

ENVIRONMENT PRODUCT DECLARATION

according to ISO 14025 and EN 15804+A2




Declaration owner	Erfurt & Sohn KG
Issued by	Institut Bauen und Umwelt e.V. (IBU)
Programme owner	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EFS-20200263-IBC1-DE
Date of issue	13/07/2021
Valid until	12/07/2026

Woodchip wallpaper
Erfurt & Sohn KG

www.ibu-epd.com | <https://epd-online.com>



1. General information

<p>Erfurt & Sohn KG</p> <hr/> <p>Programme owner IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany</p> <hr/> <p>Declaration number EPD-EFS-20200263-IBC1-DE</p> <hr/> <p>This declaration is based on the product category rules: Wallpaper, 11/2017 (PCR tested and approved by the independent Council of Experts (CoE))</p> <hr/> <p>Date of issue 13/07/2021</p> <hr/> <p>Valid until 12/07/2026</p> <hr/> <p></p> <hr/> <p>Dipl. Ing. Hans Peters (Chair of the Institut Bauen und Umwelt e.V.) [Institute of Construction and the Environment]</p> <hr/> <p></p> <hr/> <p>Dr. Alexander Röder (Managing Director of the Institut Bauen und Umwelt e.V.)</p>	<p>Woodchip wallpaper</p> <hr/> <p>Owner of the declaration Erfurt & Sohn KG Hugo-Erfurt-Str. 1 42399 Wuppertal</p> <hr/> <p>Declared product /declared unit The declared unit is 1 m² (one square metre) of woodchip wallpaper</p> <hr/> <p>Area of application: This EPD refers to the manufacture, transport and disposal of an average square metre of woodchip wallpaper by Erfurt & Sohn KG. The technical properties are described in chapter 2.3. Production location of the product is Wuppertal, Germany.</p> <p>The owner of the declaration is liable for the basic information and verification; a liability by the IBU with regards to the production information, life cycle assessment data and verification is excluded. The EPD was produced in accordance with <i>EN 15804+A2</i>. The standard is referred to in a simplified form below as <i>EN 15804</i>.</p> <hr/> <p>Verification</p> <p>The European standard <i>EN 15804</i> serves as the core PCR Independent verification of the declaration and specifications according to <i>ISO 14025:2010</i></p> <p><input type="checkbox"/> internal <input checked="" type="checkbox"/> external</p> <hr/> <p></p> <hr/> <p>Dr.-Ing. Wolfram Trinius, Independent Verifier</p>
---	--

2. Product

2.1 Description of the company Erfurt & Sohn KG distributes and sells innovative, design-orientated and environmentally sustainable solutions for wall design in over 30 countries worldwide. With innovations to optimise the energy-saving capacity of interior walls, the company very successfully supplies economically viable systems for saving energy and improving the interior climate of your home.

2.2 Product Description / product definition The products of the woodchip family are three-ply paper wallcoverings according to *EN 15102* using 100% recycled paper whose middle ply contains structure-forming wood chips from sustainable forestry.

The products of the woodchip family serve as decorative coverings of walls and ceilings in interiors and are intended for after coverings by the user.

They are mostly cut from the roll in room-height lengths, then pasted on the rear side with a suitable wall paper adhesive and after a certain soaking pasted to the wall or ceiling.

The wallpaper strips are glued directly side-by-side to each other on the wall or ceiling. After drying the woodchip wall covering can be painted over with any commercial interior wall paint as per DIN *EN 13300* in desired colours and adapted to the decoration of a room.

Directive (EU) No. 305/2011 (CPR) applies to the sale and marketing of the product in the EU/EFTA (with the exception of Switzerland). The product requires a Declaration of Performance taking into account *DIN EN 15102, Decorative wall coverings - roll and panel shape* and the CE marking. The respective national regulations apply for use.

2.3 How to use

The products of the woodchip family are intended for decorative wall and ceiling coverings of interior rooms with subsequent individual design by the user.

