

Report Number: W12/12/01

Date of Issue: 14/12/12

Prepared for: Rania Yalman, Desima German  
Wallcoverings

Commercial-in-confidence

**Determination of the emission of VOCs and formaldehyde  
according to ISO 16000-10:2006, 28 day emission rates  
Silk and Viscose wallcoverings.**

### Sampling

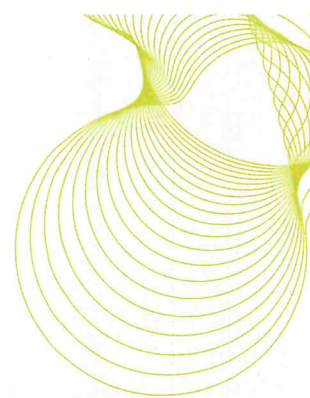
Sample conditioned:	Received on 10/10/12 wrapped in polythene, stored in wrapping at 23°C until tested.
Sampling	150mm diameter sample cut from 2 m inside a roll in the centre of the width immediately before testing.
Test condition	FLEC nominal 50%RH at 23°C area specific flow rate 0.5 m <sup>3</sup> m <sup>-2</sup> hr <sup>-1</sup>
Sampling time	Test started 18/10/12 with sampling at 28 days
Sample collection device	Tenax air sampling tube, Waters Sepak DNPH cartridge

### VOC Analysis

Date samples analysed:	28/11/12
Analysis by:	VOC Analytical Laboratory, BRE
Analysis method:	Thermal desorption (280°C for 5 minutes) and capillary gas chromatography (SP8/18W)
Identification:	Perkin Elmer Turbomass (mass spectrometer)
Quantification:	External standards and flame ionisation detection
Calibration identity:	VOCB040

### Formaldehyde Analysis

Date samplers analysed:	05/12/12
Analysis by:	Air Sampling Laboratory, BRE
Analysis method:	High Performance Liquid Chromatography, reverse phase gradient elution with UV detection (SP8/20/W)
Quantification:	External standards and UV detection
Calibration used:	Calibration AO plus instrument response checks



## Results

ISO 16000-10 28 days		Material ws/12/10/01 80% silk, 20% polyester on non-woven back. Articles M9120-M9278, M9417, M90100-M90999	
compound	concentration ( $\mu\text{g m}^{-3}$ ) at 0.5 $\text{m}^3\text{m}^{-2}\text{h}^{-1}$	area specific emission rate $\mu\text{g m}^{-2}\text{hr}^{-1}$	Class
Formaldehyde	16	8	A <sup>+</sup>
Acetaldehyde	<6	<3	A <sup>+</sup>
Toluene	<4	<2	A <sup>+</sup>
Tetrachloroethylene	<4	<2	A <sup>+</sup>
Xylenes	<4	<2	A <sup>+</sup>
1,2,4-Trimethylbenzene	<4	<2	A <sup>+</sup>
Ethylbenzene	<4	<2	A <sup>+</sup>
2-Butoxyethanol	<4	<2	A <sup>+</sup>
Styrene	<4	<2	A <sup>+</sup>
TVOC	50	24	A <sup>+</sup>

The TVOC was made up of primarily 1,2 propanediol

ISO 16000-10 28 days		Material ws/12/10/02 65% viscose, 35% polyester on non-woven back. Articles M8000-M8999, M80100-M80999	
compound	concentration ( $\mu\text{g m}^{-3}$ ) at 0.5 $\text{m}^3\text{m}^{-2}\text{h}^{-1}$	area specific emission rate $\mu\text{g m}^{-2}\text{hr}^{-1}$	Class
Formaldehyde	<6	<3	A <sup>+</sup>
Acetaldehyde	<6	<3	A <sup>+</sup>
Toluene	<4	<2	A <sup>+</sup>
Tetrachloroethylene	<4	<2	A <sup>+</sup>
Xylenes	<4	<2	A <sup>+</sup>
1,2,4-Trimethylbenzene	<4	<2	A <sup>+</sup>
Ethylbenzene	<4	<2	A <sup>+</sup>
2-Butoxyethanol	<4	<2	A <sup>+</sup>
Styrene	<4	<2	A <sup>+</sup>
TVOC	11	5	A <sup>+</sup>

The TVOC was made up of primarily acetic acid, nonanal and decanal.

Class as defined in the French Arrete of 19 April 2011.

TVOC = Total volatile organic compounds. The TVOC value is the sum of VOCs eluting between and including n-hexane and n-hexadecane, detected with a flame ionisation detector and quantified as toluene.

Analysed by	<i>Mr J Rowley</i>	Date:	13-12-12
Name	Mr J Rowley	Position:	Principal Scientist, Environmental Consultancy

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Our Ref. BRE Proposal No. 132314 output 283737

Dear Rania,

**Desima: Emissions testing for French Arrêté**

The laboratory report W12/12/01 on the emissions testing of two samples of silk and viscose based wallcoverings is attached. If you wish to discuss the results please feel free to contact me.



BRE's Quality Management System is approved to BS EN ISO9001:2008, certificate number LRQ 4001063.

BRE's Environmental Management System is approved to BS EN ISO14001:2004, certificate number LRQ 4001064.



Should you have any comments or complaints then please forward these in writing to:

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Yours sincerely

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