Granorte GmbH Deutschland
Kilianstr. 142
90425 Nürnberg

Test Report No. 41507-003

Client:	**Granorte GmbH Deutschland Nürnberg**
Sample description by client:	**Kork-Fertigparkett Oberfläche: geölt Cork readymade parquet, surface: oiled**
Sampling by:	Client
Date of arrival of sample:	26.08.2013
Date of report:	24.10.2013
Number of pages of report:	21
Testing parameter:	see table of contents
Testing laboratory:	eco-INSTITUT GmbH, Cologne
	# outside accreditation

Nach DIN EN ISO/IEC 17025 akkreditiertes Prüflabor
DAkkS Deutsche Akkreditierungsstelle D-PL-14117-01-00

eco-INSTITUT GmbH
Sachsenring 69/ 50677 Cologne/ Germany
T: +49 221.931245-0 / F: +49 221.931245-33
eco-institut.de

Content

Sample view

Internal Sample-no.	Description by customer	Condition upon delivery	Material composition	Type of sample
A003	Kork-Fertigparkett Oberfläche: geölt Cork readymade parquet, surface: oiled	without objection	Kork-Fertigparkett Oberfläche: geölt Cork readymade parquet, surface: oiled	Parkett Parquet

Test Report

1 Emission test

1.1 Volatile Organic Compounds (VOC)

Definition of terms:

VOC (volatile organic compounds)	All individual materials with a concentration ≥ 0,001 mg/m³ in retention range C_6 (n-Hexane) to C_{16} (n-Hexadecane) Substances refer to LCI lists / AgBB (DIBt)
TVOC (Total volatile organic compounds)	Sum of all individual substances in retention range C_6 to C_{16}.
CMR-VOC (carcinogenic, mutagenic, reproduction-toxic VOC, VVOC and SVOC)	All individual substances with the following categories: Regulation (EC) No. 1272/2008: Category Car.1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B TRGS 905: K1 and K2, M1 and M2, R1 and R2 IARC: Group 1 and 2A DFG (MAK lists): Category III1and III2
VVOC (very volatile organic compounds)	All individual substances wit concentration ≥ 0,001 mg/m³ in retention range < C_6
TVVOC (Total very volatile organic compounds)	Sum of all VVOC in retention range < C_6
SVOC (semi volatile organic compounds)	All individual materials ≥ 0,001 mg/m³ in retention range > C_{16} (n-Hexadecane) to C_{22} (Docosane)
TSVOC (Total semi volatile organic compounds)	Sum of all SVOC in retention range > C_{16} to C_{22}.
Identified and calibrated substances ($c_{id\ sub}$), substance specific calculated	Spectrum and retention time are concordant with the calibrated comparison substance
Not identified substances calculated as toluene equivalent ($c_{ni\ tol}$)	Suggestion from the spectrum library with high probability and/or allocation to a group of substances
SER	Specific emission rate (see appendix)
LCI value	Lowest Concentration of Interest; calculated value for the evaluation of VOC, established by the Committee for Health-related Evaluation of Building Products (Ausschuss zur gesundheitlichen Bewertung von Bauprodukten - AgBB)
R value	The quotient of the concentration and the LCI value is generated for every substance which is detected in the test chamber air. The sum of the calculated quotients results in the R value.

List of analysed VOCs:

Aromatic hydrocarbons
Toluene
Ethylbenzene
p-Xylene
m-Xylene
o-Xylene
Isopropylbenzene
n-Propylbenzene
1,3,5-Trimethylbenzene
1,2,4-Trimethylbenzene
1,2,3-Trimethylbenzene
2-Ethyltoluene
1-Isopropyl-4-methylbenzene
1,2,4,5-Tetramethylbenzene
n-Butylbenzene
1,3-Diisopropylbenzene
1,4-Diisopropylbenzene
Phenyl octane
1-Phenyl decane[2]
1-Phenyl undecane[2]
4-Phenylcyclohexene
Styrene
Phenyl acetylene
2-Phenyl propene
Vinyl toluene
Naphthalene
Indene
Benzene
Cresol