2.4 Technical specifications

Structural data

Description	Value	Unit
Dimensions by categories EN 12956	n.r.	-
Dimensions by categories EN 233	-	mm
Straightness and parallelism according to EN 12956	n.r.	-
Spongeability according to EN 12956	n.r.	-
Water resistance according to EN 12956	-	-
Washability according to EN 12956	n.r.	-
Colour fastness according to EN 12956	n.r.	-
Reaction to fire according to EN 13501-1	B-s1, d0	
Formaldehyde release max. < 120 mg/kg according to EN 12149	-	-
Migration of heavy metals (max.) and certain other elements according to EN 71-3, barium (Ba) and lead (Pb); the other heavy metals are below the verification limit	7.7	mg/kg
Vinyl chloride monomer (VCM) content max. < 0.2 mg/m ² according to EN 12149	0	mg/kg
Formaldehyde release max. < 120 mg/kg according to EN 12149	<5	mg/kg
Adhesiveness according to EN 266	-	-
Tensile strength according to ISO 13934-1	-	N/mm ²
Elongation at maximum force according to ISO 13934-1	-	%

Performance values of the product corresponding to the Performance Declaration as regards the essential characteristics according to DIN EN 15102 *Decorative wallcoverings - Roll and panel form products*

2.5 Delivery conditions

The products of the woodchip family are rolled without a core and delivered with cut edges in a carton.

2.6 Base materials/subsidiary materials

Depending on the type, the products of the woodchip family contain between 65% and 75% recycled paper as well as between 25% and 30% wood fibres from sustainable forestry.

The product/article/at least one partial product contains substances on the ECHA list of Substances of Very High Concern (SVHC) (dated 08.07.2021) above 0.1% by mass: No.

The product/article/ at least one partial article contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1% by mass in at least one partial article: 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 (EU) No. 528/2012): No.

2.7 Manufacture

Samples of all woodchip products are subject to an in-house quality test certified according to *ISO 9001*. After quality control approval, the rolls are cut in roll-cutter machines to usual commercial lengths, rolled up without a core, provided with sleeves or labels and mostly shrink-wrapped in film. The rolls are packed in cartons and placed on Euro pallets. The completed goods are first stored and then delivered to customers according to their orders.

2.8 Environment and health during manufacture.

The dust which results when finishing the commercial rolls of woodchip products is suctioned off at the roll cutting machines and separated by an air filter system. The filters are routed to the proper waste disposal department for thermal recovery. No polluting materials are added to products of the woodchip family.

2.9 Product processing/installation

During processing, normally a pasting table is required for rolling out the woodchip products. The rear side of the woodchip wallpaper is painted with a suitable wallpaper paste, which can be achieved either with a wide brush or alternatively with a pasting machine.

A soaking time in accordance with the manufacturer's instructions is required before applying to the wall or ceiling. The strips are pasted to the wall butt joint next to each other, without overlapping and pressed flat with a sponge roller. A seam roller is used for fixing the seams between two strips.

2.10 Packaging

The woodchip products with a max. length of 33.5 m are wrapped in a polyethylene (PE) film in rolls with a label, or are packed with paper to prevent damages and soiling. These are packed, 6 to a pack in a corrugated cardboard carton. For roll dimensions exceeding 33.5 m, no separate film is used. These rolls are enclosed in paper sleeves and packed individually in corrugated cardboard cartons.

The PE film as well as the labels and also the cartons can be disposed of in plastic recycling or waste paper recycling. Ideally, unused woodchip products can be stored in the original cartons.

2.11 Usage condition

Due to the use of 100% recycled paper as a fibre material for the manufacture of the woodchip product family, a colour displacement into the yellow spectrum – often called "Yellowing" – especially under the influence of sunlight and without colour handling ("Painting") cannot be ruled out.

