REPORT

Emission Test Chamber Study
according to COV

Product: CLIPSO 495D

(04/09/10/011/04)

Project-No.: IAL-08-0563

Order-No.: IAL-00669-11 /

Client: CLIPSO PRODUCTION

5, rue de l'église

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France

Date of order: 13.08.2010

Project Manager: Diplom-Ingenieur R. Bison

Altenberge, 06.10.2010

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1 Introduction

Laboratoires WESSLING S.A.R.L was contracted by CLIPSO PRODUCTION to perform an emission test chamber study of the product “CLIPSO 495D (Lot: 04/09/10/011/04)” on the emissions of volatile organic compounds (VOCs) and aldehydes. The evaluation is done according to the « Arrêté du 19 avril 2011 relatif à l’étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils ».

The emission chamber test was conducted in accordance with the requirements of DIN EN ISO 16000-9. The sampling was carried out according to DIN EN ISO 16000-3 / -6.

2 Test data

Product Data:	
Product: CLIPSO 495D	Production No.: 04/09/10/011/04
Production Date:	Date of Reception: 03.08.2010
Packaging: Plastic	Test Period: 13.08.2010 – 10.09.2010
Test Chamber Specifications:	
Volume: 100 l – Test Chamber (Stainless Steel))	
Temperature: 23°C	Humidity: 50 % rel. humidity
Exchange Rate: 0,5 h^{-1}	Volume Flow 917 ml/min
Loading: 0,10 m²	Area-specific Air Exchange Rate: 0,5 m³/(m²h)
Date and duration of air sampling:	
10.09.2010	Tenax: 50 min (0,1 l/min) Multsorbent: 50 min (0,1 l/min) DNPH: 200 min (0,5 l/min)

3 Test Method

The product was tested according to DIN EN ISO 16000-9 in a 100-liter test chamber made of stainless steel. The chamber was loaded on 13.08.2010. The test was designed for 28 days; the samples were taken on day 28.

The specimen was prepared according to DIN EN ISO 16000-11. 0.10 m² of the product were placed in the test chamber. The chamber was operated with a 0.5-fold change of air, a room air temperature of 23 ° C and 50% relative humidity. The supplied air was filtered by activated carbon.

Sampling was done 28 days after loading the chamber by means of Tenax TA, Multisorb and DNPH tubes performed. The resulting samples as well as the blank value were analyzed on VOC, aldehydes and carcinogens.

4 Results

4.1 TVOC

In accordance with DIN EN ISO 16000-6, for the determination of volatile organic compounds in indoor air about 5 litres of the chamber air are passed through a stainless steel adsorption tube filled with Tenax TA by means of a sampling device. In the laboratory, the tubes are thermally desorbed and the released substances identified by GC / MS analysis. As far as reference material standards are available, also a quantitative analysis can be made. The analysis of the sample was performed by the WESSLING environmental laboratory in Budapest.

Table 1: VOC-results (28 d-measurement)

Parameter (CAS Registry Number)	Group	CAS Registry Number	VOC-Concentration Test Chamber (µg/m³)	Guidance Value (µg/m³)
Toluene	VOC	71-43-2	2,1	
Sum of volatile aromatic molecules			2,1	
Acetonitrile	VOC	75-05-8	105	
Unidentified molecules	**VOC**		**23**	
Sum of other molecules			128	
VVOC (<C6)	VVOC		**105**	**---**
TVOC (C6-C16)	VOC		**2,1**	**1.000***
SVOC (>C16-C22)	SVOC		**23**	**---**

* For classification A+

4.2 Aldehydes

For the detection of aldehydes in indoor air 50 litres of air are directed through a derivatizing absorption medium (2,4-dinitrophenylhydrazine). The aldehydes in the air form corresponding hydrazones. After elution with acetone quality and quantity are determined by HPLC.

The samples were analyzed by the environmental laboratory WESSLING, Hanover.

Table 2: Aldehydes-results (28 d-measurement)

Parameter	Concentration Test Chamber (µg/m³)	Guidance Value (µg/m³)
Formaldehyde	2,0	10*
Acetaldehyde	3,3	200*

* For classification A+

5 Evaluation

5.1 Classification

The following criteria of the « Arrêté du relatif à l`étiquetage des produits de construction et de décoration pour ce qui concerne leurs caractéristiques d`émissions en substances volatiles polluantes » are available for the emission test:

Substance	**C (µg/m³)**	**B (µg/m³)**	**A (µg/m³)**	**A+ (µg/m³)**	**Test Result**
Formaldehyde	> 120	< 120	< 60	< 10	1,11
Acetaldehyde	> 400	< 400	< 300	< 200	1,64
Toluol	> 600	< 600	< 450	< 300	bld
Tetrachlorethylene	> 500	< 500	< 350	< 250	bld
Xylol	> 400	< 400	< 300	< 200	bld
Trimethylbenzene	> 2.000	< 2.000	< 1.500	< 1.000	bld
1,4-dichlorobenzene	> 120	< 120	< 90	< 60	bld
Ethylbenzene	> 1.500	< 1.500	< 1.000	< 750	bld
2-Butoxyethanol	> 2.000	< 2.000	< 1.500	< 1.000	bld
Styrol	> 500	< 500	< 350	< 250	bld
TVOC	> 2.000	< 2.000	< 1.500	< 1.000	**2,1**

bld: below limit of detection

The product CLIPSO 495D meets the criteria of classification A +.

6 Summary

Laboratoires WESSLING S.A.R.L was contracted by CLIPSO PRODUCTION to perform an emission test chamber study of the product “CLIPSO 495D (Lot: 04/09/10/011/04)” on the emissions of volatile organic compounds (VOCs) and aldehydes. The evaluation is done according to the « Arrêté du 19 avril 2011 relatif à l`étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils ».

The product “CLIPSO 495D (Lot: 04/09/10/011/04)” meets the criteria of the A + - Classification after 28 days.

Tested by WESSLING

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