

TFI Report 22-000083-05

Emission testing

M1 classification

Customer

Conica AG
Industriestr. 26
8207 Schaffhausen
SWITZERLAND

Product

Sports flooring system point / mixed elastic
CONIPUR KF protect+

This report includes 2 pages and 5 annex(es).

Responsible at TFI



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Aachen, 30 March 2022



Dr. Andreas Zoëga
head of testing laboratory

The present document is provided with an advanced electronic signature.

This report only applies to the tested samples and has been established to the best of our knowledge. Only the entire report shall be reproduced. Under no circumstances, extracts shall be used. Furthermore, we apply the "General Terms and Conditions for the Execution of Contracts" of the TFI Aachen GmbH, also with regard to the order execution.

1 Transaction

Test order	Emission testing M1 classification
Order date	24 January 2022
Your reference	Claudia Rietschle, 320030310
Product designation	CONIPUR KF protect+
TFI sample number	2200171 = 2200136 + 2200144 + 2200145
Date of manufacture	17 January 2022 – 21 January 2022, last layer at TFI (11 February 2022)
Date of sample receipt	26 January 2022
Sampling performed by	customer

2 Product Specification

Cf. Annex Emissions AgBB/DIBt assessment mask

Cf. Annex HP Preparation of test specimen

3 Results

Emission testing M1	Requirements fulfilled
Emissions (TVOC _{28 days})	Requirement M1 fulfilled
Formaldehyde	Requirement M1 fulfilled
Carcinogenic substances	Requirement M1 fulfilled
Ammonia	Requirement M1 fulfilled
Odour	Requirement M1 fulfilled

The measurement results are evaluated without consideration of the measurement uncertainty with reference to compliance with limit values, unless otherwise specified by the test standard.

4 Annexes

Odour ISO 16000-28 ^a	GE 22-000083-05
Preparation of test specimen	HP 22-000083-05
Emission testing (M1) ^a	E 22-000083-05
AgBB/DIBt assessment mask ^a	E 22-000083-05
Sampling report	

The annexes marked ^a are based on tests accredited in accordance with EN ISO/IEC 17025.

Annex GE – Odour ISO 16000-28

1 Transaction

Product designation	CONIPUR KF protect+
TFI sample number	2200171 = 2200136 + 2200144 + 2200145
Testing period	14 February 2022 – 14 March 2022

2 Test Method / Requirements

Emission chamber	<p>EN ISO 16000-11:2006 EN ISO 16000-9:2006</p> <p>stainless steel test chamber volume 0.25 m³ chamber load 0.4 m²/m³ air exchange rate 0.5/h temperature 23 °C ± 2 °C relative humidity 50 % RH ± 5 % RH air velocity above the sample 0.1 m/s to 0.3 m/s the parameter of the chamber measurement correspond to the model room.</p>
Sensory testing	<p>ISO 16000-28:2012</p> <p>indirect determination with container (material: nalophan) intensity: trained test panel members</p>
Determined sensory parameters	<p><input checked="" type="checkbox"/> Acceptability scale from -1 to 1</p>
Evaluation according to	<p>Protocol for Chemical and Sensory Testing of Building Materials 15.11.2017 M1 criteria: https://m1.rts.fi/en/m1-criteria-and-the-use-of-classified-products-2d03887d-aa6a-4a66-ad3c-ce25a512cf38</p>
Deviation	- none -



3 Results

Testing after 28 days						
Panellist			Individual result Acceptability			
1			-0.1			
2			-0.4			
3			0.6			
4			-0.4			
5			0.8			
6			0.7			
7			-0.4			
8			0.7			
9			0.2			
10			0.3			
11			-0.2			
12			-0.3			
13			0.9			
14			0.7			
15			0.5			
Parameter	Number of panellists	Result			Requirement	fulfilled
		Arithmetic mean	Standard deviation	90% confidence interval		
Acceptability	15	0.24	0.5	0.2	≥ 0	YES



