Vescom bv  
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Nederland

Through our consultant

Your notice of  
03-04-2018

Your reference  
TONGA

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

<table>
<thead>
<tr>
<th>Identification number</th>
<th>Information given by the client</th>
<th>Date of receipt</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1807975</td>
<td>TONGA</td>
<td>03-04-2018</td>
</tr>
</tbody>
</table>

Jo Wynendaele

Order responsible

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Reference: T1807975 - TONGA

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

<table>
<thead>
<tr>
<th>Date of ending the test</th>
<th>23-07-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard used</td>
<td>EN 16516 (2017)</td>
</tr>
<tr>
<td>Product standard</td>
<td>décret Français sur les COV</td>
</tr>
</tbody>
</table>

**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/m³ (emissions): 5
- Determination limit µg/m³ (carcinogenic, mutagenic and toxic substances): 1

Performed under accreditation in the chemical lab under the responsibility of Pablo Moerman
Performed under accreditation in the chemical lab under the responsibility of Pablo Moerman
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/m³ for formaldehyde and acetaldehyde, 0.005 mg/m³ for the other components

<table>
<thead>
<tr>
<th>Aldehyde</th>
<th>Determination Limit (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>&lt; 0.002</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>&lt; 0.002</td>
</tr>
<tr>
<td>Acrolein</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Propionaldehyde</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Crotonaldehyde</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Butyraldehyde</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Isovaleraldehyde</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Valeraldehyde</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Hexaldehyde</td>
<td>&lt; 0.005</td>
</tr>
</tbody>
</table>

Performed under accreditation in the chemical lab under the responsibility of David Van de Vyver
Sample history

**T1807975_01d**    **TONGA**
From sample T1807975 and the following procedure (TONGA)

*Quantitative determination of aldehydes (chamber method)*

<table>
<thead>
<tr>
<th>Date of ending the test</th>
<th>16-07-2018</th>
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</thead>
<tbody>
<tr>
<td>Standard used</td>
<td>ISO 16000-3 (2011)</td>
</tr>
</tbody>
</table>

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