2.12 Environment and health during usage

The raw materials used in the manufacture of woodchip wallpaper products are environmentally friendly. Using recycling paper removes the need for new pulp, which consumes large amounts of resources and energy. The use of wood fibres from sustainable forestry – mostly of wood which is offcuts in timber agriculture – is also environmentally friendly, as only wood that is waste in the maintenance of woodlands is used.

2.13 Reference utility life

Due to their universal structure and the ability to be painted over, woodchip products have a longer life than printed wallpapers or wallpapers with vinyl foam structures. Assuming a normal renovation cycle of 7 to 8 years for a residential room, a product of the woodchip family can be painted over up to 5 times without any noticeable loss of texture, which results in a theoretical utility life of more than 35 years. In rooms that do not have as much use as residential rooms, the utility life may be longer as a result of longer renovation cycles.

2.14 Extraordinary impacts

Fire

Construction material class according to *EN 13501-1*:

Fire protection

Description	Value
Building material class	B1
Flaming droplets	d0
Smoke gas generation	s1

Water

Not relevant

Mechanical destruction

Not relevant

2.15 After-use phase

Not applicable. An after-use of the woodchip products is not possible.

2.16 Disposal

Woodchip products can be removed from the wall in a wet state. They can be disposed of in the domestic waste or domestic-type business waste and can thus be thermally utilised.

AVV 20 01 01 ("Mixed residential waste") or AVV 17 09 04 ("Mixed construction and demolition waste other than that mentioned in 17 09 01, 17 09 02 and 17 09 03").

2.17 Further Information

Information on products of the woodchip family and their processing can be found under

www.erfurt.com

This is where product-specific technical data sheets and processing instructions can be found for downloading.

Users can make direct contact with Erfurt & Sohn KG application technicians via a service line:

+49 (202) 6110-0 or e-mail them at info@erfurt.com

3. LCA: Calculation rules

3.1 Declared unit

The declared unit is 1 m² (one square metre) of woodchip wallpaper.

This EPD is a Manufacturer's Declaration of the Category 1c according to PCR Part A (Declaration of an average product from a works of a manufacturer) resulting from the following described woodchip wallpaper that is produced in the production location in Wuppertal.

Declared unit

Description	Value	Unit
Declared unit	1	m ²
Surface weight of wallpaper	0.134	kg/m ²
Packing materials	0.005	kg/m ²
Surface weight overall	0.139	kg/m ²
Conversion factor to 1 kg	0.134	-

3.2 System boundary

This EPD corresponds to the system boundary "cradle to gate (with options)".

For modelling the raw material use up to the manufacture of the pre-products (A1) use is made of generic data sets which already include the system boundaries (Cradle to Gate) of the materials used.

Transports (A2) are covered by generic data sets. In the case of lorry transports the system boundary on the input side is at the upstream processes of the fuels and on the output side in the emissions caused (exhaust gases).

The manufacturing phase (A3) is modelled by manufacturer-specific material and energy data whereby the upstream chains of the energy flows are modelled by generic data sets. Any occurring waste and waste water is modelled up to their complete removal. Here, too, generic data sets are used.

In Module A4 the transports up to the retailer are covered on the basis of the average distance to the Erfurt customers in Germany and Europe taking into account the sales quantity with the aid of generic data sets. The system boundary of the transports on the input side is at the upstream processes of the fuels and on the output side at the emissions caused (exhaust gases).

In Module A5 the packing, which is disposed of on the site, is allocated to thermal processing. The transport effort for the thermal processing plant is taken into account in Module C2 and the credits in Module D.

The removal of the wallcovering is considered in Module C1.

In Module C2 the transports to the disposal processes are taken into account. The system boundary is at the lorry transports and on the input side at the upstream processes of the fuels and on the output side in the emissions caused (exhaust gases).

Module C3 includes the processes necessary for waste handling at the end of the product life. The burden from waste handling is modelled here until the end of the waste properties is reached. The arising credits are allocated to Module D.