Annex HP – Preparation of test specimen

1 Individual Components

Product designation CONIPUR KF protect+

Component 1

TFI sample number 2200136
 Product designation CONIPUR KF protect+
 Date of manufacture 17 January 2022 – 21 January 2022
 Packaging aluminium foil

Component 2

TFI sample number 2200144
 Product designation CONIPUR 3202 W, Comp. A
 Product description Coating
 Article number 52001397
 Batch number 100065436
 Colour RAL 1015
 Best before 23 May 2022
 Sample quantity 0.91 kg
 Packaging Plastic bottle

Component 3

TFI sample number 2200145
 Product designation CONIPUR 3202 W, Comp. B
 Product description Curing agent
 Article number 52001398
 Batch no. 100061146
 Best before 21 June 2023
 Sample quantity 0.09 kg
 Packaging Metal tin



2 Production

Production period	11 February 2022
Produced by	testing laboratory / TFI Aachen GmbH
Specimen	coating system in stainless steel trough
Area of the specimen	0.1 m ² , approx. 38 cm x 26.5 cm

1st Layer

Nominal quantity to be applied	130 g/m ²
Actual quantity applied	130 g/m ²
Mixing ratio	Comp. A : Comp. B = 10:1
Mixing	stirring and repotting
Application technique	roller and brush
Date of application	11 February 2022, 07:58 a.m.

Deviation - none -

3 Conditioning

Conditioning period	11 February 2022 – 14 February 2022	(3 days)
Temperature	23 °C ± 2 °C	
Relative air humidity	50 % rH ± 5 % rH	
Deviation	- none -	

Annex E – Emission Testing M1

1 Transaction

Product designation	CONIPUR KF protect+
TFI sample number	2200171 = 2200136 + 2200144 + 2200145
Testing period	14 February 2022 – 21 March 2022

2 Test Method / Requirements

EN 16516:2017

Construction products - Assessment of release of dangerous substances -
Determination of emissions into indoor air.

Emission chamber	EN ISO 16000-11:2006 EN ISO 16000-9:2006
stainless steel test chamber volume	0.25 m ³
area of the test specimen	0.1 m ²
chamber load	0.4 m ² /m ³
air exchange rate	0.5/h
temperature	23 °C ± 2 °C
relative air humidity	50 % RH ± 5 % RH
air velocity above the sample	0.1 m/s to 0.3 m/s
The parameter of the chamber measurement correspond to the model room.	

VOC	ISO 16000-6:2011 EN ISO 16017-1:2000
sampling on Tenax, approx. 5 l, 80 ml/min	
Thermal desorption / gas chromatography / mass spectrometry (TD/GC/MS)	
Gerstel thermal desorber/ cooled injection system, Agilent GC/MS	
non-polar capillary column	

Aldehydes and ketones	ISO 16000-3:2011
sampling on DNPH cartridges, approx. 50 l, 1000 ml/min	
Solvent desorption / liquid chromatography / diode array detector (HPLC/DAD)	
Agilent HP 1200 / DAD, C ₁₈ -column, ternary eluent mixture	

Ammonia	Internal method
sampling by absorbing in dilute sulphuric acid using impinger technique	
approx. 100 L, 1 L/min	
spectrophotometer	

Evaluation according to	Protocol for Chemical and Sensory Testing of Building Materials 15.11.2017
M1 criteria: https://m1.rts.fi/en/m1-criteria-and-the-use-of-classified-products-2d03887d-aa6a-4a66-ad3c-ce25a512cf38	
AgBB scheme 2018, LCI list 2020	

Deviations	- none -
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3 Results

Testing after 28 days				
Parameter	Result [mg/m ³]	Result [mg/m ² h]	Requirements M1 [mg/m ² h]	fulfilled
Total volatile organic compounds within the retention range C ₆ – C ₁₆ (TVOC toluene equivalent) ¹	0.159	0.199	< 0.2	YES
Formaldehyde	0.005	0.006	< 0.05	YES
Ammonia ²	< 0.03	< 0.03	< 0.03	YES
Carcinogenic substances	< 0.001	< 0.001	< 0.001	YES

< below determination threshold

¹ all compounds $\geq 5 \mu\text{g}/\text{m}^3$ according EN 16516:2017

² The test is partially performed by an accredited external service provider in Würselen.

