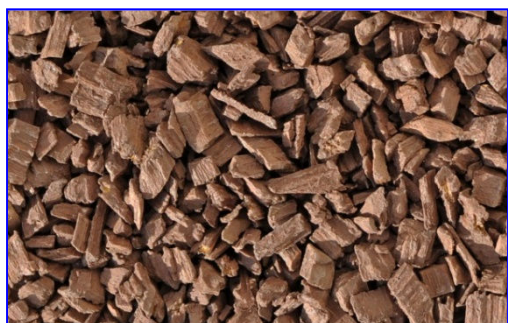


Environmental Product



Declaration code EPD-AGS-GB-31.1



CEMWOOD 
Mineralisch ummantelte Holzspäne

CEMWOOD GmbH

Dry leveling fill

CEMWOOD Levelling fills CW



Basis:

DIN EN ISO 14025
EN 15804 + A2
Company EPD
Environmental
Product Declaration

Publication date:
05.10.2023

Valid until:
05.10.2028



[www.ift-rosenheim.de/
published EPDs](http://www.ift-rosenheim.de/published-EPDs)

Environmental Product



Declaration code EPD-AGS-GB-31.1

Programme operator	ift Rosenheim GmbH Theodor-Gietl-Straße 7-9 83026 Rosenheim, Germany		
Practitioner of the LCA	ift Rosenheim GmbH Theodor-Gietl-Straße 7-9 83026 Rosenheim, Germany		
Declaration holder	CEMWOOD GmbH Glindenberger Weg 13 39126 Magdeburg, Germany www.cemwood.de		
Declaration code	EPD-AGS-GB-31.1		
Designation of declared product	CEMWOOD Levelling fills CW		
Scope	Levelling fills based on mineralized wood chips for building interiors		
Basis	This EPD was prepared on the basis of EN ISO 14025:2011 and DIN EN 15804:2012+A2:2019. In addition, the "Allgemeiner Leitfaden zur Erstellung von Typ III Umweltproduktdeklarationen" (General guideline for preparation of Type III Environmental Product Declarations) applies. The declaration is based on PCR documents "PCR Part A" PCR-A-0.3:2018 and "Mechanisch gebundene Trockenschüttung" PCR-TS-1.0:2023.		
Validity	Publication date: 05.10.2023	Last revision: 05.10.2023	Valid until: 05.10.2028
	This verified Company Environmental Product Declaration (company EPD) applies solely to the specified products and is valid for a period of five years from the date of publication in accordance with DIN EN 15804.		
LCA Basis	The LCA was prepared in accordance with DIN EN ISO 14040 and DIN EN ISO 14044. The data collected from production plant of the company CEMWOOD GmbH were used as a data basis, as well as generic data from the database "LCA for Experts 10". LCA calculations were carried out for the included "cradle to grave" including all upstream chains (e.g. raw material extraction, etc.).		
Notes	The ift-Guidance Sheet "Conditions and Guidance for the Use of ift Test Documents" applies. The declaration holder assumes full liability for the underlying data, certificates and verifications.		

Christian Kehrer
Head of Certification and Surveillance Body

Dr. Torsten Mielecke
Chairman of Expert Committee
ift-EPD and PCR

Patrick Wortner
External verifier



1 General Product Information

Product definition The EPD belongs to the product group dry leveling fill and applies to

1 m³ CEMWOOD levelling fill CW of company CEMWOOD GmbH

The declared unit is obtained by summing up:

Assessed product	Declared unit	Density
CEMWOOD Levelling fills CW	1 m ³	320 kg/m ³

Table 1 Product group

The average unit is declared as follows:

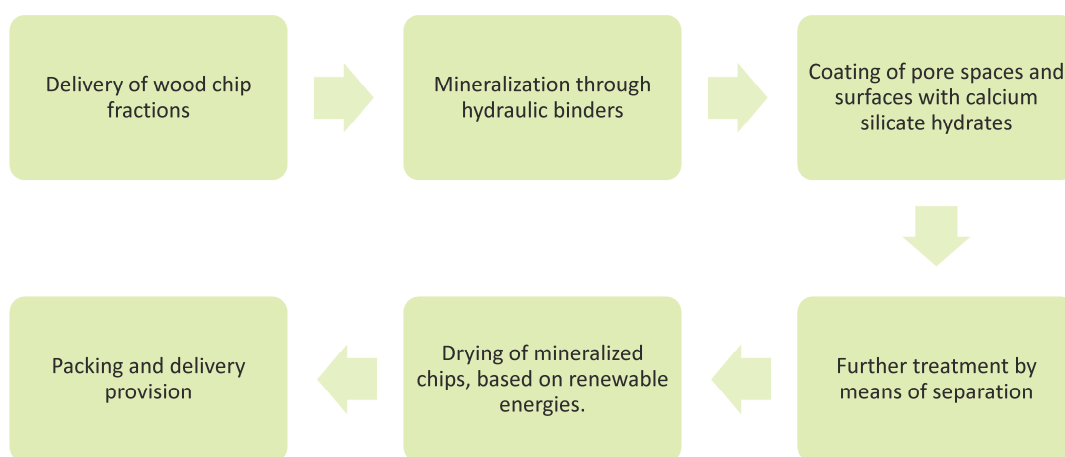
Directly used material flows are determined using the manufactured volumes (m³) and allocated to the declared unit. All other inputs and outputs in the manufacture were scaled to the declared unit as a whole, since no direct assignment to the average size is possible. The reference period is the year 2022.

