TEST REPORT

APPLICANT	:	**ARMSTRONG (CHINA) INVESTMENT CO., LTD**
ADDRESS	:	10/F BLOCK B GREENLAND CENTER, NO.600 MIDDLE LONG HUA ROAD XUHUI DISTRICT, SHANGHAI
SAMPLE DESCRIPTION	:	HOMOGENOUS VINYL FLOORING
STYLE / ITEM NO.	:	NA
SUPPLIER	:	ARMSTRONG
COUNTRY OF ORIGIN	:	NA
COUNTRY OF DESTINATION	:	NA
SAMPLE RECEIVED DATE	:	JUL.25, 2014
TEST PERIOD	:	JUL. 25, 2014 TO AUG. 27, 2014
RESULT SUMMARY	:	

TEST REQUESTED	RESULT
AgBB VOC TEST	PLEASE REFER TO PAGE 2-4

**********FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)**********

SIGNED FOR AND ON BEHALF OF
EUROFINS TESTING TECHNOLOGY (SHENZHEN) CO. LTD.

Jack Lu
VOC Supervisor

Lydia Wang
Lab Manager

Eurofins Testing Technology (Shenzhen) Co. Ltd. 欧陆检测技术(深圳)有限公司

Evaluation of the Results

The tested product complies with the requirements of DIBt (October 2010) and AgBB (June 2012).

Parameter	Test after 3 days		Test after 28 days	
	Concentration mg/m³	Limit value mg/m³	Concentration mg/m³	Limit value mg/m³
TVOC	<0.005	≤10	<0.005	≤1.0
TSVOC	<0.005	-	<0.005	≤0.1
R-value (dimensionless)	<1	-	<1	≤1
Total VOC without NIK	<0.005	-	<0.005	≤0.1
Total Carcinogens	<0.001	≤0.01	<0.001	≤0.001
Formaldehyde	-	-	<0.003	≤0.12

Test Method

Method	Principle	Parameter	Detection Limit	Uncertainty
AgBB Method (version June 2012), DIBt (version October 2010)				
ISO 16000 Parts - 6, 9,11	TDS GC/MS	VVOC, VOC, SVOC; TVVOC, TVOC, TSVOC	1 µg/m³ 5 µg/m³	17.5% (RSD) U = 2 x RSD= 35%
ISO 16000 Parts - 3, 11	HPLC/DAD	Volatile aldehydes	2 µg/m³	16% (RSD) U = 2 x RSD= 32%

Test chamber parameter

Chamber volume (L):	119	Temperature (°C):	23	Relative humidity (%):	50
Air change rate (per hour):	0.5	Loading ratio (m^2/m^3)	0.4		

Test condition: Sample stayed in test chamber during the whole 28 days testing period.

Sample preparation

Edges and back covered with aluminum foil.

TO BE CONTINUED

Results

Emission Test after 3 Days

	CAS No	Retention Time min	ID Cat	Concentration ug/m^3	NIK Value ug/m^3	R Value	Emission Rate ug/(m^2*h)	Toluene Equivalent ug/m^3
TVOC (C_6-C_{16})				<5			<7	<5
VOC with NIK								
n.d.						-	<7	<5
R value =$\sum$Conc$_i$ / NIK$_i$						<1		
VOC without NIK								
Unknown	-	17.623	4	4.1	-	-	5.1	4.1
Unknown	-	17.769	4	4.3	-	-	5.3	4.3
Unknown	-	18.078	4	4.2	-	-	5.2	4.2
Unknown	-	18.267	4	2.3	-	-	2.9	2.3
Total VOC without NIK				<5			<7	<5
Total VVOC(<C_6)				<5			<7	<5
n.d.					-	-	<7	<5
Total SVOC(>C_{16})				<5			<7	<5
n.d.					-	-	<7	<5
Total Carcinogens				<1			<2	<1
n.d.					-	-	<2	<1
Volatile Aldehydes measured with DNPH Method								
Formaldehyde	50-00-0	-	-	<3	-	-	<4	-
Acetaldehyde	75-07-0	-	-	<3	-	-	<4	-

Remark:
n.d. Not detected
< Means less than
(<5) The R-value is not calculated for compounds with a concentration <5ug/m^3.

This VOCs test covered only substances that can be adsorbed on Tenax-TA and that can be thermally desorbed and analyzed by gas chromatography mass spectrometric detector. If other emission occurred then these could not be monitored or with limited reliability only. The method is not optimal for very volatile compounds. For these substances small results and a higher uncertainty in the measurement cannot be excluded.

Categories of Identity (ID Cat)
1: Identified and specifically calibrated.
2: Identified by comparison with a mass spectrum obtained from library and supported by other information. Calibrated as toluene equivalent
3: Identified by comparison with a mass spectrum obtained from a library. Calibrated as toluene equivalent.
4: Not identified, calibrated as toluene equivalent.

TO BE CONTINUED

Emission Test after 28 Days

	CAS No	Retention Time min	ID Cat	Concentration ug/m^3	NIK Value ug/m^3	R Value	Emission Rate ug/(m^2*h)	Toluene Equivalent ug/m^3
TVOC (C_6-C_{16})				<5			<7	<5
VOC with NIK								
n.d.						-	<7	<5
R value =$\sum$Conc$_i$ / NIK$_i$						<1		
VOC without NIK								
Unknown	-	18.035	4	2.4	-	-	3.1	2.4
Total VOC without NIK				<5			<7	<5
Total VVOC(<C_6)				<5			<7	<5
n.d.					-	-	<7	<5
Total SVOC(>C_{16})				<5			<7	0.0
Benzophenone	119-61-9	21.928	3	2.5	-	-	3.1	2.5
Total Carcinogens				<1			<2	<1
n.d.					-	-	<2	<1
Volatile Aldehydes measured with DNPH Method								
Formaldehyde	50-00-0	-	-	<3	-	-	<4	-
Acetaldehyde	75-07-0	-	-	<3	-	-	<4	-

Remark:
n.d. Not detected
< Means less than
(<5) The R-value is not calculated for compounds with a concentration <5ug/m^3.

This VOCs test covered only substances that can be adsorbed on Tenax-TA and that can be thermally desorbed and analyzed by gas chromatography mass spectrometric detector. If other emission occurred then these could not be monitored or with limited reliability only. The method is not optimal for very volatile compounds. For these substances small results and a higher uncertainty in the measurement cannot be excluded.

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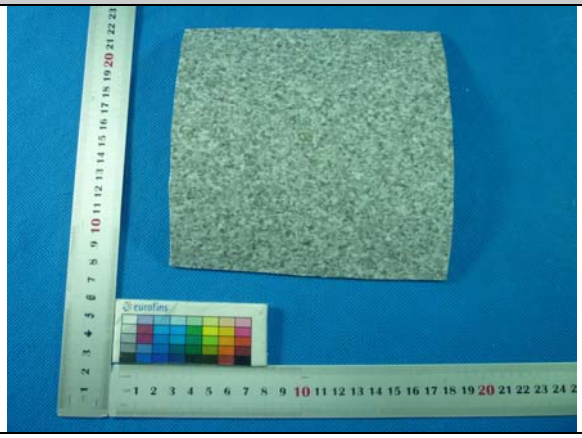
Other Information / Remark:

Additional to Test Report EFSN14071108C-V1
According to customer's declaration, the sample(s) mentioned in this additional test report is the same as in original test report ref. no. EFSN14071108C-V1

TO BE CONTINUED

Photo Attachment


END OF THE REPORT