Evaluation according to M1

E 22-000083-05

1. General Information

Testing laboratory	TFI Aachen GmbH
Responsible laboratory staff	Norbert Beckers / Tobias Dyczczak
Number of the test report	E 22-000083-05
Client/Applicant	CONICA AG
Name of the product and material number	CONIPUR KF protect+, TFI Probennummer / TFI sample no. 2200171 = 2200136+2200144+2200145
Control type	Other
Date of batch production	
Date of receipt of the sample	2022-01-31
Storage of the sample until testing	geschützt vor Kontaminationen / saved for contaminations
Product Group	Floor coatings
Basis	-

Description of the construction product:

Parameter	Manufacturer	Laboratory
General description of the product	Sportbodensystem punk-/mischelastisch / Sports flooring system point/mixed elastic	Sportbodensystem punk-/mischelastisch / Sports flooring system point/mixed elastic
Type of packaging		
Coating structure		
Method of application		
Mixture ratio		
Applied quantity as wet weight		
Other components		
Drying times		
Storage during drying		
Surface sealing and type		
Total thickness		
Additional information		

Comments siehe Anhang Herstellung Prüfprobe / cf. Annex Preparation of test specimen

2. Test parameter

Date of the completion of the test specimen	2022-02-11
Preparation of the test specimen by	Norbert Beckers / Tobias Dyczczak
Used auxiliary materials	Glasplatte, Aluminiumfolie / glassplate, aluminiumfoil
Start of preconditioning	2022-02-11
Placing of the test specimen into the test chamber and start of testing	2022-02-14
Arrangement of the test specimen in the test chamber	mittig auf Gestell / centered on rack
Covering of the edges? Ratio of covered edges to uncovered edges?	Kanten abgeklebt/edges covered, 2,5 cm offene Kante bei 0,1 m ² Oberfläche / 2,5 cm covered edges to 0.1 m ² surface
Use of the break-off criteria	No
Manufacturer/type of the test chamber	TFI Aachen GmbH
Material of the test chamber	Edelstahl / stainless steel
Volume of the test chamber [m³]	0.25
Area of the test specimen [m²]	0.1
Air exchange rate [1/h]	0.5
Area specific air flow rate [m/h]	1.250
Temperature [°C]	23±1
Relative humidity [%]	50±5

Comments on testing

EN 16516:2017
EN ISO 16000-11:2006
EN ISO 16000-9:2006
ISO 16000-6:2011
EN ISO 16017-1:2000
ISO 16000-3:2011

VOC

Probennahme auf Tenax, ca. 2 l und 5 l, 80 ml/min
Thermodesorption / Gaschromatographie /
Massenspektrometrie (TD/GC/MS)
Gerstel Thermodesorber / Kaltaufgabesystem,
Agilent GC/MS, unpolare Kapillarsäule

Aldehyde und Ketone

Probennahme auf DNPH-Kartuschen, ca. 50 l,
1000 ml/min
Lösungsmitteldesorption / Flüssigchromatographie
/ Dioden Array Detektor (HPLC/DAD)
Agilent HP 1200 / DAD, C18-Säule, ternäres
Eluentengemisch

VOC

sampling on Tenax, approx. 2 l and 5 l, 80 ml/min
Thermal desorption / gas chromatography / mass
spectrometry (TD/GC/MS)
Gerstel thermal desorber/ cooled injection system,
Agilent GC/MS
non-polar capillary column

Aldehydes and ketones

sampling on DNPH cartridges, approx. 50 l, 1000
ml/min
Solvent desorption / liquid chromatography / diode
array detector (HPLC/DAD)
Agilent HP 1200 / DAD, C18-column, ternary eluent
mixture

