ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration Zentia Limited

Programme holder Institut Bauen und Umwelt e.V. (IBU

Publisher Institut Bauen und Umwelt e.V. (IBU)

Declaration number EPD-ZEN-20220061-IBC1-EN

Issue date 22.04.2022 Valid to 21.04.2027

Wet Felt Laminated Mineral Ceiling Tiles (PT)

Zentia Limited



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General Information

Zentia Limited Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany Declaration number EPD-ZEN-20220061-IBC1-EN This declaration is based on the product category rules: Mineral panels, 12.2018 (PCR checked and approved by the SVR)

22.04.2022 Valid to

21.04.2027

Issue date

Mann Peters

Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)

Stank How

Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))

Wet Felt Laminated Mineral Ceiling Tiles (PT)

Owner of the declaration

Zentia Limited Kingsway South Team Valley Trading Estate Gateshead Tyne & Wear NE11 0SP England

Declared product / declared unit

1 m² ZENTIA wet felt laminated mineral ceiling tiles with an average surface weight of 3.08 kg/m².

Scope:

This document refers to 1 m² wet felt laminated mineral ceiling tiles with an average recipe and an average surface weight of 3.08 kg/m², manufactured at the production facility in Pontarlier, France under the brand name ZENTIA.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of *EN 15804+A2*. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010*

internally

x externally

fall

Prof. Dr. Birgit Grahl (Independent verifier)

2. Product

2.1 Product description/Product definition

The ceiling tiles are manufactured using a wet felt process and consist of biosoluble mineral wool, perlite, clay and starch. The ceiling tiles meet the requirements of *DIN 18177* and *EN 13964*.

ZENTIA mineral tiles are available in a wide range of different surface designs and product properties. Depending on the design, the ceiling tiles are available in different formats and edge finishes.

This EPD applies to the following products:

Perla OP 0.95, Perla OP 1.00, Bioguard Acoustic, Sierra, Sierra OP

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration DIN EN 13964:2014, suspended ceiling requirements and test methods and the CE-marking.

For the application and use the respective national provisions apply.

2.2 Application

Mineral tiles (wet-felt) are typically used as lay in for suspended ceiling constructions. They are primarily used as optical cladding, but also for sound absorption and sound insulation, for fire resistance and against fire spreading, for cleanrooms and high hygiene requirements.

2.3 Technical Data

Mineral boards (wet-felt) are regulated by *EN 13964* and have corresponding labelling and declaration of performance. The following data provide an overview of results:

Construction data (according to DIN 18177)

Name	Value	Unit		
Thermal conductivity	0.037 - 0.06	W/(mK)		
Sound absorption coefficient acc. ISO 354 and ISO 11654	0.65 - 1	%		



Airborne sound reduction acc. ISO 10848-2 and EN 717-1	25 - 29	dB
Gross density	150 - 270	kg/m³

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *DIN EN* 13964:2014, suspended ceiling requirements and test methods (not part of CE-marking).

2.4 Delivery status

The EPD refers to panels with a thickness between 12 - 19 mm which can have variable length and width dimensions.

2.5 Base materials/Ancillary materials

Mineral tile composition:

minoral and composition.				
Name	Value	Unit		
Mineral wool	20 - 90	%		
Perlite	8 - 35	%		
Clay	0 - 25	%		
Cellulose fibres	2 -5	%		
Starch	5 - 15	%		
others	0 - 5	%		

In addition, dispersion paints are used on the surface and water for preparation during production. The recycled content is at least 42 %.

This product/article/at least one partial article contains substances listed in the *ECHA-candidate list* (date: 25.06.2020) exceeding 0.1 percentage by mass: No

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: No

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products* No. 528/2012): No

In-can preservatives are used in the production process; however, they are not part of the products and are therefore not within the scope of the *Ordinance on Biocide Products*.

2.6 Manufacture

The mineral tiles are produced in the traditional wet process (wet-felt). The raw materials are mixed with water to form a homogeneous suspension, which is pumped onto a belt conveyor (Fourdrinier). The water is removed mechanically (gravity and vacuum) and by evaporation in the drying oven. As far as possible, the process water is reused. It is treated accordingly and fed back into the process water circuit. Depending on the desired appearance the panels can be sanded, colour-treated, patterned, eroded or embossed. Production waste and dust are reused in the process in the sense of an internal cycle. The manufacturing plant is certified according to ISO 9001, ISO 14001 and OHSAS 18001.