Product description

Loose, mechanically bonded and dry levelling fill for the presentation of levelling layers for height and level compensation of floor constructions and under screeds according to DIN 18560-2 / 2022_08

For a detailed product description refer to the manufacturer specifications or the product specifications of the respective offer/quotation.

Product manufacture



Application

CEMWOOD levelling fill CW based on mineralized wood chips serves as a durable load and position stable levelling fill for height compensation within floor constructions. In addition to this characteristic, CEMWOOD levelling fill CW also reduces impact sound and has thermal insulating properties, so that it can also be used as cavity fill.

Test evidence / reports

The following verifications are held: (Listing only partially complete)

- Compressive stress ≥ 100 kPa according to requirement of DIN 18560-2 / 2022_08
- Compression behavior under area load / requirements of DIN 18560-2
- Classification of fire behaviour according to DIN EN 13501-1
- VOC according to AgBB scheme / method according to RAL 132

For information on further and updated verifications (incl. other national approvals) refer to www.cemwood.de.

Additional information

For additional verifications of applicability or conformity refer to the CE marking and the documents accompanying the product, if applicable.

2 Materials used

Primary materials

The raw materials used can be found in Section 6.2 Inventory analysis (Inputs). The primary materials used are listed in the LCA (see Section 3.3.5).

Declarable substances

The product contains no substances from the REACH candidate list.

All relevant safety data sheets can be obtained from company CEMWOOD GmbH.

3 Construction process stage

Processing recommendations, installation

The manufacturer's processing guidelines must be observed. For this, see www.cemwood.de

4 Use stage

Emissions to the environment

Negligible VOC emissions to indoor air, are known. No emissions to water and soil are known.

Reference service life (RSL)

The RSL information was provided by the manufacturer. The RSL must be established under specified reference conditions of use and relate to the declared technical and functional performance of the product within the building. It must be determined according to all specific rules given in European product standards or, if none are available, according to a c-PCR. It must also take into account ISO 15686-1, -2, -7 and -8. If there is guidance on deriving RSLs from European Product Standards or a c-PCR, then such guidance must take precedence.

If it is not possible to determine the service life as the RSL in accordance with ISO 15686, the BBSR table "Nutzungsdauer von Bauteilen zur Lebenszyklusanalyse nach BNB" (service life of building components for life cycle assessment in accordance with the sustainable construction evaluation system) can be used. For further information and explanations refer to www.nachhaltigesbauen.de.

For this EPD the following applies:

For a "cradle to grave" EPD and Module D (A + B + C + D), a reference service life (RSL) must be specified.

The service life of the CEMWOOD Levelling fills CW of company CEMWOOD GmbH is specified with 50 years according to the BBSR table (code 352112).

The service life is dependent on the characteristics of the product and in-use conditions. The conditions and characteristics described in the EPD are applicable, in particular the characteristics listed below:

- Outdoor conditions: not relevant
- Indoor conditions: permanently increased humidity can have a negative effect on the service life

The service life solely applies to the characteristics specified in this EPD or the corresponding references.

The RSL does not reflect the actual life time, which is usually determined by the service life and the redevelopment of a building. It does not give any information on the useful life, warranty referring to performance characteristics or guarantees.

5 End-of-life stage

Possible end-of-life stages The CEMWOOD Levelling fills CW are shipped to landfills. Observe the locally applicable regulatory requirements.

In this EPD, the modules of after-use are presented according to the market situation.

(Packaging) plastics are recycled to certain parts. The product is deposited.

Disposal routes The LCA includes the average disposal routes.

All life cycle scenarios are detailed in the Annex.

6 Life Cycle Assessment (LCA)

Environmental product declarations are based on life cycle assessments (LCAs) which use material and energy flows for the calculation and subsequent representation of environmental impacts.

