

Promat Research and Technology Centre N.V.  
Bormstraat 24  
B-2830 Tisselt  
BELGIUM

Eurofins Product Testing Denmark A/S  
Smedeskovvej 38  
8464 Galten  
Denmark

CustomerSupport@eurofins.com  
www.eurofins.com


## VOC EMISSION TEST REPORT

### Indoor Air Comfort GOLD

#### 1 Sample Information

Sample name	PROMATECT L500 50 mm
Batch no.	-
Stated production date	13/11/2023
Product type	Panel
Stated thickness, mm	50
Sample reception	23/11/2023

#### 2 Brief Evaluation of the Results

Regulation or protocol	Conclusion	Version of regulation or protocol
French VOC Regulation		Decree of March 2011 (DEVL1101903D) and Arrêté of April 2011 (DEVL1104875A) modified in February 2012 (DEVL1133129A)
French CMR components	Pass	Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A)
Italian CAM Edilizia	Pass	DM 23 giugno 2022 n. 256, GURI n. 183 del 6 agosto 2022
ABG/AgBB §	Pass	Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (June 2021)
Belgian Regulation	Pass	Royal decree of May 2014 (C-2014/24239)
EMICODE	EC 1 PLUS	September 2022
Indoor Air Comfort §	Pass	Indoor Air Comfort 9.0 of June 2023
Indoor Air Comfort GOLD §	Pass	Indoor Air Comfort GOLD 9.0 of June 2023
BREEAM International	Exemplary Level	BREEAM International New Construction v6.0 (2021)
BREEAM-NOR	Exemplary Level	BREEAM-NOR v6.1 New Construction (2023)
EU Taxonomy	Pass	Regulation (EU) 2020/852 of the European Parliament and of the Council
LEED v4.1 BETA (outside U.S.)	Pass	LEED v4.1 BETA for Building Design and Construction (February 2021)

Full details based on the testing and direct comparison with limit values are available in the following pages

Regarding pass/fail decision rule please see appendix

§ See section 4.4 on deviations

  
Laura Hartung Sørensen  
Analytical Service Manager





  
Rasmus Verdier  
Analytical Service Manager

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## 6 Summary and Evaluation of the Results

### 6.1 Comparison with Limit Values of the French VOC Regulation

	CAS No.	Conc. 28 days $\mu\text{g}/\text{m}^3$	 $\mu\text{g}/\text{m}^3$	 $\mu\text{g}/\text{m}^3$	 $\mu\text{g}/\text{m}^3$	 $\mu\text{g}/\text{m}^3$
TVOC	-	< 2	> 2000	< 2000	< 1500	< 1000
Formaldehyde	50-00-0	< 3	> 120	< 120	< 60	< 10
Acetaldehyde	75-07-0	12	> 400	< 400	< 300	< 200
Toluene	108-88-3	< 2	> 600	< 600	< 450	< 300
Tetrachloroethylene	127-18-4	< 2	> 500	< 500	< 350	< 250
Ethylbenzene	100-41-4	< 2	> 1500	< 1500	< 1000	< 750
Xylene	1330-20-7	< 2	> 400	< 400	< 300	< 200
Styrene	100-42-5	< 2	> 500	< 500	< 350	< 250
2-Butoxyethanol	111-76-2	< 2	> 2000	< 2000	< 1500	< 1000
1,2,4-Trimethylbenzene	95-63-6	< 2	> 2000	< 2000	< 1500	< 1000
1,4-Dichlorobenzene	106-46-7	< 2	> 120	< 120	< 90	< 60

The product was assigned a VOC emission class without taking into account the measurement uncertainty associated with the result. As specified in French Decree no. 2011-321 of March 23 2011, correct assignment of the VOC emission class is the sole responsibility of the party responsible for distribution of the product in the French market.