2.7 Environment and health during manufacturing

The manufacturer complies with all European regulations for the production of mineral slabs:

- The manufacturing plant is certified accordingto ISO 9001, ISO 14001 and OHSAS 18001.
- The production has a closed water cycle, i.e. no waste water is produced.
- Production generates virtually almost no waste, all resulting blanks, dust and rejects are reused to 99 %.
- Exclusive use of mineral fibres according to Regulation (EU) No.1272/2008 Note Q.
- Prohibition of the production and use of biopersistent fibres (Ordinance on Hazardous Substances, Annex II, No. 5).
- Prohibition of placing biopersistent fibres on the market (Chemicals Prohibition Ordinance, No.23 of the Annex to §1).
- Not subject to declaration according to REACH.

2.8 Product processing/Installation

There are no recognised systemic hazards associated with the installation of ceiling tiles. It is recommended that materials are handled in a manner that minimises dust generation. Workers should wear appropriate personal protective equipment. Equipment such as gloves, goggles and dust masks are recommended to minimise exposure to dust and prevent skin irritation.

2.9 Packaging

The panels are packaged in cardboard boxes and sealed with transparent polyethylene film. These packages lie on chemically untreated wooden pallets. The pallets are wrapped with polyethylene stretch film. Foil, paper and wood can be recycled in the usual ways.

2.10 Condition of use

When handled properly, the mechanical and structuralphysical properties of the mineral tile remain intact throughout its entire service life. Direct contact with water should be avoided due to the water-soluble binding agent starch.

2.11 Environment and health during use

When properly installed, no dust/particles are released during the use phase. For the substance groups formaldehyde, volatile organic compounds (VOCs) and total volatile organic compounds (TVOCs), the limits according to *DIN 18177* are complied with.

2.12 Reference service life

The service life of the mineral tiles (wet-felted) is up to 50 years, depending on the area of use, exposure and state of maintenance.

Within the framework of the conditions of use, no ageing effects are to be expected apart from visual discolouration caused by air circulation.



2.13 Extraordinary effects

Fire

The declared products are classified in the fire reaction class A2-s1, d0 according to *EN 13501-1*. This means that they are "non-combustible" according to the German building authority designation (and also many other European countries) with negligible smoke development and no burning drip in the event of fire.

Fire Reaction

Name	Value
Building material class	A2
Smoke gas development	s1
Burning droplets	d0

Water

In the case of prolonged contact with water, the starch binder dissolves, which can lead to a loss of structure, and if the soluble components are discharged into the sewage treatment plant, they are biodegradable, increasing the chemical oxygen demand (COD) and the biological oxygen demand (BOD).

Mechanical destruction

The mineral slabs (wet-felt) can be broken by hand and also damaged superficially, which can result in minor dust formation.

2.14 Re-use phase

If the panels are removed properly, they can be reinstalled. In case of minor damage, the slabs can be reused as cut-to-size tiles. Mineral tiles can be returned to the manufacturing process if they are of the correct type and have sufficient material quality; they can be recycled up to 100 %.

2.15 Disposal

The waste code number of production residues for mineral tiles according to the *AVV*, *German List of Wastes Ordinance* is 10 11 03, the waste code number for construction site waste (offcuts) is 17 06 04. If the tiles are not recycled as described in 2.14., they are disposed of in a landfill.

2.16 Further information

Further information at www.zentia.com

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to a declared unit of 1 m² ZENTIA wet felt laminated mineral ceiling tiles with an average surface weight of 3.08 kg/m².

Deklarierte Einheit

Name	Value	Unit
Declared unit	1	m ²
Grammage	3.08	kg/m ²
Conversion factor [Mass/Declared Unit]	3.08	-

The ceiling tiles are produced at the Knauf Ceiling Solutions production site in Pontarlier, France under the brand name ZENTIA.