3. Evaluation for M1

Testing after 28 days			
Parameter	Result [mg/m ² h]	Requirements M1 [mg/m ² h]	fulfilled
Total volatile organic compounds within the retention range C ₆ – C ₁₆ (TVOC toluene equivalent) ¹	0.199 mg/m ² h	< 0.2 mg/m ² h	Yes
Emission of a single volatile organic compound	≤ EU-LCI	≤ EU-LCI	Yes
Formaldehyde	0.006 mg/m ² h	< 0.05 mg/m ² h	Yes
Ammonia ²	< 0.03 mg/m ² h	< 0.03 mg/m ² h	Yes
Carcinogenic substances	< 0.001 mg/m ² h	< 0.001 mg/m ² h	Yes
Acceptability	0.24	≥ 0	Yes

< below determination threshold

¹ all compounds ≥ 5 µg/m³ according EN 16516:2017

² The test is partially performed by an accredited external service provider in Würselen.

4. Measurement

4.1. Day 3

Date of measurement: 2022-02-17
TVOC ISO 16000-6: 806 µg/m³

CAS-No.	Compound name	Ret. Range	RT [min]	C [µg/m ³]	Quantifi- cation	C_tol [µg/m ³]	Identifi- cation	Comment	Ri	LCI Value
64-19-7	Acetic acid	VOC	6.802	55	specific	6	I		0.046	1200
121-44-8	Triethylamine	VOC	7.271	140	specific	100	I		2.333	60
	Not identified VOC	VOC	8.434		Tol. equiv.	30	III	N,N-Dimethylaminoethanol	-	-
108-88-3	Toluene	VOC	8.885	2	specific	2	I		0.000	2900
123-86-4	1-Butyl acetate	VOC	9.752	4	specific	3	I		0.000	4800
	Not identified VOC	VOC	11.58		Tol. equiv.	1	III		-	-
111-76-2	Ethylene glycol- monobutylether	VOC	12.05	160	specific	89	I		0.100	1600
	Not identified VOC	VOC	12.159		Tol. equiv.	2	III	Acetic acid, 2- (dimethylamino)ethyl ester	-	-
5131-66-8	1,2-Propylene glycol n- butylether	VOC	12.927	6	specific	3	I		0.004	1600
110-63-4	1,4-Butanediol	VOC	12.986	14	specific	3	I		0.007	2000
	Not identified VOC	VOC	14.171		Tol. equiv.	41	III	Cyclohexanamine, N,N- dimethyl-	-	-
124-18-5	n-Decane	VOC	14.5	29	specific	28	I		0.005	6000
	Not identified VOC	VOC	15.244		Tol. equiv.	14	III		-	-
112-07-2	2-Butoxyethyl acetate	VOC	16.696	3	specific	1	I		0.000	2200
1120-21-4	n-Undecane	VOC	17.12	100	specific	110	I		0.017	6000
149-57-5	2-Ethylhexane acid	VOC	17.357	9	specific	3	I		0.060	150
	Not identified VOC	VOC	17.936		Tol. equiv.	40	III	N-Formylmorpholine	-	-

CAS-No.	Compound name	Ret. Range	RT [min]	C [$\mu\text{g}/\text{m}^3$]	Quantification	C_tol [$\mu\text{g}/\text{m}^3$]	Identification	Comment	Ri	LCI Value
	Not identified VOC	VOC	18.125		Tol. equiv.	2	III	1,6-Hexanediol	-	-
18829-56-6	2-Nonenal	VOC	18.714	5	specific	2	I		0.250	20
112-40-3	n-Dodecane	VOC	19.654	200	specific	160	I		0.033	6000
	Not identified VOC	VOC	20.958		Tol. equiv.	1	III		-	-
629-50-5	n-Tridecane	VOC	22.024	110	specific	160	I		0.018	6000
629-59-4	n-Tetradecane	VOC	24.123	4	specific	5	I		0.000	6000
	Not identified VOC	VOC	27.123		Tol. equiv.	3	III		-	-
	Not identified SVOC	SVOC	30.481		Tol. equiv.	6	III		-	-
	Not identified SVOC	SVOC	31.021		Tol. equiv.	6	III	Isopropyl myristate	-	-
	Not identified SVOC	SVOC	31.141		Tol. equiv.	1	III		-	-
50-00-0	Formaldehyde	VVOC	1,005.3	8	DNPH		I		0.080	100 (VVOC)