Saturated aliphatic substances
Hydrocarbons
2-Methyl pentane[1]
3-Methyl pentane[1]
n-Hexane
Cyclohexane
Methylcyclohexane
n-Heptane
n-Octane
n-Nonane
n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
Methylcyclopentane
1,4-Dimethylcyclohexane

Terpenes
δ-3-Caren
α-Pinene
β-Pinene
Limonene
Longifolene
Caryophyllene
Isolongifolene
alpha-Phellandrene
Myrcene
Camphene
alpha-Terpinend
Longipinene
beta-Caryophyllene
beta-Farnesen
alpha-Bisabolen

Aliphatic alcohols and ether
1-Propanol[1]
2-Propanol[1]
tert-Butanol
2-Methyl-1-propanol
1-Butanol
1-Pentanol
1-Hexanol
Cyclohexanol
2-Ethyl-1-hexanol
1-Octanol
4-Hydroxy-4-methyl-pentan-2-one
1-Heptanol
1-Nonanol
1-Decanol

Aromatic alcohols (phenols)
Phenol
BHT (2,6-di-tert-butyl-4-methylphenol)
Benzylalcohol

Glycols, Glycol ether, Glycol ester
Propylenglycol (1,2-Dihydroxypropane)
Ethylene glycol (Ethandiol)
Ethylene glycol monobutyl ether
Diethylene glycol
Diethylene glycol-monobutyl ether
2-Phenoxyethanol
Ethylene carbonate
1-Methoxy-2-propanol
Glycolic acid butyl ester
Texanol
Butyldiglycol acetate
Dipropylenglycol mono-methyl ether
2-Methoxyethanol
2-Ethoxyethanol
2-Propoxyethanol
2-Methylethoxyethanol
2-Hexoxyethanol
1,2-Dimethoxyethane
1,2-Diethoxyethane
2-Methoxyethyl acetate
2-Ethoxyethyl acetate
2-Butoxyethyl acetate
2-(2-Hexoxyethoxy)-ethanol
1-Methoxy-2-(2-methoxy-ethoxy)-ethane
Propylene glycol di-acetate
Dipropylene glycol
Dipropylene glycol monomethylether acetate
Dipropylene glycol mono-n-propylether
1,4-Butanediol
Tripropyleneglycolmonomethyl ether
Triethylene glycol dimethyl ether
1,2-Propylene glycol dimethyl ether
TXIB
Ethyldiglycol
Dipropylene glycol-dimethyl ether
Propylene carbonate
Hexylene glycol
3-Methyl-1-butanol
1,2-Propylene glycol n-propyl ether
1,2-Propylene glycol n-butyl ether
Diethylglycol phenyl ether
Neopentyl glycol

Aldehydes
Butanal[1,3]
Pentanal[3]
Hexanal
Heptanal
2-Ethylhexanal
Octanal
Nonanal
Decanal
2-Butenal[3]
2-Pentenal[3]
2-Hexenal
2-Heptenal
2-Octenal
2-Nonenal
2-Decenal
2-Undecenal
Furfural
Glutaraldehyde
Benzaldehyde
Acetaldehyde[1,3]
Propanal[1,3]
Propenal[1,3]
Isobutenal
3-Methyl-2-propanol
Methylisobutylketone
Cyclopentanone
Cyclohexanone

Ketones
Ethylmethylketone[3]
3-Methyl-2-propanol
Methylisobutylketone
Cyclopentanone
Cyclohexanone
Acetone[1,3]
2-Methylcyclopentanone
2-Methylcyclohexanone
Acetophenone
1-Hydroxyacetone

Acids
Acetic acid
Propionic acid
Isobutyric acid
Butyric acid
Pivalic acid
n-Valeric acid
n-Hexanoic acid
n-Heptanoic acid
n-Octanoic acid
2-Ethylhexanoic acid