The disposal route to landfill is considered in Module C4.

The value streams resulting from the waste handling (C3) that can again serve potentially as energy input (waste incineration route) or material input (recycling) for a downstream product system are shown in Module D.

3.3 Estimates and assumptions

As only the annual electricity usage of the machines and plants is known, an average energy usage per square meter of woodchip wallpaper was used.

Use was made of a representative average of woodchip wallpaper produced in 2015 to calculate an average number. In this an average of the various available (woodchip) textures was defined. It can be assumed that the varying proportion of wood hardly has any effect on the environment. This is derived primarily from the regeneration ability of the wood resource and the associated negative burden of Modules A1-A3.

Further it is assumed that the wallpaper is fed to thermal processing at the end of its life.

3.4 Cut-off rules

Additional materials that are only used in very small quantities are not included. This also applies to paper and adhesives as part of the packing.

Palettes are not counted in the EPD as packing material. However, the weight of the palettes was taken into account during transport.

The effects of the ignored materials account for less than 5% in each module. In addition, no more than 1% of the overall mass and renewable and non renewable primary energy used were cut off.

3.5 Background data

For modelling the life cycle, the GaBi software system was used for holistic accounting. The whole manufacturing process as well as the energy consumption was modelled on the basis of the manufacturer-specific data. However, generic background data sets were used for the upstream and downstream processes. All the background data sets used were taken from the current versions of various GaBi databases and the ecoinvent database. The data sets contained in the data bases are documented online.

For Modules A1-A3, use was normally made of the German data sets, for the distribution transport (A3) and the disposal scenarios (C modules) use was made of the corresponding European data sets. German data sets were used where no European data sets were available.

3.6 Data quality

The background data sets used for balancing originate from the GaBi data bases current at the time of the calculation. Data sets from the ecoinvent database were also used. The data set for the corrugated cardboard packing box is over 10 years old. As this data set is very probably associated with greater negative impact on the environment than is the case today, it can be taken as a conservative point of view.

The data acquisition for the products investigated was carried out on the basis of assessments of the internal production and environment data, the acquisition of the LCA-relevant data within the supply chain as well as measuring relevant data for the supply of the energy. The acquired data was tested for plausibility and consistency. A good representativeness can be assumed.

3.7 Observation period

The acquired material and energy data are from the time period 01/01/ - 31/12/2015.

3.8 Allocation

Module C3
Credits from the product utilisation at the end-of-life are allocated to Module D.

3.9 Comparability

Basically a comparison or assessment of EPD data is only possible when all comparable data sets have been created according to EN 15804 and the building context or the product-specific performance criteria are taken into account.

4. LCA: Scenarios and further technical information

Characteristic product properties of biogenic carbon

The following biogenic carbon content is contained in the product and in the packaging when it leaves the factory gate for the declared unit:

Information for describing the biogenic carbon content at the factory gate

Description	Value	Unit
Biogenic carbon in the product	0.049	kg C
Biogenic carbon in the accompanying packaging	0.002	kg C

Transport to site (A4)

Description	Value	Unit
Transport distance	333	km
Utilization	85	%

If a **reference service life** is declared in accordance with the applicable ISO standards, then the assumptions and in-use conditions underlying the RSL determined must be declared. It must also be stated that the declared RSL only applies to the reference conditions of use. The same applies to a service life declared by the manufacturer.

Corresponding information relating to the in-use reference conditions need not be declared for a period of use in accordance with the *BNB* table.

Reference usage time

Description	Value	Unit
Reference usage time	35	a

This does not concern a reference usage duration in the strictest sense but of a usage duration estimated by the manufacturer.

End of the life cycle (C1-C4)

Description	Value	Unit
For energy recovery	0.134	kg

5. LCA: Results

Important information:

EP-freshwater This indicator was calculated as "kg P-Eq." in accordance with the characterisation model (EUTREND model, Struijs et al., 2009b, as translated in ReCiPe; <http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>).