### 6.2 Comparison with Limit Values of the CMR Components

CMR (French reg.)	CAS No.	Conc. 28 days $\mu\text{g}/\text{m}^3$	Max. allowed air concentration $\mu\text{g}/\text{m}^3$
Benzene	71-43-2	< 1	< 1
Trichloroethylene	79-01-6	< 1	< 1
Dibutylphthalate (DBP)*	84-74-2	< 1	< 1
Diethylhexylphthalate (DEHP)*	117-81-7	< 1	< 1

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### 6.3 Comparison with Limit Values of the Italian CAM Regulation

	<b>CAS No.</b>	<b>Conc. 28 days µg/m<sup>3</sup></b>	<b>Limit value 28 days µg/m<sup>3</sup></b>
TVOC	-	< 2	< 1500
Formaldehyde	50-00-0	< 3	< 60
Acetaldehyde	75-07-0	12	< 300
Toluene	108-88-3	< 2	< 450
Tetrachloroethylene	127-18-4	< 2	< 350
Ethylbenzene	100-41-4	< 2	< 1000
Xylene	1330-20-7	< 2	< 300
Styrene	100-42-5	< 2	< 350
2-Butoxyethanol	111-76-2	< 2	< 1500
1,2,4-Trimethylbenzene	95-63-6	< 2	< 1500
1,4-Dichlorobenzene	106-46-7	< 2	< 90
Benzene	71-43-2	< 1	< 1
Trichloroethylene	79-01-6	< 1	< 1
Dibutylphthalate (DBP)*	84-74-2	< 1	< 1
Diethylhexylphthalate (DEHP)*	117-81-7	< 1	< 1

The product was assigned a VOC emission class without taking into account the measurement uncertainty associated with the result.

#### 6.4 Comparison with Limit Values of AgBB/ABG

Parameters	Test after 3 days		Test after 28 days	
	Concentration mg/m <sup>3</sup>	Limit Value mg/m <sup>3</sup>	Concentration mg/m <sup>3</sup>	Limit Value mg/m <sup>3</sup>
TVOC	< 0.005	≤ 10	< 0.005	≤ 1.0
TSVOC	< 0.005	-	< 0.005	≤ 0.1
R-value (dimensionless)	0.052	-	0.039	≤ 1
Sum of VOC without NIK/LCI	< 0.005	-	< 0.005	≤ 0.1
Formaldehyde	-	-	< 0.003	≤ 0.1
Total carcinogens	< 0.001	≤ 0.01	< 0.001	≤ 0.001

Compliance with the limits alone does not replace an approval or voluntary documentation by a Technical Assessment Body according to the Construction Product Regulation. This requires an application and approval.

#### 6.5 Comparison with Limit Values of the Belgian Regulation

Parameters	Test after 28 days	
	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>
TVOC (EN 16516)	< 5	≤ 1000
TSVOC	< 5	≤ 100
R-value (dimensionless)	0.039	≤ 1
Total carcinogens	< 1	≤ 1
Toluene	< 5	≤ 300
Formaldehyde	< 3	≤ 100
Acetaldehyde	12	≤ 200

#### 6.6 Comparison with Limit Values of LEED v4.1 BETA

Parameters	Test after 28 days	
	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>
TVOC	< 5	≤ 1000
Sum of VOC without NIK/LCI	< 5	< 100
Formaldehyde	< 3	≤ 10
R-value (dimensionless)	0.039	≤ 1

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### 6.7 Comparison with Limit Values of BREEAM NOR

Parameters	Concentration mg/m <sup>3</sup>	Basic Level mg/m <sup>3</sup>	Exemplary Level mg/m <sup>3</sup>
Formaldehyde 28 days	< 0.003	≤ 0.06	≤ 0.01
TVOC (EN 16516) 28 days	< 0.005	≤ 0.3	≤ 0.3
TSVOC 28 days	< 0.005	-	≤ 0.1
total carcinogens 28 days	< 0.001	≤ 0.001	≤ 0.001

### 6.8 Comparison with Limit Values of BREEAM International

Parameters	Concentration mg/m <sup>3</sup>	Basic Level mg/m <sup>3</sup>	Exemplary Level mg/m <sup>3</sup>
Formaldehyde 28 days	< 0.003	≤ 0.06	≤ 0.01
TVOC (EN 16516) 28 days	< 0.005	≤ 1.0	≤ 0.3
TSVOC 28 days	< 0.005	-	≤ 0.1
total carcinogens 28 days	< 0.001	≤ 0.001	≤ 0.001

### 6.9 Comparison with Limit Values of EU Taxonomy

Parameters	Test after 28 days	
	Concentration mg/m <sup>3</sup>	Limit Value mg/m <sup>3</sup>
Formaldehyde	< 0.002	≤ 0.06
Any individual carcinogens	< 0.001	< 0.001

The formaldehyde emission is tested according to EN 16516 with air change rate 0.5 /h and relative humidity of 50 ± 5 %. Results have been recalculated to a loading of 1 m<sup>2</sup>/m<sup>3</sup> and air change rate of 1 /h.