Esters and Lactones
Methylacetate[1]
Ethyl acetate[1]
Vinyl acetate[1]
Isopropyl acetate
Propyl acetate
2-Methoxy-1-methylethyl acetate
n-Butyl formate
Methylmethacrylate
Isobutylacetate
1-Butyl acetate
2-Ethylhexyl acetate
Methyl acrylate
Ethyl acrylate
n-Butyl acrylate
2-Ethylhexyl acrylate
Adipic acid dimethyl ester
Fumaric acid dibutyl ester
Succinic acid dimethyl ester
Hexandioldiacrylate
Maleic acid dibutyl ester
Butyrolactone
Dibutyl glutarate
Dibutyl succinate
Dimethylphthalate
Texanol
Dipropylene glycol diacrylate

Chlorinated hydrocarbons
Tetrachlorethene
1,1,1-Trichlorethane
Trichlorethene
1,4-Dichlorbenzene

Others
1,4-Dioxane
Caprolactam
N-Methyl-2-pyrrolidone
Octamethylcyclotetrasiloxane
Methenamine
2-Butanonoxime
Triethyl phosphate
5-Chlor-2-methyl-4-isothiazolin-3-one
2-Methyl-4-isothiazolin-3-one (MIT)
Triethylamine
Decamethylcyclopentasiloxane
Dodecamethylcyclopentasiloxane
Tetrahydrofuran (THF)
1-Decene
1-Octene
2-Pentylfuran
Tetramethyl succinonitrile
Propylencarbonate
Isophorone
Dimethylformamide (DMF)
Tributyl phosphate

1 VVOC
2 SVOC
3 Analysis after DIN ISO 16000-3

Explanation of the Specific Emission Rate SER

Emission measurements are accomplished in test chambers under defined physical conditions (temperature, relative humidity, room loading, air change rate etc.).

Test chamber measurement results are directly comparable only if the investigations were accomplished under the same basic conditions.

If the differences of the physical conditions refer only to the change of air rate and/or the loading, the "SER" or "specific emission rate" can be used for comparability of the measurement results. The SER indicates how many volatile organic compounds (VOC) are released by the sample for each material unit and hour (h).

The SER can be calculated using the formula below for each proven individual component of the VOC from the data in the test report.

As material units the following are applicable:

l = unit of length (m)	relation between emission and length
a = unit area (m²)	relation between emission and surface
v = unit volume (m³)	relation between emission and volume
u = piece unit (unit = piece)	relation between emission and complete unit

From this the different dimensions for SER result:

length-specific	SER_l	in µg/m h
surface-specific	SER_a	in µg/m² h
volume-specific	SER_v	in µg/m³ h
unit specific	SER_u	in µg/u h

SER thus represents a product specific rate, which describes the mass of the volatile organic compound, which is emitted by the product per time unit at a certain time after beginning of the examination.

$$SER = q \cdot C$$

q specific air flow rate (quotient from change of air rate and loading)
C Concentration of the measured substance(s)

The result can be indicated in milligrams (mg) in place of micro grams (µg), whereby 1 mg = 1000 µg.

Test method

Preparation of test sample:	DIN EN ISO 16000-11	
	Date:	20.09.2013
	Pre-treatment:	not applicable
	Masking of backside:	yes
	Masking of edges:	100 %
	Relationship of unmasked edges to surface:	not applicable
	Charging:	related to area
	Dimensions:	30 cm x 16,7 cm
Test chamber conditions::		
	Chamber volume:	0,125 m³
	Temperature:	23 °C
	Relative humidity:	50 %
	Air pressure:	normal
	Air:	cleaned
	Air change rate:	0.5 h^{-1}
	Air velocity:	0,3 m/s
	Loading:	0.4 m²/m³
	Specific air flow rate:	1,25 m³/m² · h
	Air sampling:	3 and 28 days after test chamber loading
Analytics:	DIN ISO 16000-3	
	DIN ISO 16000-6	
	Detection limit:	1 µg/m³

