



Test Report

No. 31/24/5529/02B

MPA | Eberswalde

Materialprüfanstalt
Brandenburg GmbH

Prüfung, Überwachung,
Zertifizierung, Gutachten,
Forschung und Entwicklung

Client: Fural Systeme in Metall GmbH
Cumberlandstraße 62
A-4810 Gmunden
Austria

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D-16225 Eberswalde

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Applied test procedure: Emission chamber test (EN 16516:2017+A1:2020);
Construction products: Assessment of release of dangerous
substances - Determination of emissions into indoor air

Geschäftsführer:
Dr. Robby Wegner
HRB 10408 FF

Assessment of emissions of volatile organic compounds (VVOC, VOC and SVOC) from construction products according to:
- German AgBB-scheme (Committee of Health-related evaluation of construction products),
- French regulations "decret n° 2011-321 du 23 mars 2011" and "arrête du 19 avril 2011" modified February 2012,
- Belgian VOC-regulation "Königlicher Erlass zur Festlegung der Schwellenwerte für Innenraumemissionen aus Bauprodukten für bestimmte Verwendungszwecke" (08.05.2014)

Date of order: 27.05.2024
Received: 27.05.2024
Test product: **Parzifal**
Samples received: 25.06.2024
Persons in charge: M.Sc. Murr, Dr. R. Wegner
Period of testing: 6-8/2024

The test report comprises 12 pages. It refers exclusively to the material submitted for testing and remains property of MPA until completion of full payment. The test material is being stored for 6 months. Publication of test reports is only permissible if published as a whole. Publication of excerpts require in every single case the revocable written consent of MPA.

Sparkasse Schwandorf
Kto-Nr.: 100 164 862
BLZ: 750 510 40
IBAN: DE55 7505 1040 0100 1648 62
BIC-/SWIFT: BYLADEM1SAD
USt.-Id. DE814335485
Finanzamt Eberswalde



Die Akkreditierung gilt nur für die in der Urkunde aufgeführten Verfahren.



vom DIBt anerkannte
PÜZ-Stelle BRA02



EC notified 0763



CARB notified TPC 18

1. Test product and sampling

Name of product: Parzifal
 Type of product: Metal ceiling panel
 Sample: 2 x (450 mm x 200 mm)
 Sampling: by manufacturer (sampling report is shown below)
 Storage conditions: Room temperature; wrapped in plastic foil

5529/02

EINGEGANGEN
 26. Juni 2024

Qualitäts- Management- System	MPA Eberswalde	Code: 26. Juni 2024
	Materialprüfanstalt Brandenburg GmbH	Ausgabe: 1
	Zertifizierungsanweisung	Datum: 14.02.2018
	Sampling report (EN 16516)	Seite 1 von 1

EN 16516 – Construction products: Assessment of release of dangerous substances (VOC)

Testing laboratory / certification body: MPA Eberswalde (NB 0763)		Sampler (name, company, telephone): Fural Systeme in Metall GmbH +43 761274851-226	
Name of the manufacturer at the place of sampling (address/stamp): Cumberlandstraße 62 4810 Gmunden Österreich		Manufacturer (if deviating from company's name at the place of sampling):	
Name of the product: Parzifal		Type of product (e.g. laminate, textile flooring, PVC-flooring): Metalldeckenplatte	
Model/program/series:		Batch No:	
Article No: Misc.:		Date of batch production:	
Sample is taken from	<input type="radio"/> Production <input type="radio"/> Store <input type="radio"/> Miscellaneous Place of storage:	How had the product been stored prior to sampling?	<input type="radio"/> open <input type="radio"/> in the stack <input type="radio"/> wrapped up Packing material:
Specifics (possible negative influences by emission at the place of taking the sample, petrol emissions, solvent emissions from production, uncertainties, questions, etc.):			
Cut edges (identification of cut edges when present and identification of new surfaces and surface to be exposed in the emission test):			
Confirmation: The signer herewith confirms the correctness of the data given above. The sample was selected, drawn and packed personally in accordance with the instructions for the taking of samples.			
Date of sampling:		Signature: (Stamp)	