SPECIFICATION OF SYSTEM BOUNDARIES (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Production stage			Stage of the erection of the building structure		Usage stage							Disposal stage				Credits and burdens outside the system boundaries
Raw material supply	Transport	Manufacture	Transport from the manufacturer to the place of use	Installation	Use/application	Maintenance	Repair	Replacement	Renewal	Energy consumption for operating the building	Use of water for operating the building	Dismantling / demolition	Transport	Waste treatment	Removal	Reuse, recovery or recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA – ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² Woodchip wallpaper

Core indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	GB
GWP-total	[kg CO ₂ -Eq.]	2.81E-2	2.39E-3	8.61E-3	1.56E-5	8.30E-4	1.85E-1	0.00E+0	-8.43E-2
GWP-fossil	[kg CO ₂ -Eq.]	1.95E-1	2.37E-3	1.02E-3	1.46E-5	8.25E-4	4.77E-3	0.00E+0	-8.38E-2
GWP-biogenic	[kg CO ₂ -Eq.]	-1.87E-1	-4.00E-6	7.59E-3	1.03E-6	-1.40E-6	1.80E-1	0.00E+0	-3.75E-4
GWP-luluc	[kg CO ₂ -Eq.]	2.08E-2	1.93E-5	4.04E-7	1.29E-8	6.75E-6	3.13E-6	0.00E+0	-1.21E-4
ODP	[kg CFC11-Eq.]	2.20E-9	4.38E-19	1.27E-18	1.21E-19	1.53E-19	3.43E-17	0.00E+0	-1.45E-15
AP	[mol H ⁺ -Eq.]	3.39E-4	1.41E-5	2.27E-6	3.95E-8	7.14E-6	5.33E-5	0.00E+0	-9.68E-5
EP-freshwater	[kg PO ₄ -Eq.]	8.30E-6	7.27E-9	3.54E-10	1.17E-9	2.54E-9	6.71E-9	0.00E+0	-1.98E-7
EP-marine	[kg N-Eq.]	1.91E-4	6.75E-6	8.48E-7	1.29E-8	3.54E-6	1.92E-5	0.00E+0	-3.11E-5
EP-terrestrial	[mol N-Eq.]	1.22E-3	7.47E-5	1.05E-5	9.31E-8	3.91E-5	2.40E-4	0.00E+0	-3.30E-4
POCP	[kg NMVOC-Eq.]	2.82E-4	1.31E-5	2.14E-6	2.56E-8	6.61E-6	5.10E-5	0.00E+0	-8.25E-5
ADPE	[kg Sb-Eq.]	6.29E-7	1.93E-10	2.29E-11	1.98E-12	6.74E-11	5.42E-10	0.00E+0	-1.99E-8
ADPF	[MJ]	2.76E+0	3.19E-2	2.69E-3	2.44E-4	1.11E-2	6.01E-2	0.00E+0	-1.18E+0
WDP	[m ³ world-Eq. deprived]	2.14E-2	2.33E-5	9.08E-4	4.30E-3	8.13E-6	2.36E-2	0.00E+0	-1.07E-3

Legend: GWP = Global warming potential; ODP = Degradation potential of the stratospheric ozone layer; AP = Pollution potential for ground and water; EP = Eutrophication potential; POCP = Formation potential for tropospheric ozone; ADPE = Abiotic depletion potential for Abiotic resource legend – non-fossil resources (ADP substances); ADPF = Abiotic depletion potential for fossil resources – fossil fuels (ADP - fossil fuels); WDP = Water deprivation potential (user)

RESULTS OF THE LCA – INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2:

1 m² Woodchip wallpaper

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	GB
PERE	[MJ]	6.41E-1	1.84E-3	4.31E-4	3.68E-5	6.43E-4	2.58E+0	0.00E+0	-3.40E-1
PERM	[MJ]	2.57E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.57E+0	0.00E+0	0.00E+0
PERT	[MJ]	3.21E+0	1.84E-3	4.31E-4	3.68E-5	6.43E-4	1.09E-2	0.00E+0	-3.40E-1
PENRE	[MJ]	2.75E+0	3.20E-2	2.70E-3	2.45E-4	1.12E-2	4.88E-2	0.00E+0	-1.18E+0
PENRM	[MJ]	1.13E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.13E-2	0.00E+0	0.00E+0
PENRT	[MJ]	2.76E+0	3.20E-2	2.70E-3	2.45E-4	1.12E-2	6.01E-2	0.00E+0	-1.18E+0
SM	[kg]	1.41E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m ³]	8.09E-4	2.15E-6	2.14E-5	1.00E-4	7.49E-7	5.56E-4	0.00E+0	-1.85E-4

Legend: PERE = Renewable primary energy as energy source; PERM = Renewable primary energy for material usage; PERT = Total renewable primary energy; PENRE = Non-renewable primary energy as energy source; PENRM = Non-renewable primary energy for material usage; PENRT = Total non-renewable primary energy; SM = Use of secondary materials; RSF = Renewable secondary fuels; NRSF = Non-renewable secondary fuels; FW = Use of freshwater resources

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:

1 m² Woodchip wallpaper

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	GB
HWD	[kg]	4.39E-9	1.48E-9	2.53E-11	3.15E-13	5.16E-10	8.86E-11	0.00E+0	-6.41E-10
NHWD	[kg]	4.67E-3	5.07E-6	2.14E-4	3.06E-5	1.77E-6	5.96E-3	0.00E+0	-5.98E-4
RWD	[kg]	7.85E-5	5.90E-8	1.18E-7	9.58E-9	2.06E-8	3.16E-6	0.00E+0	-4.94E-5
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	2.71E-2	0.00E+0	4.99E-3	0.00E+0	0.00E+0	1.34E-1	0.00E+0	0.00E+0
EEE	[MJ]	1.80E-2	0.00E+0	1.20E-2	0.00E+0	0.00E+0	2.88E-1	0.00E+0	0.00E+0
EET	[MJ]	4.99E-2	0.00E+0	2.15E-2	0.00E+0	0.00E+0	5.22E-1	0.00E+0	0.00E+0

Legend: HWD = Hazardous waste for disposal site; NHWD = Disposed non-hazardous waste; RWD = Disposed radioactive waste; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electric energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² Woodchip wallpaper

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	GB
PM	[Incidences of disease]	3.04E-9	5.37E-11	1.29E-11	6.04E-13	4.38E-11	2.95E-10	0.00E+0	-7.41E-10
IR	[kBq U235-Eq.]	8.10E-3	8.70E-6	1.83E-5	1.42E-6	3.04E-6	4.89E-4	0.00E+0	-4.45E-3
ETP-fw	[CTUe]	1.66E+0	2.39E-2	1.41E-3	4.95E-4	8.32E-3	2.85E-2	0.00E+0	-2.35E-1
HTP-c	[CTUh]	5.15E-11	4.93E-13	6.58E-14	9.33E-15	1.73E-13	1.51E-12	0.00E+0	-1.22E-11
HTP-nc	[CTUh]	2.45E-9	2.65E-11	2.87E-12	8.85E-13	9.80E-12	6.48E-11	0.00E+0	-4.96E-10
SQP	[-]	4.17E+0	1.12E-2	7.57E-4	3.41E-5	3.90E-3	1.59E-2	0.00E+0	-3.01E-1

Legend PM = Potential incidences of disease due to PM emissions; IR = Potential impact by human exposure to U235; ETP-fw = Potential comparative toxicity unit for ecosystems; HTP-c = Potential comparative toxicity unit for humans (carcinogenic effect); HTP-nc = Potential comparative toxicity unit for humans (non-carcinogenic effect); SQP = Potential soil quality index

