0.5 air exchange per hour
Sampling	Aldehydes on dinitrophenylhydrazine (DNPH) impregnated silica

## Results