4.2. Day 28

Date of measurement: 2022-03-14
 TVOC ISO 16000-6: 159 µg/m³

CAS-No.	Compound name	Ret. Range	RT [min]	C [µg/m³]	Quantifi- cation	C_tol [µg/m³]	Identifi- cation	Comment	Ri	LCI Value
64-19-7	Acetic acid	VOC	6.523	13	specific	2	I		0.011	1200
121-44-8	Triethylamine	VOC	7.293	43	specific	30	I		0.717	60
108-01-0	Dimethylethanamine	VOC	8.307		Tol. equiv.	4	III		-	-
108-88-3	Toluene	VOC	8.898	1	specific	1	I		0.000	2900
111-76-2	Ethylene glycol- monobutylether	VOC	12.019	13	specific	7	I		0.008	1600
110-63-4	1,4-Butanediol	VOC	12.923	18	specific	5	I		0.009	2000
98-94-2	N,N-Dimethylcyclohexanamin	VOC	14.141		Tol. equiv.	11	III		-	-
124-18-5	n-Decane	VOC	14.487	5	specific	5	I		0.001	6000
	Not identified VOC	VOC	15.233		Tol. equiv.	3	III		-	-
1120-21-4	n-Undecane	VOC	17.101	15	specific	17	I		0.003	6000
	Not identified VOC	VOC	17.917		Tol. equiv.	28	III	N-Formylimorpholine	-	-
112-40-3	n-Dodecane	VOC	19.628	21	specific	28	I		0.004	6000
629-50-5	n-Tridecane	VOC	21.999	33	specific	28	I		0.006	6000
	Not identified VOC	VOC	27.117		Tol. equiv.	2	III	Carbonsäureester	-	-
	Not identified SVOC	SVOC	30.477		Tol. equiv.	2	III	Carbonsäureester	-	-
	Not identified SVOC	SVOC	31.015		Tol. equiv.	6	III	Isopropyl myristate	-	-
	Not identified SVOC	SVOC	31.135		Tol. equiv.	1	III		-	-
50-00-0	Formaldehyde	VVOC	1,005.3	5	DNPH		I		0.050	100 (VVOC)

5. Images

5.1. Specimen image

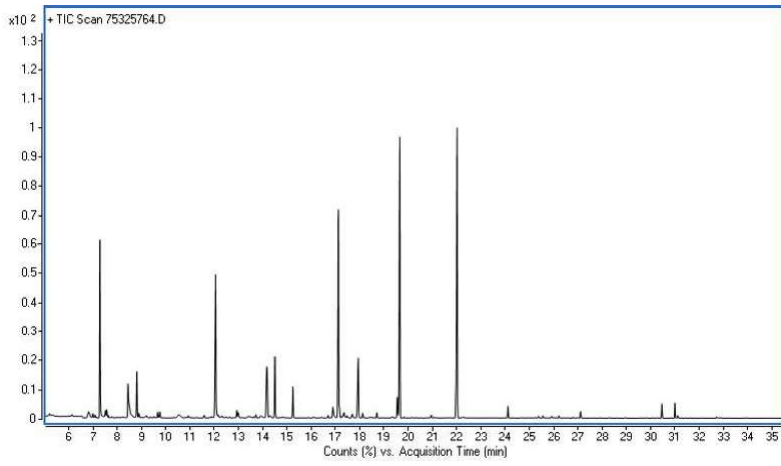


5.2. Product image



6. Chromatograms

6.1. Day 3



6.2. Day 28