2. Test specimen

Dimension: 450 mm x 200 mm; back side covered by glass plate

Date of preparation of test specimen: 02.07.2024

3. Chamber test

Chamber (volume/material): 0,225 m³ (stainless steel)

Area of test specimen: 0,090 m²

Loading factor: 0,04 m²/m³
(required for ceiling materials in reference room)

Temperature: 23 °C (± 1 K)

Relative humidity: 50 % (± 3 %)

Air exchange rate: 0,5 AC/h (± 0,05 AC/h)

Start of testing
(placing of test specimen): 02.07.2024



test specimen in chamber

4. Analysis

Parameter:	VOC resp. Formaldehyde and other Aldehydes
Analytical laboratory:	Labor Friedle GmbH, Tegernheim (DAkkS; D-PL-14646-03-00) resp. MPA Eberswalde
Method:	GC-MS after adsorption on Tenax and thermodesorption with cryofocussing (DIN EN ISO 16000-6 / EN 16516) resp. HPLC-UV after chemisorption on DNPH-cartridge and elution with acetonitrile (DIN EN ISO 16000-3:2002)
Sampling volume:	2 L resp. 50 L
Sampling days:	After 3 and 28 days

5. Test results

5.1. VOC/VVOC/SVOC after 3 days

Compound	Retention Range	CAS No.	C [µg/m³] *	C_tol [µg/m³] **	NIK ***	R-value ****
formaldehyde	VVOC	50-00-0	12		100	0,120
acetaldehyde	VVOC	75-07-0	4		300	0,013
acetic acid	VOC	64-19-7	4	<1	1200	0,003
acetone	VVOC	67-64-1	2		120000	0,000

* emission test chamber concentration of a specific VVOC, VOC or SVOC

** emission test chamber concentration as toluene equivalent

*** lowest concentration of interest acc. to AgBB

**** ratio of concentration of compound / NIK (LCI)

	Concentration after 3 days [µg/m³]	SER _a [µg/m²h] *
TVOC _{spez} **	< 5	< 6,3
TVOC _{TE} ***	< 5	< 6,3
TSVOC ****	< 5	< 6,3
Volatile carcinogens of act. CARC 1A and CARC 1B	< 1	< 1,3
Formaldehyde	12	15

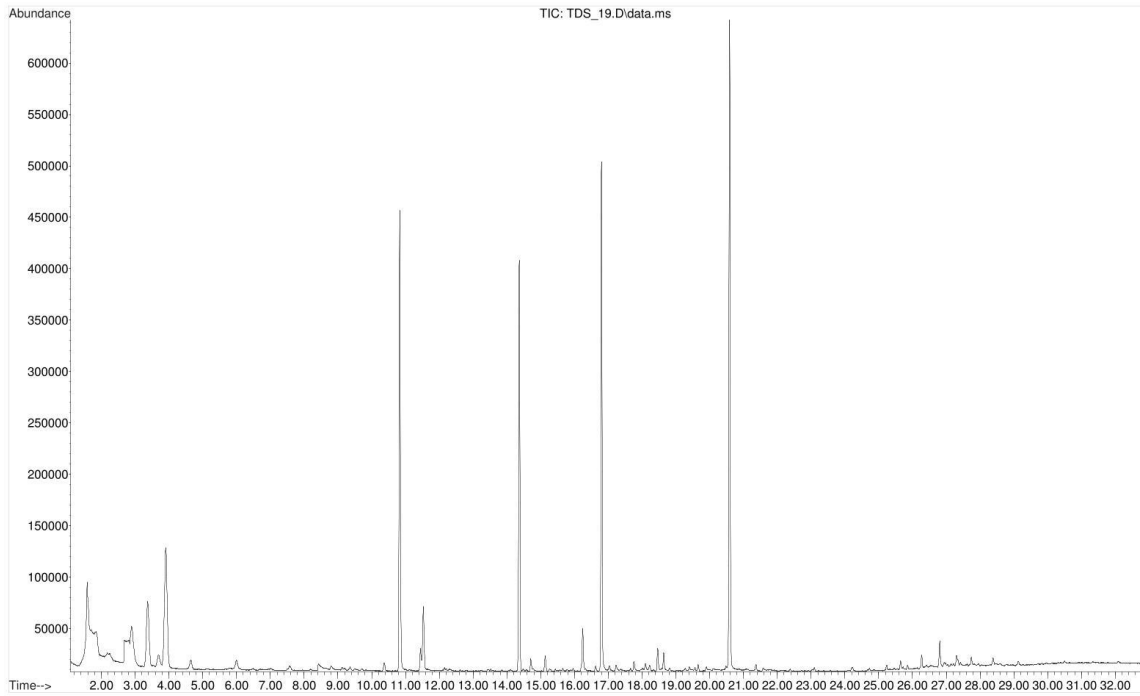
* specific emission rate related to area