As a basis for this, a life cycle assessment was prepared for CEMWOOD Levelling fills CW. These LCAs are in conformity with the requirements set out in DIN EN 15804 and the international standards DIN EN ISO 14040, DIN EN ISO 14044, ISO 21930 and EN ISO 14025.

The LCA is representative of the products presented in the Declaration and the specified reference period.

6.1 Definition of goal and scope

Aim The goal of the LCA is to demonstrate the environmental impacts of the products. In accordance with DIN EN 15804, the environmental impacts covered by this Environmental Product Declaration are presented for the entire product life cycle in the form of basic information. No other additional environmental impacts are specified.

Data quality, data availability and geographical and time-related system boundaries The specific data originate exclusively from the 2022 fiscal year (exception: 2021 electricity mix). They were collected on-site at the plant located in Magdeburg and originate in parts from company records and partly from values directly obtained by measurement. Validity of the data was checked by the ift Rosenheim.

The generic data originates from the professional database and building materials database software "LCA for Experts 10". The last update of both databases was in 2023. Data from before this date originate also from these databases and are not more than four years old. No other generic data were used for the calculation.

Generic data are selected as accurately as possible in terms of geographic reference. If no country-specific data sets are available or if the regional reference cannot be determined, European or globally valid data sets are used.

Data gaps were either filled with comparable data or conservative assumptions, or the data were cut off in compliance with the 1% rule.

The life cycle was modelled using the sustainability software tool "LCA for Experts" for the development of life cycle assessments.

The data quality complies with the requirements of prEN 15941:2022.

Scope / system boundaries

The system boundaries refer to the supply of raw materials and purchased parts, manufacture/production, use and end-of-life stage of CEMWOOD Levelling fills CW. No additional data from pre-suppliers/subcontractors or other sites were taken into consideration.

Cut-off criteria

All company data collected, i.e. all commodities/input and raw materials used, the thermal energy and electricity consumption, were taken into consideration.

The boundaries cover only the product-relevant data. Building sections/parts of facilities that are not relevant to the manufacture of the products, were excluded.

The transport distances of raw materials, ancillary materials and packaging were taken into account.

In addition to the transport distances for pre-products, transport distances for waste were also taken into account. The transport of generated waste in A3 was mapped with the following scenario according to the manufacturer:

- Transport to collection point with 28 t truck (Euro 6), diesel, 18.4 t payload, 50 % capacity used, 100 km

The criteria for the exclusion of inputs and outputs as set out in DIN EN 15804 are fulfilled. From the data analysis it can be assumed that the total of negligible processes per life cycle stage does not exceed 1% of the mass/primary energy. This way the total of negligible processes does not exceed 5% of the energy and mass input. The life cycle calculation also includes material and energy flows that account for less than 1%.

6.2 Inventory analysis

Aim

All material and energy flows are described below. The processes covered are presented as input and output parameters and refer to the declared units.

Life cycle stages

The complete life cycle of CEMWOOD Levelling fills CW is shown in the annex. The product stage "A1 – A3", construction process stage "A4 – A5", use stage "B1 – B7", end-of-life stage "C1 – C4" and the benefits and loads beyond the system boundaries "D" are considered.

Benefits

The below benefits have been defined as per DIN EN 15804:

- Benefits (thermal and electrical) from incineration



Note: The benefits result exclusively from the recycling of the packaging materials in module A5.

**Allocation of co-products
 Allocations for re-use, recycling and recovery**

No allocations of co-products occur during production.

If the products are reused/recycled and recovered during the product stage (rejects), the elements are shredded, if necessary and then sorted into their constituents. This is done by various process plants. The system boundaries were set following their disposal, reaching the end-of-waste status.

Allocations beyond life cycle boundaries

The use of recycled materials in the manufacturing process was based on the current market-specific situation. In parallel to this, a recycling potential was taken into consideration that reflects the economic value of the product after recycling (recyclate). The system boundary set for the recycled material refers to collection.

Secondary material

The use of secondary material by CEMWOOD GmbH was not considered in Module A3. Secondary material is not used.

Inputs

The following manufacturing-related inputs were included in the LCA per 1 m³ CEMWOOD levelling fill CW:

Energy

The input material LPG is based on "liquefied petroleum gas (LPG) Germany". Diesel is based on "Diesel Germany". For the electricity mix, the "Energieträger-Mix SWS" of Stadtwerke Schönebeck of the year 2021 was used. Thermal energy from biomass Germany was used for district heating.

Electricity disclosure of energy supplier	Shares in %
Renewable energies	58.1
Coal/natural gas	12.5
Hard coal/lignite	18.8
Heavy oil	0.9
Nuclear energy	9.7

Table 2 Electricity mix "Energieträger-Mix SWS, 2021"

Water

The water consumed by the individual process steps for the manufacture amounts to a total of 116 l per m³ levelling fill. The consumption of fresh water specified in Section 6.3 originates (among others) from the process chain of the pre-products and the use of water in the production.

