

**SGS order no.: 6006982**

**Project: ST2135739**

**Sample description: ST2135739-001**

**Sample no.: 211354494**

**Sample volume: 3,75 l**

## VOC-screening-method

The analysis is proceeded according to DIN ISO 16000-6 (2012-11).

The Tenax TA will be endowed with Internal Standard and subsequently analyzed by GC-MS with thermodesorption (TurboMatrix 650). The selectivity of the operation is increased by the use of chemical ionization with water. The qualitative determination of the compounds is performed with the help of an internal device library (includes approx. 200 entries based on the AGÖF Guidance Values for Volatile Organic Compounds in Indoor Air 2008). The obtainable detection limit lies between 0,5 and 10 µg/m³ (with a sample volume of 2–5 l) depending on the chemical structure of the different compounds.

The results determined by this method are to be regarded as orientation values. All values are rounded to two significant digits. To achieve a quantification over a larger range of concentration a FID is additionally used for detection.

Additional advice: The determined sum values do not include all the VOC occurring in the air. Especially low molecular aldehydes, amines and high polar compounds need to be analyzed by using other methods, since the VOC-screening-method is not suitable.

## Explanation of comments

- 1) Aldehydes will be quantified at 2ng/sample (reason: aldehyd blanks on Tenax TA)
  - 2) Values determined by FID
  - 3) Values determined by using a reserve sample
  - 4) Reduced results or insufficient reproducibility of Tenax TA
- TE Toluene equivalent
- \* Compounds belong to the group of "VVOC (<C6)"
- \*\* Compounds belong to the group of "SVOC (>C16)"

## Explanation of the specified sums

### Sum TVOC FID (C6–C16) as TE

Sum over the entire range C6–C16 according to DIN ISO 16000-6 determined via FID as TE

### Sum TVOC (C6–C16)

Sum of all individual compounds (C6–C16) and all unidentified substances as TE determined via MS

### Sum VVOC (<C6)\*

Sum of all substances <C6 determined via MS

### Sum SVOC (>C16)\*\*

Sum of all substances >C16 determined via MS

The totaling is subject to rules of rounding. The thereof resulting differences are negligible in comparison to the measurement uncertainty (20–30%) of the method.

## Explanation of used abbreviations

**LOQ:** Limit of quantitation

## Note concerning the chromatogram

ID-numbers of Internal Standards: F-Benzene (ID42, ID43); Ethylbenzene-D10 (ID88, ID90); F-Phenol (ID150, ID151); Biphenyl-D10 (ID249, ID250)

The analysis has been carried out on the lab SGS Institut Fresenius GmbH Dresden.  
The conversion of the results is based on the air sample volume supplied by the customer.

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All figures in µg/m³

ID-/CAS-no.	Component	LOQ	Concentration
<b>Alkanes/Alkenes</b>			
124-18-5	Decane	0,5	1,3
1120-21-4	Undecane	0,5	1,6
112-40-3	Dodecane	0,5	3,9
629-50-5	Tridecane	0,5	4,4
629-59-4	Tetradecane	0,5	4,4
629-62-9	Pentadecane	0,5	3,2
544-76-3	Hexadecane	0,5	0,9
ID-S001	<b>Sum of Alkanes/Alkenes</b>		<b>20</b>
<b>Alcohols</b>			
67-63-0	Isopropanol* 4)	2	2,3
78-83-1	2-Methyl-1-propanol	0,5	0,7
71-36-3	n-Butanol	0,5	0,5
ID-S002	<b>Sum of Alcohols</b>		<b>3,5</b>
<b>Aromates</b>			
71-43-2	Benzene	0,5	2,7
108-88-3	Toluene	0,5	6,7
100-41-4	Ethylbenzene	0,5	0,9
108-38-3 / 106-42-3	m-/p-Xylene	0,5	2,7
95-47-6	o-Xylene	0,5	1,1
620-14-4 / 622-96-8	3-/4-Ethyltoluene	0,5	0,8
95-63-6	1,2,4-Trimethylbenzene	0,5	1,1
ID-S003	<b>Sum of Aromates</b>		<b>16</b>
<b>Halogenated Hydrocarbons</b>			
ID-S004	<b>Sum of Halogenated Hydrocarbons</b>		<b>0</b>
<b>Terpenes</b>			
80-56-8	alpha-Pinene	0,5	1,6
498-15-7	3-Caren	0,5	0,8
ID-S005	<b>Sum of Terpenes</b>		<b>2,4</b>

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ID-/CAS-no.	Component	LOQ	Concentration
<b>Aldehydes 1)</b>			
112-31-2	n-Decanal	2	2,9
ID-S006	<b>Sum of Aldehydes</b>		<b>2,9</b>
<b>Ketones</b>			
67-64-1	Acetone* 4)	2	7,6
78-93-3	2-Butanone	0,5	1,2
ID-S007	<b>Sum of Ketones</b>		<b>8,8</b>
<b>Esters</b>			
79-20-9	Methyl acetate*	0,5	0,8
ID-S008	<b>Sum of Esters</b>		<b>0,8</b>
<b>Glycol compounds</b>			
ID-S009	<b>Sum of Glycol compounds</b>		<b>0</b>
<b>Acids (TE)</b>			
64-19-7	Ethanoic acid 4)	2	4
ID-S010	<b>Sum of Acids</b>		<b>4</b>
<b>Siloxanes 2)</b>			
ID-S013	<b>Sum of Siloxanes</b>		<b>0</b>
<b>Plasticisers</b>			
ID-S011	<b>Sum of Plasticisers</b>		<b>0</b>

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ID-/CAS-no.	Component	LOQ	Concentration
<b>PAK</b>			
569-41-5	C2-Alkylnaphthalenes ( <i>quant. as 1,8-Dimethylnaphthalenes</i> )	0,5	2
ID-S014	<b>Sum of PAK</b>		<b>2</b>
<b>Other compounds</b>			
ID-S012	<b>Sum of Other compounds</b>		<b>0</b>
<b>Sum TVOC FID (C6–C16) as TE</b>			<b>130</b>
<b>Sum TVOC (C6–C16)</b>			<b>70</b>
<i>contains unidentified compounds as TE</i>			20
<b>Sum VVOC (&lt;C6)*</b>			<b>11</b>
<b>Sum SVOC (&gt;C16)**</b>			<b>0</b>