Disclaimer note 1 – applies to the IRP indicator

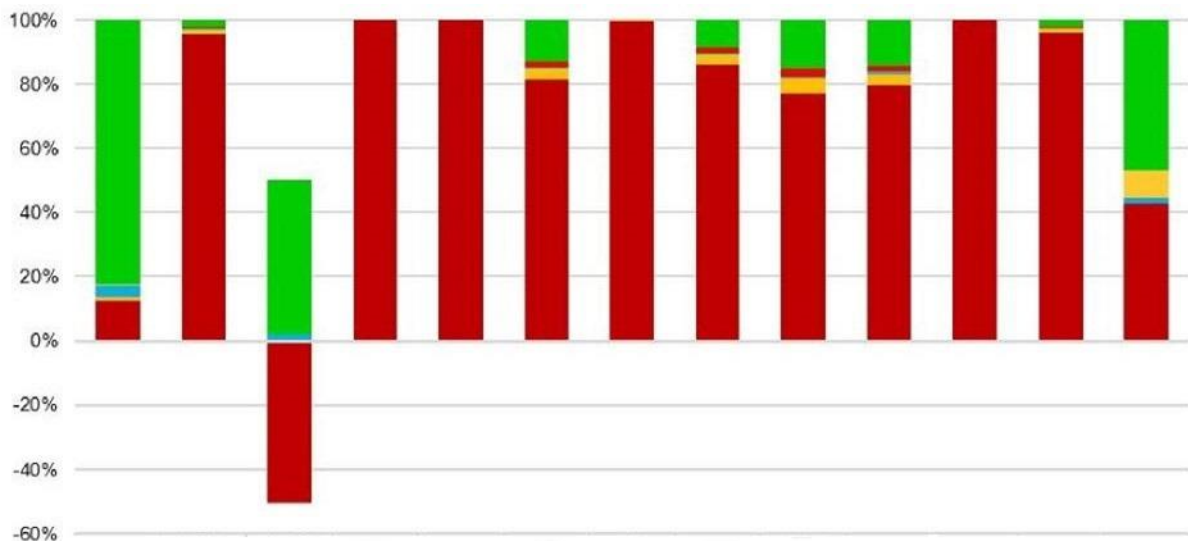
This impact category deals mainly with the eventual impact of low-dose ionising radiation on human health in the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents and occupational exposure, nor due to radioactive waste disposal in underground facilities. The potential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

Disclaimer 2 – applies to the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

The results of this environmental impact indicator must be used with care as there is much uncertainty regarding these results or as there is only limited experienced with the indicator.

6. LCA: Interpretation

Dominance analysis



	GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater	EP-marine	EP-terrestrial	POCP	ADPE	ADPF	WDP
■ C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
■ C3	1.85E-01	4.77E-03	1.80E-01	3.13E-06	3.43E-17	5.33E-05	6.71E-09	1.92E-05	2.40E-04	5.10E-05	5.42E-10	6.01E-02	2.36E-02
■ C2	8.30E-04	8.25E-04	-1.40E-06	6.75E-06	1.53E-19	7.14E-06	2.54E-09	3.54E-06	3.91E-05	6.61E-06	6.74E-11	1.11E-02	8.13E-06
■ A5	1.56E-05	1.46E-05	1.03E-06	1.29E-08	1.21E-19	2.95E-08	1.17E-09	1.29E-08	9.31E-08	2.56E-08	1.98E-12	2.44E-04	4.30E-03
■ A4	8.61E-03	1.02E-03	7.59E-03	4.04E-07	1.27E-18	2.27E-06	3.54E-10	8.48E-07	1.05E-05	2.14E-06	2.29E-11	2.69E-03	9.08E-04
■ A4	2.39E-03	2.37E-03	-4.00E-06	1.93E-05	4.38E-19	1.41E-05	7.27E-09	6.75E-06	7.74E-0E	1.31E-05	1.93E-10	3.19E-02	2.33E-05
■ A1-A3	2.81E-02	1.95E-01	-1.87E-01	2.08E-02	2.20E-09	3.39E-04	8.30E-06	1.91E-04	1.22E-03	2.82E-04	6.29E-07	2.76E+00	2.14E-02