Various types of mineral ceiling tiles are produced at the site. A differentiation between the product groups was made based on the recipe of the products. Wet felt laminated products have common product components and are manufactured in different thicknesses. Laminated panels are provided with a glass fleece coating. The calculation of the weighted average recipe and surface weight is based on the square meters produced of each product. Ensuring the correct representation of the average composition of the raw boards, the recipe of each of the products included in the average was performed.

3.2 System boundary

The life cycle assessment of average ZENTIA Acoustic Range mineral ceiling tiles includes a cradle-to-gate analysis of the products' environmental impacts with modules (C1-C4 and D). Subsequent life cycle phases are part of the analysis:

Module A1-A3 | Production stage

The production stage includes the upstream burdens of raw material supply, their transports and the manufacturing plant of Knauf Ceiling Solutions located in Pontarlier (France). Mineral ceiling tiles are

produced in the wet-felt process. Main raw material inputs, therefore, refer to mineral wool, perlite, clay and starch. The production site is supplied with electricity from the French power grid and thermal energy from natural gas.

Module C1 | Deconstruction and demolition

Disassembly of the product is done either manually or using smaller tools. Referring energy demand is considered to be negligible.

Modul C2 | Transport to disposal

The transport to the disposal of the material is estimated declaring a 50 km radius to the landfill. In reality, this scenario may vary depending on the actual location of deconstruction and referring waste treatment.

Module C3 | Waste processing

The declared scenario assumes landfilling of the product. Referring environmental impacts are accounted for in module C4.

Module C4 | Disposal

Module C4 refers to the emissions from the disposal of the mineral ceiling tiles. The chosen scenario, therefore, includes the environmental burdens of landfilling of the product.

Module D | Benefits and loads beyond the system boundary

The declared scenario assumes landfilling of the product. Referring environmental impacts are accounted for in module C4.

3.3 Estimates and assumptions

Assumptions and approximations are applied in case of a lack of representative data. All assumptions and approximations are documented precisely and represent a best-guess representation of reality. In case of uncertainty, a conservative approach is chosen.



3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data. Data gaps are filled with conservative assumptions from average data (when available) or with generic data and are documented accordingly. Only data with a contribution lower than 1 % were cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively. Cut-off material and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows.

3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from *GaBi* databases (*GaBi* 10; 2020.2).

3.6 Data quality

Data collection is based on product-specific questionnaires. It follows an iterative process clarifying questions via e-mail, telephone calls or in web-meetings. Intensive discussions between Knauf Ceiling Solutions and Daxner & Merl results in an accurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to *ISO 14044*.

The weighted average was calculated based on the product-specific recipes and composition based on the production volume of each product. The analysis of the variance of the specific composition of the products reveals a carbon footprint range between -38 % and +23 %. Due to the variance of the results, the representativity of the weighted average for specific products is limited.

The technological, geographical and time-related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *GaBi* background datasets refer to the latest versions available (not more than ten years old) and are carefully chosen.

3.7 Period under review

Foreground data were collected in the 2019 production year, and the data are based on the volumes produced on an annual basis.

3.8 Allocation

All information for the allocation of given material and energy flows is based on site-related evaluations. The calculation of specific input quantities for the raw board production of the analysed product group is based on the respective recipe. In addition, product-specific application rates (e.g. basecoat, top-coat, glass fleece etc.) were available for the upscaling of referring input quantities. Total annual energy consumption and waste flows are allocated based on the production share of each product.

For in the production used waste paper, the system boundary is set after sorting. It is assumed that the end of waste status has been reached. Waste glass wool does not reach the end of waste status. The system boundary for secondary raw materials defined in *EN* 15804 applies.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

The *GaBi* background database was used to calculate the LCA.

4. LCA: Scenarios and additional technical information

Characteristic product properties Information on biogenic Carbon

The biogenic carbon content quantifies the amount of biogenic carbon in the declared product.

Information on the description of the biogenic carbon content at the factory gate

Name	Value	Unit				
Biogenic carbon content (in the product)	0.13	kg/m²				
Stored carbon dioxide (in the product)	0.47	kg/m²				

As the End-of-Life of the product packaging is not declared in module A5, its carbon uptake is not considered in modules A1-A3.

