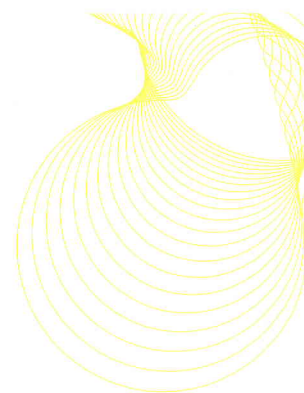




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Prepared for: Mr Iredale

Commercial-in-confidence

Determination of the emission of VOCs and formaldehyde according to ISO 16000-10:2006, 28 days emission rates wallpaper sample- Non Woven Backed FBV



Sampling

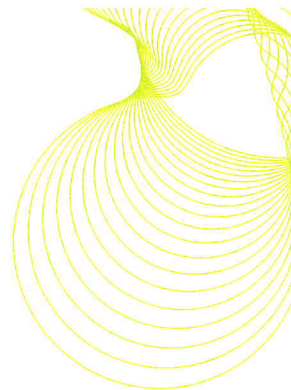
Sample conditioned:	As received stored in wrapping at 23°C until tested
Sampling	sample cut 1m from end and 0.5 m from side immediately before testing, folded around glass substrate and taped in position
Test condition	FLEC nominal 50%RH at 23°C area specific flow rate 0.5 m ³ m ⁻² hr ⁻¹
Sampling time	28 days after start of test
Sample collection device	Tenax air sampling tube, Waters Sepak DNPH cartridge

VOC Analysis

Date samples analysed:	16/09/2011, 20/09/11
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:	VOCC038

Formaldehyde Analysis

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 AN plus instrument response checks
Date samplers analysed:	24/08/11, 05/09/11

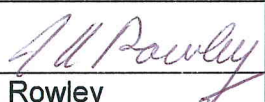


Results

ISO 16000-10 28 days	None Woven Backed FBV		
compound	concentration ($\mu\text{g m}^{-3}$) 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 ⁺
Acetaldehyde	<6	<3	A ⁺
Toluene	<40	<20	A ⁺
Tetrachloroethylene	<40	<20	A ⁺
Xylenes	<40	<20	A ⁺
1,2,4 trimethylbenzene	<40	<20	A ⁺
Ethylbenzene	<40	<20	A ⁺
2-Butoxyethanol	<40	<20	A ⁺
Styrene	<40	<20	A ⁺
TVOC	290	140	A ⁺

Class as defined in the French Arette of 19 April 2011 supplied by Muraspec to BRE.
The VOCs comprised mostly C₉ –C₁₄ hydrocarbons.

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:		Date:	04-10-11
Name	Mr Pawan Kumar	Position:	Scientist, Environmental Consultancy
Final approval by:		Date:	04-10-11
Name	Mr J Rowley	Position:	Principal scientist, Environmental Consultancy