Raw material / pre-products

The charts below show the share of raw materials/pre-products in percent.

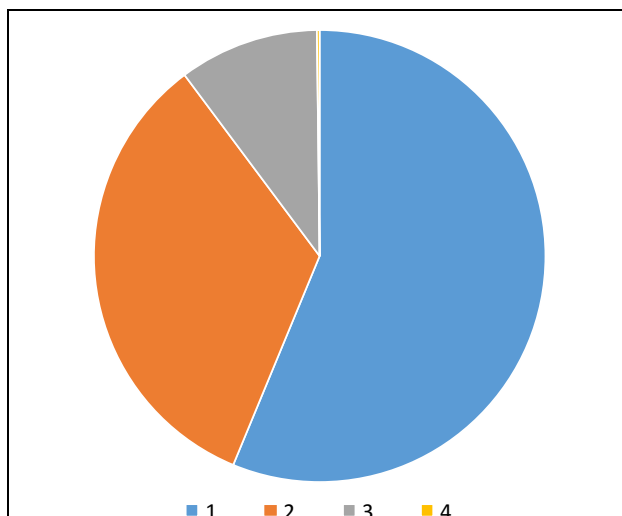


Illustration 1 Percentage of individual materials per declared unit

No.	Material	Mass in %
1	Wood chips (moist for use)	56.2
2	Cementitious binders	33.6
3	Mineral filler	10.0
4	Color pigment	> 1

Table 3 Percentage of individual materials per declared unit

Ancillary materials and consumables

65 g of ancillary materials and consumables are used.

Product packaging

The amounts used for product packaging are as follows:

No.	Material	Mass in kg
1	PE film (container)	2.77
2	PE film (stretch film)	0.23

Table 4 Weight in kg of packaging per declared unit

Biogenic carbon content

According to EN 16449, the following amounts of biogenic carbon are generated:

No.	Part	Content in kg C per m ³
1	In product	75.5
2	In the corresponding packaging	0

Table 5 Biogenic carbon content in product and packaging at the factory gate

Outputs

The following manufacturing-related outputs were included in the LCA per 1 m³ CEMWOOD Levelling fills CW:

Waste

Secondary raw materials were included in the benefits.
 See Section 6.3 Impact assessment.

Waste water

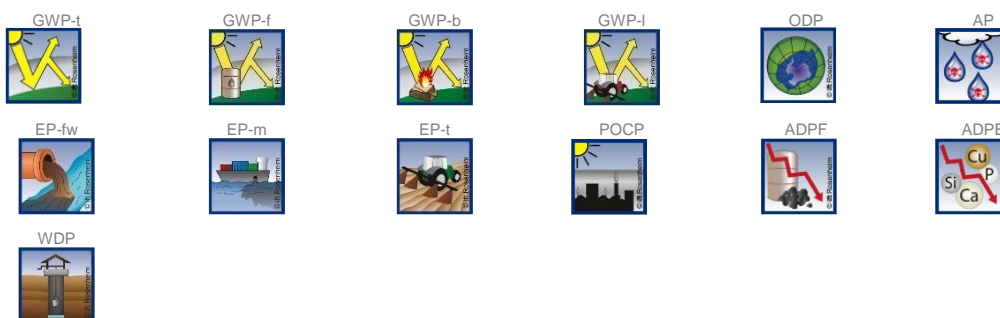
No waste water is produced during the manufacturing process.

6.3 Impact assessment

Aim The impact assessment covers both inputs and outputs. The impact categories applied are stated below:

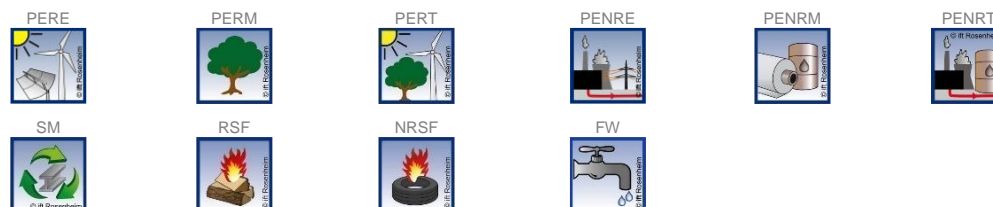
Core indicators The models for impact assessment were applied as described in DIN EN 15804-A2. The core indicators presented in the EPD are as follows:

- Climate change - total (GWP-t)
- Climate change - fossil (GWP-f)
- Climate change - biogenic (GWP-b)
- Climate change - land use & land use change (GWP-l)
- Ozone depletion (ODP)
- Acidification (AP)
- Eutrophication freshwater (EP-fw)
- Eutrophication salt water (EP-m)
- Eutrophication land (EP-t)
- Photochemical ozone creation (POCP)
- Depletion of abiotic resources - fossil fuels (ADPF)
- Depletion of abiotic resources - minerals and metals (ADPE)
- Water use (WDP)



Resource management The models for impact assessment were applied as described in DIN EN 15804-A2. The following resource use indicators are presented in the EPD:

- Renewable primary energy as energy source (PERE)
- Renewable primary energy for material use (PERM)
- Total use of renewable primary energy (PERT)
- Non-renewable primary energy as energy source (PENRE)
- Renewable primary energy for material use (PENRM)
- Total use of non-renewable primary energy (PENRT)
- Use of secondary materials (SM)
- Use of renewable secondary fuels (RSF)
- Use of non-renewable secondary fuels (NRSF)
- Net use of freshwater resources (FW)



Waste

The waste generated during the production of 1 m³ CEMWOOD levelling fill is evaluated and shown separately for the fractions trade wastes, special wastes and radioactive wastes. Since waste handling is modelled within the system boundaries, the amounts shown refer to the deposited wastes. A portion of the waste indicated is generated during the manufacture of the pre-products.

The models for impact assessment were applied as described in DIN EN 15804-A2. The following waste categories and indicators for output closures are presented in the EPD:

- Disposed hazardous waste (HWD)
- Non-hazardous waste disposed (NHWD)
- Radioactive waste disposed (RWD)
- Components for re-use (CRU)
- Materials for recycling (MFR)
- Materials for energy recovery (MER)
- Exported electrical energy (EEE)
- Exported thermal energy (EET)



Additional environmental impact indicators

The models for impact assessment were applied as described in DIN EN 15804-A2. The additional impact categories presented in the EPD are as follows:

- Particulate matter emissions (PM)
- Ionizing radiation, human health (IRP)
- Ecotoxicity – freshwater (ETP-fw)
- Human toxicity, carcinogenic effects (HTP-c)
- Human toxicity, non-carcinogenic effects (HTP-nc)
- Impacts associated with land use/soil quality (SQP)





Results per 1 m³ CEMWOOD levelling fill CW

Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Core indicators															
GWP-t	kg CO ₂ equivalent	-207.38	6.97	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71	0.00	4.66	-4.27
GWP-f	kg CO ₂ equivalent	73.05	7.00	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	0.00	4.81	-4.24
GWP-b	kg CO ₂ equivalent	-281.08	-9.80E-02	3.20E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.80E-02	0.00	-0.16	-2.42E-02
GWP-l	kg CO ₂ equivalent	0.16	6.42E-02	9.28E-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49E-02	0.00	1.49E-02	-2.75E-04
ODP	kg CFC-11-eq.	4.86E-07	6.07E-13	4.45E-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36E-13	0.00	1.22E-11	-3.33E-11
AP	mol H ⁺ -eq.	0.25	6.06E-03	9.27E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.32E-03	0.00	3.41E-02	-5.27E-03
EP-fw	kg P-eq.	3.54E-04	2.53E-05	1.05E-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.81E-06	0.00	9.68E-06	-6.86E-06
EP-m	kg N-eq.	9.36E-02	1.62E-03	1.94E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14E-03	0.00	8.81E-03	-1.54E-03
EP-t	mol N-eq.	0.99	2.10E-02	4.37E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37E-02	0.00	9.69E-02	-1.65E-02
POCP	kg NMVOC-eq.	0.27	4.98E-03	5.78E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85E-03	0.00	2.66E-02	-4.28E-03
ADPF*2	MJ	1016.70	94.30	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.60	0.00	64.00	-77.50
ADPE*2	kg Sb equivalent	5.66E-06	4.47E-07	4.14E-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74E-07	0.00	2.22E-07	-3.04E-07
WDP*2	m ³ world-eq. deprived	7.60	7.99E-02	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10E-02	0.00	0.53	-0.40
Resource management															
PERE	MJ	732.60	6.68	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59	2657.68	150.28	-22.70
PERM	MJ	2797.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2657.68	-139.88	0.00
PERT	MJ	3530.16	6.68	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59	0.00	10.40	-22.70
PENRE	MJ	-2019.13	94.60	62.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.70	2826.85	212.88	-77.50
PENRM	MJ	3037.13	0.00	-61.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2826.85	-148.78	0.00
PENRT	MJ	1018.00	94.60	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.70	0.00	64.10	-77.50
SM	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	m ³	0.36	7.36E-03	2.03E-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85E-03	0.00	1.62E-02	-1.84E-02
Categories of waste															
HWD	kg	-3.23E-08	3.50E-10	2.51E-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36E-10	0.00	1.39E-09	-4.05E-09
NHWD	kg	5.57	1.36E-02	3.73E-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29E-03	0.00	320.00	-3.84E-02
RWD	kg	2.67E-02	1.22E-04	6.73E-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.74E-05	0.00	7.30E-04	-6.02E-03
Output material flows															
CRU	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MER	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EEE	MJ	0.00	0.00	20.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EET	MJ	0.00	0.00	35.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Key:

GWP-t – Global warming potential – total **GWP-f** – global warming potential fossil fuels **GWP-b** – global warming potential - biogenic **GWP-l** – global warming potential - land use and land use change **ODP** – ozone depletion potential **AP** - acidification potential **EP-fw** - eutrophication potential - aquatic freshwater **EP-m** - eutrophication potential - aquatic marine **EP-t** - eutrophication potential - terrestrial **POCP** - photochemical ozone formation potential **ADPF*2** - abiotic depletion potential – fossil resources **ADPE*2** - abiotic depletion potential – minerals&metals **WDP*2** – Water (user) deprivation potential **PERE** - Use of renewable primary energy **PERM** - use of renewable primary energy resources **PERT** - total use of renewable primary energy resources **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources **PENRT** - total use of non-renewable primary energy resources **SM** - use of secondary material **RSF** - use of renewable secondary fuels **NRSF** - use of non-renewable secondary fuels **FW** - net use of fresh water **HWD** - hazardous waste disposed **NHWD** - non-hazardous waste disposed **RWD** - radioactive waste disposed **CRU** - components for re-use **MFR** - materials for recycling **MER** - materials for energy recovery **EEE** - exported electrical energy **EET** - exported thermal energy

Results per 1 m ³ CEMWOOD levelling fill CW															
Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Additional environmental impact indicators															
PM	Disease incidence	3.81E-05	4.19E-08	5.43E-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20E-08	0.00	4.19E-07	-4.47E-08
IRP*¹	kBq U235-eq.	3.66	1.76E-02	1.09E-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84E-03	0.00	8.44E-02	-1.00
ETP-fw*²	CTUe	542.50	65.80	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50	0.00	34.90	-17.10
HTP-c*²	CTUh	2.10E-08	1.34E-09	6.11E-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19E-10	0.00	5.38E-09	-8.60E-10
HTP-nc*²	CTUh	7.91E-07	6.98E-08	1.82E-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75E-08	0.00	5.91E-07	-2.67E-08
SQP*²	dimensionless	42149.40	39.40	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.30	0.00	15.50	-14.90

Key:
PM – particulate matter emissions potential **IRP*¹** – ionizing radiation potential – human health **ETP-fw*²** - Ecotoxicity potential – freshwater **HTP-c*²** - Human toxicity potential – cancer effects
HTP-nc*² - Human toxicity potential – non-cancer effects **SQP*²** – soil quality potential

Disclaimers:

*1 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.

*2 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.

6.4 Interpretation, LCA presentation and critical review

Evaluation

In the area of production, the environmental impact of the CEMWOOD Levelling fills CW mainly results from the use of cementitious binders or their upstream chains as well as from the substrate wood chips and its upstream chain.

Furthermore, packaging (polyethylene) plays an important role in terms of environmental impact.

In scenario C4, significant expenditures for the physical pretreatment and the landfill operation are to be expected. By thermally recycling the packaging of the products, about 1% of the life cycle environmental impacts of the core indicators (excluding WDP, as not supported by the software) can be credited to scenario D.

Some LCA results differ considerably from the results presented in the EPD prepared five years ago. The reasons for this are that other, more suitable „LCA for Experts“ data sets were used, the background data in „LCA for Experts“ has changed and a new data collection of the more efficient production was carried out by the declaration holder.

The charts below show the allocation of the main environmental impacts.

The values obtained from the LCA calculation are suitable for the certification of buildings.