Sample A003: Measurement time 3 days after test chamber loading

1.1.1 CMR-VOC_{3d}

Test parameter:

Carcinogenic, mutagenic and reproduction-toxic volatile organic compounds (CMR VOC), test chamber, air sampling 3 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (Test chamber air) [µg/m³]	CMR classification*)
VOC_{3d}: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated ($c_{id\ sub}$)				
-	-	-	-	n.d.
VOC_{3d}: Further identified and calibrated CMR substances in addition to LCI list/AgBB, substance specific calculated($c_{id\ sub}$)				
-	-	-	-	n.d.

VOC_{3d}: Further identified, not calibrated CMR substances, calculated as toluene equivalent ($c_{ni\ tol}$)				
-	-	-	-	n.d.

*) Classification acc. to Regulation (EC) No. 1272/2008: Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B, TRGS 905: K1 and K2, M1 and M2, R1 and R2, IARC: Group 1 and 2A, DFG (MAK list): Category III1 and III2

	Concentration (Test chamber air) [µg/m³]	SERa [µg/m²h]
Sum of VOC with the following categorisations: Regulation (EC) No. 1272/2008: Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B TRGS 905: K1 and K2, M1 and M2, R1 and R2 IARC: Group 1 and 2A DFG (MAK list): Category III1 and III2	**n.d.**	**n.n.**

n.d. = not detectable

1.1.2 VOC / TVOC $_{3d}$

Test parameter:
Volatile organic compounds (VOC), test chamber, air sampling 3 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (Test chamber air) [µg/m³]
VOC_{3d}: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated ($c_{id\ sub}$)			
2	**Saturated aliphatic hydrocarbons**		
2-2	n-Hexane	110-54-3	3
6	**Glycols, Glycol ethers, Glycol esters**		
6-11	Butyldiglycol acetate	124-17-4	1
7	**Aldehydes**		
7-3	Hexanal	66-25-1	2
7-19	Benzaldehyde	100-52-7	2
8	**Ketones**		
8-5	Cyclohexanone	108-94-1	2
9	**Acids**		
9-1	Acetic acid	64-19-7	8

VOC_{3d}: Further identified and calibrated substances in addition with LCI list/AgBB, substance specific calculated ($c_{id\ sub}$)			
No.	**Substance**	**CAS No.**	**Concentration (Test chamber air) [µg/m³]**
-	-	-	n.d.

VOC_{3d}: Not calibrated substances calculated as toluene equivalent ($c_{ni\ tol}$)			
	not identified compound	-	1
	not identified compound	-	3
	Glycol compound	-	4

Total volatile organic compounds	**Concentration (test chamber air) [µg/m³]**	**SER_a [µg/m³h]**
$TVOC_{3d}$	**26**	**33**

Further VOC sums	**Concentration** (test chamber air) [µg/m³]	**SER_a** [µg/m²h]
Sum VOC without LCI	**8**	**10**
Sum of bicyclic terpenes	**n.d.**	**n.d.**
Sum of sensitising materials with the following categorisations: DFG (MAK lists): Category IV German Federal Institute for Risk Assessment lists: Cat A TRGS 907	**n.d.**	**n.d.**
Sum of VOC with the following categorisations: Regulation (EC) No. 1272/2008: Category Carc. 2, Muta. 2, Repr. 2 TRGS 905: K3, M3, R3 IARC: Group 2B DFG (MAK list): Category III3	**12**	**15**
C_9 - C_{14} - Alkanes / Isoalkanes		**n.d.**
Sum C_4-C_{11} Aldehydes, acyclic, aliphatic	**2**	**3**

R-Value (without dimension)$_{3d}$	**0,08**

n.d. = not detectable

1.1.3 $SVOC_{3d}$

Test parameter:

Semivolatile organic compounds (SVOC), test chamber, air sampling 3 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (test chamber air) [µg/m³]
$SVOC_{3d}$: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$SVOC_{3d}$: Further identified and calibrated substances in addition to LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$SVOC_{3d}$: Not calibrated substances calculated as toluene equivalent ($c_{ni\ tol}$)			
	Benzophenon	-	3
	Benzophenon derivative	-	5

Total semivolatile organic compounds	Concentration (test chamber air) [µg/m³]	SER_a [µg/m²h]
$TSVOC_{3d}$	**8**	**10**

n.d. = not detectable

1.1.4 $VVOC_{3d}$

Test Parameter:

Very volatile organic compounds (VVOC), test chamber, air sampling 3 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS-No.	Concentration (test chamber air) [µg/m³]
$VVOC_{3d}$: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
7	**Aldehydes**		
7-20	Acetaldehyde	75-07-0	7
$VVOC_{3d}$: Further identified and calibrated substances in addition to LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$VVOC_{3d}$: Not calibrated, identified substances calculated as toluene equivalent ($c_{ni\ tol}$)			
-	-	-	n.d.

Total very volatile organic compounds	Concentration (test chamber air) [µg/m³]	SER_a [µg/m²h]
$TVVOC_{3d}$	**7**	**9**

n.d. = not detectable

1.1.4.1 Formaldehyde$_{3d}$ and Acetaldehyde$_{3d}$

Test parameter:

Formaldehyde and Acetaldehyde, test chamber, air sampling 3 days after test chamber loading

Test method:

Preparation of test sample:	according to DIN EN 717-1 see Volatile organic compounds	
Test chamber conditions:	DIN EN 717-1 with the following deviations: - No determination of the equilibrium concentration; the formaldehyde emission is indicated at a measuring point as determined above. - Chamber volume: see Volatile organic compounds - Relative humidity: 50% - Air change rate and loading: see Volatile organic compounds	
	Emission chamber parameters: see volatile organic compounds	
	Air sampling:	3 days after test chamber loading
Analytics:	DIN ISO 16000-3	
	Detection limit:	3 µg/m³ ≈ 0,003 ppm

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

Substance	**Concentration** (Test chamber air) **[µg/m³]**	**Concentration** (Test chamber air) **[ppm]**
Formaldehyde	< 3	< 0,003
Acetaldehyde	7	-

Sample A003: Measurement time 7 days after test chamber loading

1.1.5 CMR-VOC$_{7d}$

Test parameter:

Carcinogenic, mutagenic and reproduction-toxic volatile organic compounds (CMR VOC), test chamber, air sampling 7 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (Test chamber air) [µg/m³]	CMR classification*)
VOC$_{7d}$: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated (c$_{id\ sub}$)				
-	-	-	-	n.d.
VOC$_{7d}$: Further identified and calibrated CMR substances in addition to LCI list/AgBB, substance specific calculated(c$_{id\ sub}$)				
-	-	-	-	n.d.

VOC$_{7d}$: Further identified, not calibrated CMR substances, calculated as toluene equivalent (c$_{ni\ tol}$)				
-	-	-	-	n.d.

*) Classification acc. to Regulation (EC) No. 1272/2008: Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B, TRGS 905: K1 and K2, M1 and M2, R1 and R2, IARC: Group 1 and 2A, DFG (MAK list): Category III1 and III2

	Concentration (Test chamber air) [µg/m³]	SERa [µg/m²h]
Sum of VOC with the following categorisations: Regulation (EC) No. 1272/2008: Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B TRGS 905: K1 and K2, M1 and M2, R1 and R2 IARC: Group 1 and 2A DFG (MAK list): Category III1 and III2	**n.d.**	**n.n.**

n.d. = not detectable

1.1.6 VOC / TVOC $_{7d}$

Test parameter:
Volatile organic compounds (VOC), test chamber, air sampling 7 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (Test chamber air) [µg/m³]
VOC_{7d}: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated ($c_{id\ sub}$)			
7	**Aldehydes**		
7-3	Hexanal	66-25-1	1
7-19	Benzaldehyde	100-52-7	1
8	**Ketones**		
8-5	Cyclohexanone	108-94-1	2
9	**Acids**		
9-1	Acetic acid	64-19-7	2

VOC_{7d}: Further identified and calibrated substances in addition with LCI list/AgBB, substance specific calculated ($c_{id\ sub}$)			
No.	**Substance**	**CAS No.**	**Concentration (Test chamber air) [µg/m³]**
-	-	-	n.d.