Assembly (A5)

The End-of-Life of the product packaging is not declared in module A5.

Name	Value	Unit
Packaging (cardboard)	0.04	kg/m²
Packaging (pallets)	0.09	kg/m²
Packaging (shrink foil)	0.01	kg/m²
Packaging (stretch foil)	0.002	kg/m²

Reference service life

Name	Value	Unit
Declared product properties (at the gate) and finishes	Placing on the market according to EN 13964; see also document centre on the website www.zentia.com	1
Design application parameters (if instructed by the manufacturer), including the references to the appropriate practices and application codes	See document centre on the website www.zentia.com	-
Indoor environment (for indoor	The load classes of ceiling tiles vary depending on the	-



applications), e.g.	product, from a fluctuating	
temperature,	relative humidity of 70 % at 25	
moisture, chemical	°C up to 95 % at 35 °C,	
exposure	without corrosive impurities.	
Usage conditions,	No mechanical stress during	
e.g. frequency of use,	conventional use	-
mechanical exposure	conventional disc	
	As a rule, the ceiling tiles do	
Maintenance e.g.	not need to be cleaned for the	
required frequency,	duration of their use in normal	
type and quality and	application. However, the	-
replacement of	ceiling tiles can be cleaned dry	
components	and damp according to the	
	cleaning guideline.	

End-of-Life (C1-C4)

Name	Value	Unit
Collected separately	3.08	kg
Landfilling	3.08	kg



5. LCA: Results

The following table contains the LCA results for a declared unit of 1 m² average ZENTIA wet felt laminated mineral ceiling tiles with an average surface weight of 3.08 kg/m².

Disclaimer:

EP-freshwater: This indicator has been calculated as "kg P eq" as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml)