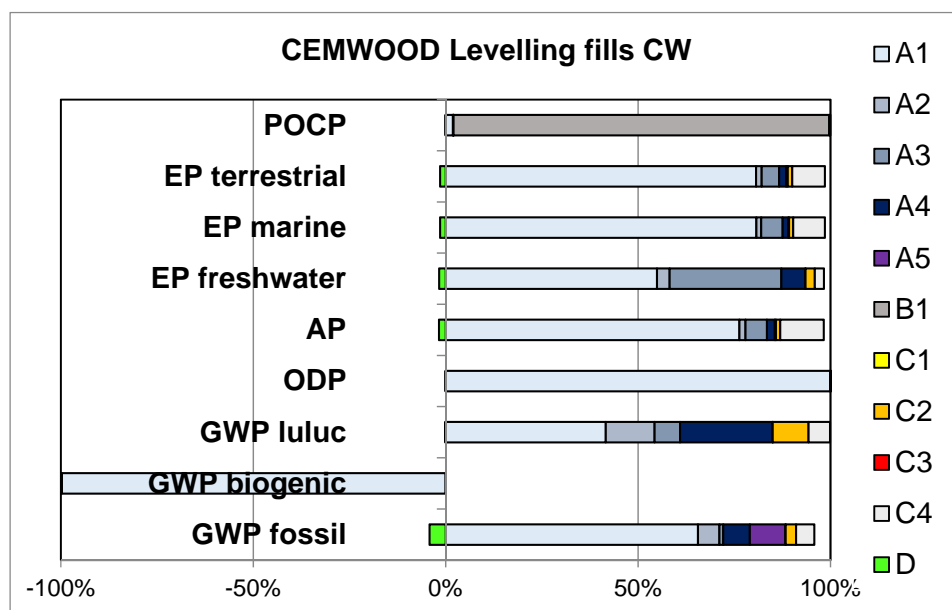


Illustration 2 Percentage of the modules in selected environmental impact indicators



Product group dry leveling fill

Report

The LCA report underlying this EPD was developed according to the requirements of DIN EN ISO 14040 and DIN EN ISO 14044 as well as DIN EN 15804 and DIN EN ISO 14025. It is deposited with ift Rosenheim. The results and conclusions reported to the target group are complete, correct, without bias and transparent. The results of the study are not designed to be used for comparative statements intended for publication.

Critical review

The critical review of the LCA and of the report took place in the course of verification of the EPD and was carried out by the external auditor Patrick Wortner.

7 General information regarding the EPD

Comparability

This EPD was prepared in accordance with DIN EN 15804 and is therefore only comparable to those EPDs that also comply with the requirements set out in DIN EN 15804.

Any comparison must refer to the building context and the same boundary conditions of the various life cycle stages.

For comparing EPDs of construction products, the rules set out in DIN EN 15804, Clause 5.3, apply.

Communication

The communications format of this EPD meets the requirements of EN 15942:2012 and is therefore the basis for B2B communication. Only the nomenclature has been changed according to DIN EN 15804.

Verification

Verification of the Environmental Product Declaration is documented in accordance with the ift "Richtlinie zur Erstellung von Typ III Umweltproduktdeklarationen" (Guidance on preparing Type III Environmental Product Declarations) in accordance with the requirements set out in DIN EN ISO 14025.

This declaration is based on PCR documents "PCR Part A" PCR-A-0.3:2018 and "Mechanisch gebundene Trockenschüttung" PCR-TS-1.0:2023.

The European standard EN 15804 serves as the core PCR ^{a)}
Independent verification of the declaration and statement according to EN ISO 14025:2010
Independent third party verifier: ^{b)} MBA and Eng., Dipl.-Ing. (FH) Patrick Wortner
^{a)} Product category rules ^{b)} Optional for business-to-business communication Mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4).

Revisions of this document

No.	Date	Note	Person in charge	Testing personnel
1	05.10.2023	External verification	Brechleiter	Wortner

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9 Annex

Description of life cycle scenarios for CEMWOOD Levelling fills CW

Product stage			Con- struction process stage		Use stage*							End-of-life stage				Benefits and loads from beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	production	Transport	Construction/installation process	Use	maintenance	Repair	replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse Recovery Recycling potential
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

* For declared B-modules, the calculation of the results is performed taking into account the specified RSL related to one year

Table 6 Overview of applied life cycle stages

The scenarios were calculated taking into account the defined RSL (see Section 4 Use stage).

The scenarios were based on information provided by the manufacturer.

Note: The standard scenarios selected are presented in bold type. They were also used for calculating the indicators in the summary table.

- ✓ Included in the LCA
- Not included in the LCA



Product group dry leveling fill

A4 Transport to construction site

No.	Scenario	Description
A4	Direct delivery to construction site/subsidiary	Truck-trailer/semitrailer, Euro 6, 26 - 28t total weight / 18.4t payload and 50% capacity used, approx. 200 km to site and empty return trip.

¹ Capacity used: utilized loading capacity of the truck

A4 Transport to construction site	Transport weight [kg/m ³]	Density [kg/m ³]	Capacity load factor ²
CEMWOOD levelling fill CW	323	307	0.95

² Capacity load factor:
 = 1 Product completely fills the packaging (without air inclusion)
 < 1 Packaging contains unused volume (e.g.: air, filling material)
 > 1 Product is packed in compressed form

Since this is a single scenario, the results are shown in the relevant summary table.