** total volatile organic compounds (sum of concentrations of VOC; target compounds quantified using authentic standards)

*** total volatile organic compounds (sum of concentrations of VOC; quantified as toluene equivalents)

**** total semi-volatile organic compounds (sum of concentrations of SVOC)

File :C:\msdchem\1\DATAMS6\2024\07-Juli\1607_2\TDS_19.D
Operator : MJa
Acquired : 16 Jul 2024 18:58 using AcqMethod VOC_TDS_neu.M
Instrument : GC-MS VI
Sample Name: Q09721(27.6);I24-070436-06
Misc Info : 2,0L Luf H7 + Metalldeckenplatte + 25ng ISTD
Vial Number: 17



Chromatogram

5.2. VOC/VVOC/SVOC after 28 days

Compound	Retention Range	CAS No.	C [µg/m³] *	C_tol [µg/m³] **	NIK ***	R-value ****
formaldehyde	VVOC	50-00-0	7		100	0,070
acetic acid	VOC	64-19-7	2	<1	1200	0,002
acetone	VVOC	67-64-1	2		120000	0,000
d3	VOC	541-05-9	2	2		

* emission test chamber concentration of a specific VVOC, VOC or SVOC

** emission test chamber concentration as toluene equivalent

*** lowest concentration of interest acc. to AgBB

**** ratio of concentration of compound / NIK (LCI)

	Concentration after 28 days [µg/m³]	SER _a [µg/m²h] *
TVOC _{spez} **	< 5	< 6,3
TVOC _{TE} ***	< 5	< 6,3
TSVOC ****	< 5	< 6,3
Volatile carcinogens of act. CARC 1A and CARC 1B	< 1	< 1,3
Formaldehyde	7	8,8