VOC_{7d}: Not calibrated substances calculated as toluene equivalent ($c_{ni\ tol}$)			
	not identified	-	1
	Glycol compound	-	2

Total volatile organic compounds	**Concentration (test chamber air) [µg/m³]**	**SER_a [µg/m³h]**
$TVOC_{7d}$	**9**	**11**

Further VOC sums	**Concentration (test chamber air) [µg/m³]**	**SER_a [µg/m²h]**
Sum VOC without LCI	**3**	**4**
Sum of bicyclic terpenes	**n.d.**	**n.d.**

Sum of sensitising materials with the following categorisations: DFG (MAK lists): Category IV German Federal Institute for Risk Assessment lists: Cat A TRGS 907	**n.d.**	**n.d.**
Sum of VOC with the following categorisations: Regulation (EC) No. 1272/2008: Category Carc. 2, Muta. 2, Repr. 2 TRGS 905: K3, M3, R3 IARC: Group 2B DFG (MAK list): Category III3	**8**	**10**
C_9 - C_{14} - Alkanes / Isoalkanes	**n.d.**	**n.d.**
Sum C_4-C_{11} Aldehydes, acyclic, aliphatic	**1**	**1**

R-Value (without dimension)$_{7d}$	**0,02**

n.d. = not detectable

1.1.7 $SVOC_{7d}$

Test parameter:

Semivolatile organic compounds (SVOC), test chamber, air sampling 7 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS No.	Concentration (test chamber air) [µg/m³]
$SVOC_{7d}$: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$SVOC_{7d}$: Further identified and calibrated substances in addition to LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$SVOC_{7d}$: Not calibrated substances calculated as toluene equivalent ($c_{ni\ tol}$)			
-	-	-	n.d.

Total semivolatile organic compounds	Concentration (test chamber air) [µg/m³]	SER_a [µg/m²h]
$TSVOC_{7d}$	**n.d.**	**n.d.**

n.d. = not detectable

1.1.8 $VVOC_{7d}$

Test Parameter:

Very volatile organic compounds (VVOC), test chamber, air sampling 7 days after test chamber loading

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

No.	Substance	CAS-No.	Concentration (test chamber air) [µg/m³]
$VVOC_{7d}$: Identified and calibrated substances in accordance with LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
7	**Aldehydes**		
7-20	Acetaldehyde	75-07-0	6
$VVOC_{7d}$: Further identified and calibrated substances in addition to LCI list/AgBB, substance specific calculated($c_{id\ sub}$)			
-	-	-	n.d.
$VVOC_{7d}$: Not calibrated, identified substances calculated as toluene equivalent ($c_{ni\ tol}$)			
-	-	-	n.d.

Total very volatile organic compounds	Concentration (test chamber air) [µg/m³]	SER_a [µg/m²h]
$TVVOC_{7d}$	**6**	**8**

n.d. = not detectable

1.1.8.1 Formaldehyde$_{7d}$ and Acetaldehyde$_{7d}$

Test parameter:

Formaldehyde and Acetaldehyde, test chamber, air sampling 7 days after test chamber loading

Test method:

Preparation of test sample:	according to DIN EN 717-1 see Volatile organic compounds	
Test chamber conditions:	DIN EN 717-1 with the following deviations: - No determination of the equilibrium concentration; the formaldehyde emission is indicated at a measuring point as determined above. - Chamber volume: see Volatile organic compounds - Relative humidity: 50% - Air change rate and loading: see Volatile organic compounds	
	Emission chamber parameters: see volatile organic compounds	
	Air sampling:	7 days after test chamber loading
Analytics:	DIN ISO 16000-3	
	Detection limit:	3 µg/m³ ≈ 0,003 ppm