A5 Construction/Installation

No.	Scenario	Description
A5	Manual	According to the manufacturer, the products are installed without additional lifting and auxiliary devices

In case of deviating consumption during installation/assembly of the products which forms part of the site management, they are covered at the building level.

Ancillary materials, consumables, use of energy and water, other resource use, material losses, as well as direct emissions during construction/installation are negligible.

It is assumed that the packaging material in the Module A5 is sent to waste handling. Waste is only thermally recycled or deposited in line with the conservative approach: Films and protective covers in incineration plants. Benefits from A5 are specified in module D. Benefits from waste incineration: Benefits from waste incineration: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from European natural gas (RER).

Transport to the recycling plants is not taken into account.

Since this is a single scenario, the results are shown in the summary table.

B1 Use

Company Cemwood has had appropriate air chamber testing performed for the levelling fills CW. Emissions far below the limits of the AgBB scheme were found. Thus, emissions are considered negligible and are assumed to be zero for accounting purposes.

Furthermore, no emissions to indoor air, water or soil are known or expected.

B2 Cleaning, maintenance and repair

Cleaning and maintenance are not provided for CEMWOOD levelling fills CW.



B3 Repair

When used as intended, CEMWOOD levelling fill CW is not expected to wear out or become defective.

B4 Exchange / Replacement

When used as intended, CEMWOOD levelling fill CW is not expected to wear out or become defective.

B5 Improvement / Modernisation

According to the manufacturer, the product is not included in the improvement / modernisation activities for buildings.

For updated information refer to the relevant instructions for installation instruction issued by company CEMWOOD GmbH.

B6 Operational energy use

There is no energy used during normal use.

B7 Operational water use

No water consumption during intended operation.

C1 Deconstruction

No.	Scenario	Description
C1	Deconstruction, manual	100 % Deconstruction (landfill)

Since CEMWOOD levelling fill CW is not mechanically bonded to other components, it is almost completely separable by type.

No relevant inputs or outputs apply to the scenario selected. The energy consumed for deconstruction is negligible. Any arising consumption is marginal.

Since this is a single scenario, the results are shown in the summary table.

In case of deviating consumption the removal of the products forms part of site management and is covered at the building level.

C2 Transport

No.	Scenario	Description
C2	Transport	Transport to landfill with 40 t truck (Euro 6), diesel, 27 t payload, 50 % capacity used, 100 km

Since this is a single scenario, the results are shown in the relevant summary table.

C3 Waste management

No.	Scenario	Description
C3	Current market situation	100% to landfill

As the products are placed on the European market, the disposal scenario is based on average European data sets.

The scenario of complete landfilling corresponds to the current market situation (worst case). CEMWOOD levelling fills CW can be removed when the building is reconstructed or demolished and transferred to the next installation situation. A reuse scenario would therefore also be plausible. Currently, however, there is no concrete take-back concept for returning the products to the manufacturer.

The below table presents the disposal processes and their percentage by mass/weight. The calculation is based on the above mentioned shares in percent related to the declared unit of the product system.

C3 Disposal	Unit	C3
Collection process, collected separately	kg	0
Collection process, collected as mixed construction waste	kg	320
Recovery system, for re-use	kg	0
Recovery system, for recycling	kg	0
Recovery system, for energy recovery	kg	0
Disposal	kg	320

The further 100% scenarios differ from the current recovery shown here (in background report C3.1). The evaluation of each scenario is described in the background report.

Since this is a single scenario, the results are shown in the summary table.

C4 Disposal

No.	Scenario	Description
C4	Current market situation (100% to landfill)	The fully degraded product (C1) is modeled as "landfilled" (EU-28).

The further 100% scenarios differ from the current average recovery shown here (in background report C4.1). The evaluation of each scenario is described in the background report.

The consumption in scenario C4 results from physical pre-treatment, waste recycling and management of the disposal site. The benefits obtained here from the substitution of primary material production are allocated to Module D, e.g. electricity and heat from waste incineration.

Since this is a single scenario, the results are shown in the summary table.

D Benefits and loads from beyond the system boundaries

No.	Scenario	Description
D	Recycling potential	The values result exclusively from the recycling of the packaging material in module A5.

The further 100% scenarios differ from the current average recovery shown here (in background report D1). The evaluation of each scenario is described in the background report.

Since this is a single scenario, the results are shown in the summary table.

Imprint



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Notes

This EPD is mainly based on the work and findings of Institut für Fenstertechnik e.V., Rosenheim (ift Rosenheim) and specifically on ift-Guideline NA-01/3 "Allgemeiner Leitfaden zur Erstellung von Typ III Umweltproduktdeklarationen" (Guidance on preparing Type III Environmental Product Declarations).

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