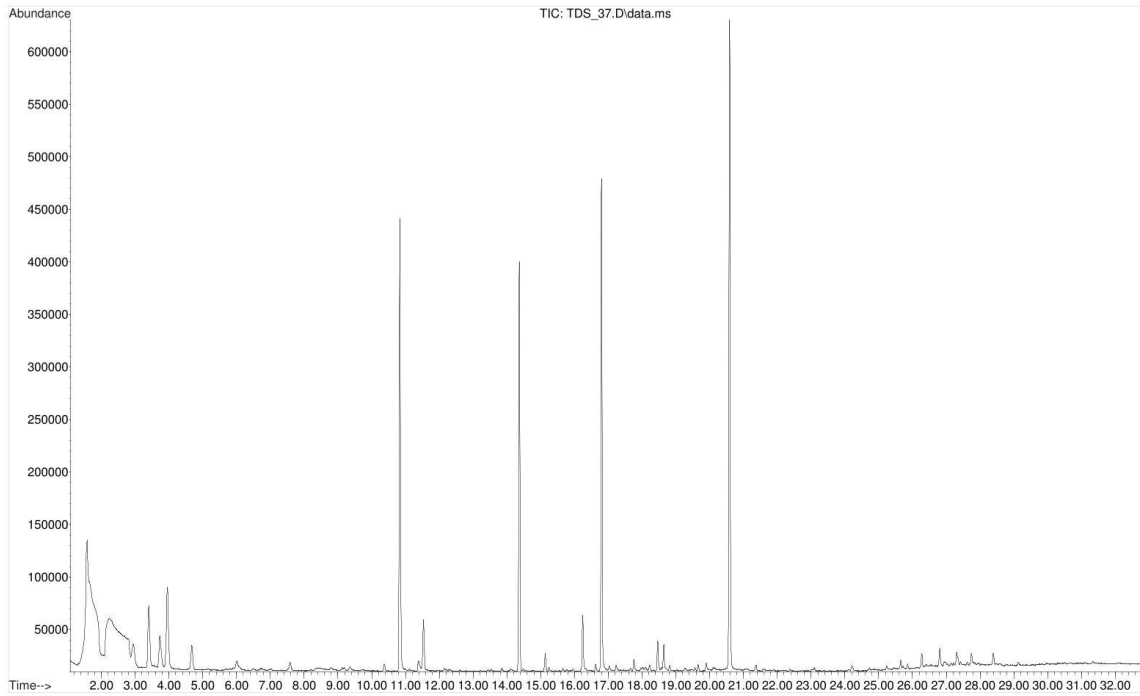
* specific emission rate related to area

** total volatile organic compounds (sum of concentrations of VOC; target compounds quantified using authentic standards)

*** total volatile organic compounds (sum of concentrations of VOC; quantified as toluene equivalents)

**** total semi-volatile organic compounds (sum of concentrations of SVOC)

File :C:\msdchem\1\DATAMS6\2024\08-August\0508\TDS_37.D
Operator : MJa
Acquired : 6 Aug 2024 15:08 using AcqMethod VOC_TDS_neu.M
Instrument : GC-MS VI
Sample Name: Q16562(17.7.);I24-071247-07
Misc Info : 2,0L Luft H7 +Metalldeckenplatte+ 25 ng ISTD
Vial Number: 6



Chromatogram

6. Assessment

6.1. Assessment according to German AgBB-scheme

The following requirements served as basis for testing and assessment:

- DIBt-guideline for health assessment of construction products used in interiors
- AgBB-scheme of emission of VOC from construction products; Stand June 2021
- LCI (NIK) list of AgBB (Lowest concentration of interest; 2021)

Parameter	Test results (3 days)	AgBB-requirements	AgBB-requirements fulfilled
TVOC _{spez}	< 0,005 mg/m ³	≤ 10 mg/m ³	yes
Σ SVOC	< 0,005 mg/m ³	-	-
R	0,120	-	-
Σ VOC without LCI	< 0,005 mg/m ³	-	-
Σ Cancerogene	< 1 µg/m ³	≤ 10 µg/m ³	yes
Formaldehyde	0,012 mg/m ³	-	-

Parameter	Test results (28 days)	AgBB-requirements	AgBB-requirements fulfilled
TVOC _{spez}	< 0,005 mg/m ³	≤ 1 mg/m ³	yes
Σ SVOC	< 0,005 mg/m ³	≤ 0,1 mg/m ³	yes
R	0,070	≤ 1	yes
Σ VOC without LCI	< 0,005 mg/m ³	≤ 0,1 mg/m ³	yes
Σ Cancerogene	< 1 µg/m ³	≤ 1 µg/m ³	yes
Formaldehyde	0,007 mg/m ³	≤ 0,120 mg/m ³	yes

The tested product complies with the requirements of AgBB-scheme for emissions after 3 and 28 days in the chamber, at a loading 0,4 m²/m³. This corresponds to the required loading for construction products for ceilings and an air exchange rate of 0,5 h⁻¹.

