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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

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In assessing compliance with the specifications, we did not take into account the uncertainty on the test results.

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**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  
Sampling after 28 days

Date  
06-04-18  
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