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled

Substance	**Concentration** (Test chamber air) **[µg/m³]**	**Concentration** (Test chamber air) **[ppm]**
Formaldehyde	< 3	< 0,003
Acetaldehyde	6	-

2 Odour#

Test parameter:

Odour, testing collective, odour testing, 24 hours after loading of desiccator

Test method:

Manufacture of test specimen:	see 1.1 volatile organic compounds Sizes:	2,45 cm x 2,45 cm x 2,45 cm
Conditions of dessicator:	Temperature: Relative air humidity: Loading: Air sampling:	23 °C 50% See 1.1 volatile organic compounds 24 hours after loading of dessicator
Analytics:	following VDA-recommendation 270	
Ratings:	1 not perceptible 2 perceptible, not bothering 3 clearly perceptible, not bothering 4 bothering 5 strongly bothering 6 unbearable	

Test result:

Sample:	A003: Kork-Fertigparkett Oberfläche: geölt

Intensity of odour
2

3 Chlorophenols

Test parameter:
Chlorophenols

Test method:

Analytics:	CEN / TR 14823, esterification, cleaning by silica gel after DFG method S19, analysis with GC/MS. The following chlorophenols were tested: Pentachlorophenol (PCP), 2,3,5,6-Tetrachlorophenol (TeCP), 2,3,4,5-Tetrachlorophenol (TeCP), 2,3,4,6-Tetrachlorophenol (TeCP), 2,3,5-Trichlorophenol, 2,3,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol
Detection limit:	0,01 mg/kg

Test Result:

Sample	Parameter	Content (Material) [mg/kg]
A003: Kork-Fertigparkett Oberfläche: geölt	Pentachlorophenol (PCP)	not detectable

Cologne, 24.10.2013

Dr. rer.-nat. Tobias Schulz
(Technical Manager Representative)

4 Summary evaluation Korklogo

The product **Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled** was ecologically product-tested by order of Granorte GmbH Deutschland.
Basis of the evaluation are the test criteria of the Kork label. The results as they are documented in the test report are evaluated as follows.

Pos.	Test parameter	Concentration (test chamber air) [µg/m³]	Concentration (test chamber air) [mg/m³]	Limit [mg/m³]	Limit kept [yes/no]
1	**VOC**				
1.1	**Measurement date after 3 days**				
	TVOC	26	0,026	≤ 1,2	yes
	CMR-VOC	< 1	< 0,001	≤ 0,01	yes
1.2	**Measurement date after 7 days**				
	TVOC	9	0,009	≤ 0,3	yes
	Sum SVOC	< 1	< 0,001	≤ 0,05	yes
	Sum VOC without LCI	3	0,003	≤ 0,05	yes
	CMR-VOC	< 1	< 0,001	≤ 0,001	yes

Pos.	Test parameter	Value	Limit	Limit kept [yes/no]
2	**R value (basis: LCI list 2012)**			
	R value after 7 days	0,02	≤ 0,5	yes

Pos.	Test parameter	Concentration (test chamber air) [µg/m³]	Limit [mg/m³]	Limit kept [yes/no]
3	**Formaldehyde**			
	Formaldehyde after 7 days	< 3	≤ 0,048 (glued)	yes

Pos.	Test parameter	Intensity [Note]	Limit [Note]	Limit kept [yes/no]
4	**Odour**	2	≤ 3	yes

The tested product **Kork-Fertigparkett Oberfläche: geölt / Cork readymade parquet, surface: oiled** by Granorte GmbH Deutschland meets the Kork label requirements for chemical testing (cork flooring) to the full extent as it is stated above.

Cologne, 24.10.2013

Ralph Nitsche
(Project Manager)