6.2. Assessment according to French VOC-Regulation

The following requirements served as basis for testing and assessment:

- French mandatory labelling system – VOC-emission classes (acc. to Decree n°2011-321 of March 23, 2011 and order of April 19, 2011)

Compound / Parameter	Emission classes [µg/m ³]			
	C	B	A	A+
Formaldehyde	> 120	< 120	< 60	< 10
Acetaldehyde	> 400	< 400	< 300	< 200
Toluene	> 600	< 600	< 450	< 300
Tetrachloroethylene	> 500	< 500	< 350	< 250
Xylene	> 400	< 400	< 300	< 200
1,2,4-Trichlorobenzene	> 2000	< 2000	< 1500	< 1000
1,4-Dichlorobenzene	> 120	< 120	< 90	< 60
Ethylbenzene	> 1500	< 1500	< 1000	< 750
2-Butoxyethanol	> 2000	< 2000	< 1500	< 1000
Styrene	> 500	< 500	< 350	< 250
TVOC	> 2000	< 2000	< 1500	< 1000

Parameter	CAS No.	Analytical results (28 days) [µg/m ³]	Emission class
Formaldehyde	50-00-0	7	A+
Acetaldehyde	75-07-0	<2	A+
Toluene	108-88-3	<2	A+
Tetrachloroethylene	127-18-4	<1	A+
Xylene	1330-20-7	<1	A+
1,2,4-Trichlorobenzene	95-63-6	<1	A+
1,4-Dichlorobenzene	106-46-7	<1	A+
Ethylbenzene	100-41-4	<1	A+
2-Butoxyethanol	111-76-2	<1	A+
Styrene	100-42-5	<1	A+
TVOC _{TE}	-	<5	A+

CMR substances (especially Trichlorebenzene, benzene, DEHP and DBP; listed in orders of April 30, 2009 and May 28, 2009) were not detectable.

The tested product complies with the requirements of French emission **class A+** regarding emission after 28 days in the chamber, tested as material for ceilings (loading 0,4 m²/m³).

6.3. Assessment according to Belgian VOC-Regulation

The following requirements served as basis for testing and assessment:

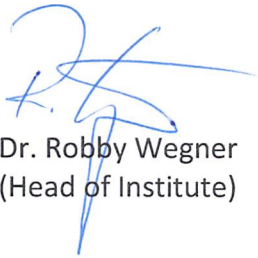
- Belgian VOC-regulation "Königlicher Erlass zur Festlegung der Schwellenwerte für Innenraumemissionen aus Bauprodukten für bestimmte Verwendungszwecke" (08.05.2014)

Parameter	Analytical results (28 days)	requirements	requirements fulfilled [yes/no]
TVOC	< 0,005 mg/m ³	≤ 1 mg/m ³	yes
Σ SVOC	< 0,005 mg/m ³	≤ 0,1 mg/m ³	yes
R-value	0,070	≤ 1	yes
Σ VOC ohne LCI	< 0,005 mg/m ³	≤ 0,1 mg/m ³	yes
Σ Cancerogene	< 1 µg/m ³	≤ 1 µg/m ³	yes
Toluene	< 0,001 mg/m ³	≤ 0,30 mg/m ³	yes
Acetaldehyde	< 0,002 mg/m ³	≤ 0,20 mg/m ³	yes
Formaldehyde	0,007 mg/m ³	≤ 0,10 mg/m ³	yes

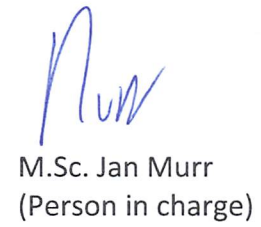
The tested product complies with the requirements of Belgian VOC-scheme for emissions after 28 days in the chamber, at a loading 0,4 m²/m³. This corresponds to the required loading for construction products for ceilings and an air exchange rate of 0,5 h⁻¹.

MPA Eberswalde
Materialprüfanstalt Brandenburg GmbH
- Holz und Holzschutz –

Eberswalde, 16.08.2024



Dr. Robby Wegner
(Head of Institute)



M.Sc. Jan Murr
(Person in charge)