### 6.10 Comparison with Limit Values of Indoor Air Comfort

	Test after 3 days		Test after 28 days	
	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>
<b>TVOC (EN 16516)</b>	< 5	≤ 10000	< 5	≤ 1000
<b>TSVOC</b>	< 5	-	< 5	≤ 100
<b>R<sub>D</sub>-value (NIK) (dimensionless)</b>	0.052	-	0.039	≤ 1
<b>R<sub>B</sub>-value (LCI) (dimensionless)</b>	0.052	-	0.039	≤ 1
<b>Sum of VOC without NIK/LCI</b>	< 5	-	< 5	≤ 100
<b>Total carcinogens</b>	< 1	≤ 10	-	-
<b>Any individual carcinogens</b>	-	-	< 1	≤ 1
<b>CMR (French reg.)</b>	-	-	< 1	≤ 1
<b>Formaldehyde</b>	< 3	-	< 3	≤ 60
<b>Acetaldehyde</b>	16	-	12	≤ 200
<b>French A+/A</b>	-	-	Complies	

Compliance with the limits alone does not entitle to use the Indoor Air Comfort label. This requires an application, site inspection, and approval. See [www.eurofins.com/iac-procedures](http://www.eurofins.com/iac-procedures).

### 6.11 Comparison with Limit Values of Indoor Air Comfort Gold

	Test after 3 days		Test after 28 days	
	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>	Concentration µg/m <sup>3</sup>	Limit Value µg/m <sup>3</sup>
<b>TVOC (EN 16516)</b>	< 5	≤ 1000	< 5	≤ 60
<b>TSVOC</b>	< 5	-	< 5	≤ 20
<b>R<sub>D</sub>-value (NIK) (dimensionless)</b>	0.052	-	0.039	≤ 1
<b>R<sub>B</sub>-value (LCI) (dimensionless)</b>	0.052	-	0.039	≤ 1
<b>Sum of VOC without NIK/LCI</b>	< 5	-	< 5	≤ 40
<b>Total carcinogens</b>	< 1	≤ 10	-	-
<b>Any individual carcinogens</b>	-	-	< 1	≤ 1
<b>CMR (French reg.)</b>	-	-	< 1	< 1
<b>Formaldehyde</b>	< 3	≤ 50	< 3	< 10
<b>Acetaldehyde</b>	16	≤ 50	12	≤ 50
<b>Sum Formaldehyde + Acetaldehyde [ppb]</b>	8.8	≤ 50	-	-
<b>French A+</b>	-	-	Complies	

Compliance with the limits alone does not entitle to use the Indoor Air Comfort GOLD label. This requires an application, site inspection, and approval. See [www.eurofins.com/iac-procedures](http://www.eurofins.com/iac-procedures).

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## 6.12 Comparison with Limit Values of EMICODE

Parameters	Concentration $\mu\text{g}/\text{m}^3$	EC 2 $\mu\text{g}/\text{m}^3$	EC 1 $\mu\text{g}/\text{m}^3$	EC 1 PLUS $\mu\text{g}/\text{m}^3$
<b>TVOC 3 days (EN 16516)</b>	< 5	$\leq 3000$	$\leq 1000$	$\leq 750$
<b>TVOC 28 days (EN 16516)</b>	< 5	$\leq 300$	$\leq 100$	$\leq 60$
<b>TSVOC 28 days (EN 16516)</b>	< 5	$\leq 100$	$\leq 50$	$\leq 40$
<b>Sum without NIK/LCI 28 days</b>	< 5	$> 40$		$\leq 40$
<b>R-value 28 days (dimensionless)</b>	0.039	$> 1$		$\leq 1$
<b>Formaldehyde 3 days</b>	< 3	$\leq 50$		
<b>Acetaldehyde 3 days</b>	16	$\leq 50$		
<b>Sum Formaldehyde + Acetaldehyde [ppm]</b>	0.0088	$\leq 0.05$		
<b>Sum carcinogens 3 days</b>	< 1	$\leq 10$		
<b>Sum carcinogens 28 days</b>	< 1	$\leq 1$		

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