http://	nttp://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml)															
	DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)															
CONSTRUCTI								USE STAGE				EN	D OF L		BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES	
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water	Use De-construction demolition	Transport	Waste processing	Disposal	Recovery- Recycling- potential
A1	A2	А3	A4	A5	B1	B2	В3	B4	B5	В6	B7	' C1	C2	C3	C4	D
X	Χ	Х	ND	ND	ND		MNR			ND	ND		Х	Х	X	Х
								MPAC	Т ассо	rding	to EN	l 15804+	A2: 1	m² ZE	NTIA v	vet felt
lamin	ated		e Indicato		es (3.08		Unit		A1-A3	C1		C2		23	C4	D
			ning poten				CO ₂ -Eo		.18E+0	0.00E		9.18E-3)E+0	5.17E-1	0.00E+0
							CO ₂ -Eo		.68E+0 5.02E-1	0.00E		9.29E-3 -2.28E-4)E+0)E+0	4.67E-2 4.67E-1	0.00E+0 0.00E+0
	Global warming potential - biogenic GWP from land use and land use change						[kg CO ₂ -Eq.] [kg CO ₂ -Eq.]		2.14E-3	0.00E		1.11E-4)E+0	1.34E-4	0.00E+0
			he stratos				[kg CFC11-Eq.]		.20E-12		0.00E+0 ^)E+0	1.73E-16	
	Acidification potential, accumulated exceedance [mc Eutrophication, fraction of nutrients reaching freshwater]						[mol H+-Eq.]		2.14E-2		0.00E+0)E+0	3.35E-4	
Luliopi	ilication,		ompartme		liesiiwate	[kg	PO₄-Eo	ą.] i	7.75E-5	0.00E	+0	6.40E-8	0.00)E+0	8.01E-8	0.00E+0
Eutroph	Eutrophication, fraction of nutrients reaching marine end compartment [kg N-Eq				N-Eq.] ;	3.67E-3	0.00E	+0	1.45E-5	0.00)E+0	8.62E-5	0.00E+0		
	Eutrophic		cumulate		ance	[mc	ol N-Eq	.] (6.44E-2	0.00E	+0	1.65E-4	0.00)E+0	9.47E-4	0.00E+0
Formation	on poten		pospheric oxidants	ozone ph	otochemic	al [kg NN	MVOC-	Eq.] 8	3.55E-3	0.00E	+0	2.81E-5	0.00)E+0	2.61E-4	0.00E+0
Abic	tic deple		ntial for no	n-fossil re	esources	[kg	Sb-Eq	.] ;	5.60E-7	0.00E	+0	8.69E-10	0.00)E+0	4.19E-9	0.00E+0
			tential for				[MJ]	8	3.37E+1	0.00E	+0	1.20E-1	0.00)E+0	6.12E-1	0.00E+0
Water (potential, sumption (n-weighted	d [m³ de	world-E eprived]	<u> </u>	2.33E-1	0.00E	+0	1.37E-4	0.00)E+0	4.89E-3	0.00E+0
RESU					ICATO				BE RES	OURO	E U	SE accor	ding	to EN	15804+	-A2: 1 m ²
					ineral											
			Indic					Unit	A1-A		C1	C2		C3	C4	D
Po					energy carri as material			[MJ] [MJ]	7.79E- 8.25E-		00E+0 00E+0			.00E+0	8.01E-: 0.00E+	
- RE					ergy resou			[MJ]	9.03E-		.00E+0			.00E+0	8.01E-	
	Non-renewable primar				ole primary energy as energy car			[MJ]	8.33E-	-1 0	00E+0	1.21E-	I 0.	.00E+0	6.12E-	1 0.00E+0
					naterial utili			[MJ] [MJ]	3.79E-		00E+0 00E+0			.00E+0 .00E+0	0.00E+ 6.12E-	
	Total use of non-renewable primary energy resources Use of secondary material						[kg]	8.17E		.00E+0			.00E+0	0.12E-		
		Use of	renewable	seconda	ary fuels			[MJ]	0.00E-	0.	.00E+0	0.00E+	0.	.00E+0	0.00E+	0 0.00E+0
Use of non-renewable secondary fuels Use of net fresh water						[MJ] [m³]	0.00E-		00E+0 00E+0	_		.00E+0 .00E+0	0.00E+ 1.54E-			
		OF TH	IE LCA	- WA				ES AN	D OUT	PUT F		/S accor				
			Indic					Unit	A1-A		C1	C2		C3	C4	D
		Haz	ardous wa		nsed			[kg]	4.11E-		00E+0	1.51E-8	3 0	.00E+0	9.33E-	
			azardous					[kg]	8.18E-	-1 0	00E+0	2.57E-	5 0.	.00E+0	3.08E+	
Radioactive waste disposed							[kg]	4.75E-		00E+0			00E+0	6.96E-		

Exported thermal energy MJ 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:

1 m² ZENTIA wet felt laminated mineral ceiling tiles (3.08 kg/m²)

[kg]

[kg]

[kg]

[MJ]

0.00E+0

0.00E+0

0.00E+0

0.00E+0

Components for re-use

Materials for recycling

Materials for energy recovery

Exported electrical energy

0.00E+0



Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Potential incidence of disease due to PM emissions	[Disease Incidence]	1.87E-7	0.00E+0	1.94E-10	0.00E+0	4.14E-9	0.00E+0
Potential Human exposure efficiency relative to U235	[kBq U235- Eq.]	1.11E+0	0.00E+0	1.35E-4	0.00E+0	7.15E-4	0.00E+0
Potential comparative toxic unit for ecosystems	[CTUe]	2.57E+1	0.00E+0	9.94E-2	0.00E+0	3.50E-1	0.00E+0
Potential comparative toxic unit for humans - cancerogenic	[CTUh]	3.57E-9	0.00E+0	2.23E-12	0.00E+0	5.18E-11	0.00E+0
Potential comparative toxic unit for humans - not cancerogenic	[CTUh]	7.11E-8	0.00E+0	1.44E-10	0.00E+0	5.71E-9	0.00E+0
Potential soil quality index	[-]	7.15E+1	0.00E+0	8.51E-2	0.00E+0	1.28E-1	0.00E+0

Disclaimer 1 – for the indicator Potential human exposure efficiency relative to U235:

This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

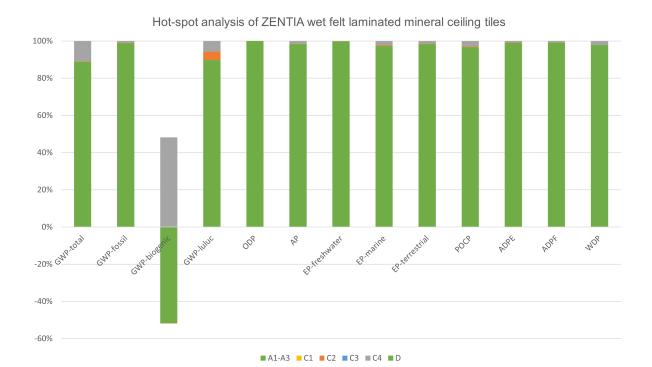
Disclaimer 2 – for the indicators Abiotic depletion potential for non-fossil resources, Abiotic depletion potential for fossil resources, Water (user) deprivation potential, deprivation-weighted water consumption, Potential comparative toxic unit for ecosystems, Potential comparative toxic unit for humans - cancerogenic, Potential comparative toxic unit for humans - not cancerogenic, Potential soil quality index:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a functional unit of 1 m²

average ZENTIA wet felt laminated mineral ceiling tiles



The comparison of the product's life cycle phases shows a clear dominance of the production phase (modules A1-A3) in all environmental impact categories. The potential environmental impacts from transport to disposal (module C2) and the End-of-Life of the products due to landfilling (module C4) have a minor contribution.

The direct emissions from the combustion of natural gas for the production process represent the main driver when it comes to potential climate change (GWP) as well as depletion of fossil resources (ADPF). Also, the photooxidant creation potential (POCP) is

determined by direct emissions at the site to a great extent. Potential acidification (AP), as well as potential eutrophication are dominated by direct emissions from natural gas combustion, the upstream supply chain of stone wool as well as starch. Potential water scarcity (WDP) is determined by the upstream supply chain of stone wool, starch and the electricity used.

The declared environmental impacts represent a weighted average of the ZENTIA laminated product group. The analysis of the variance of the specific composition of the products within the Pontarlier production reveals a limited representativity of the



weighted average for single products. The carbon footprint of all the products within the group shows a range of -38 % and +23 %. App. 60 % of the

production volume ispotentially overrated whereas app. 40 % of the production volume is potentially underrated

7. Requisite evidence

7.1 Radioactivity

Not applicable for these products.

7.2 Biopersistence

The mineral wool used for the production of the panels is biosoluble and, according to *EU Regulation* 1272/2008/EC, is to be assessed as free of suspected cancer. "EUCEB" organization monitors and guarantees the quality of the wool used. The production and use of non-exempt fibres is prohibited by the Ordinance on Hazardous Substances and the Chemicals Prohibition Ordinance.

7.3 VOC emissions

Measuring point: *Eurofins Product Testing A/S* VOC emission certificate Indoor Air Comfort GOLD (05.08.2021)

Number: IACG-433-01-01-2021 Test basis: *ISO 16000-6*

AgBB Overview (28 days)

<u> </u>		
Name	Value	Unit
TVOC (C6 - C16)	0,028	mg/m³
Sum SVOC (C16 - C22)	< 0,005	mg/m³
R (dimensionless)	0,0048	
VOC without NIK	0,021	mg/m³
Carcinogenic substances	< 0,001	mg/m³

8. References

Standards

DIN 18177

DIN 18177:2012, Mineral tiles manufactured in the factory by the wet felt process - Characteristic values and test methods.

EN 13501-1

DIN EN 13501-1:2019, Classification of construction products and building elements according to their reaction to fire, Part 1: Classification with the results of tests on the reaction to fire of construction products.

EN 13964

DIN EN 13964:2014, Suspended ceilings - Requirements and test methods.

EN 15804

DIN EN 15804:2012+A2:2019, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.

ISO 354

DIN EN ISO 354:2003-12, Acoustics - Measurement of sound absorption in reverberant rooms.

ISO 717-1

DIN EN ISO 717-1:2013-06, Acoustics - Assessment of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation.

ISO 9001

DIN EN ISO 9001:2015-11, Quality management systems - Requirements.

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