With the exception of the GWP-total indicator, all impact indicators are significantly dominated by the production phase and its material and energy-saving precursors (Modules A1-A3). The main causes of environmental impact are the processes of energy supply for production (electrical energy and thermal energy from natural gas) and they influence the GWP-total indicator with their resource requirements

and associated air emissions, in particular with the GWP-fossil, AP, EP-terrestrial, POCP and ADPF.

The disposal phase (Module C3) plays a decisive role for the GWP-biogenic indicator. Here the biogenic CO₂ is released that previously ensured the credits in Modules A1-A3. The disposal processes have a relatively minor impact on the remaining environmental indicators (with the exception of WDP).

The environmental burden from transport (Modules A4 and C2) is identifiable for the indicators AP, EP and POCP,

especially the routes included in Module A4.

7. Proof

Formaldehyde / heavy metals

Measuring point: eco-Institut

Test report: No. 53872-001 dated 13.02.2019

Result: Exceeds the limit values according to EN 15102:2019 and DIN EN 717-3

Formaldehyde: below the limit of detection
 Arsenic (As): below the limit of detection
 Barium (Ba): 7 mg/kg
 Cadmium (Cd): below the limit of detection
 Chromium (Cr): below the limit of detection
 Mercury (Hg): below the limit of detection

Lead (Pb): 0.7 mg/kg
 Antimony (Sb): below the limit of detection
 Selenium (Se): below the limit of detection

VOC emissions

Description	Value	Unit
AgBB results overview (28 days)	-	µg/m ³
TVOC (C6 - C16)	-	µg/m ³
Total SVOC (C16 - C22)	-	µg/m ³
R (no dimensions)	-	-
VOC without NIK	-	µg/m ³
Carcinogens	-	µg/m ³

8. Literature

AVV

Waste Catalogue Ordinance (AVV) dated 10th December 2001 (BGBl. I p. 3379), as last amended by Article 1 of the Ordinance of 30th June 2020 (BGBl. I p. 3005).

ecoinvent

ecoinvent 3.6: Database on Life Cycle Inventories (Life Cycle Inventory Data), ecoinvent Association, Zurich, 2020.

EN 12149

DIN EN 12149: Wall covering in rolls - determination of the migration of heavy metals and certain other extractable elements, the contents of vinyl chloride monomer as well as formaldehyde emissions; German version EN 12149:1997.

EN 12956

DIN EN 12956/A1:2020-06: Wallcoverings in rolls - determination of dimensions, straightness, spongeability and washability; German version EN 12956:1999/A1:2001.

EN 13300

DIN EN 13300: Paints and varnishes - Water-borne coating materials and coating systems for interior walls and ceilings - Classification; German version EN 13300:2001 + AC:2002.

EN 13501-1

DIN EN 13501-1: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests of construction products; German version EN 13501-1:2007+A1:2009.

EN 15102

DIN EN 15102: Decorative wallcoverings - Roll and panel form products; German version EN 15102:2007+A1:2011.

EN 15804

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

EN 233

DIN EN 233:2017-02: Wallcoverings in rolls - Specifications for finished wallpapers, wall vinyls and plastic wallcoverings; German version EN 233:2016.

EN 266

DIN EN 266:1991: Wallcoverings in rolls; Determinations for textile wall coverings.

EN 71-3

DIN EN 71-3: Safety of toys - Part 3: Migration of certain elements; German version EN 71-3:2019.

GaBi

GaBi 10.0 and database version 2020.2: Software System and Database for Life Cycle Engineering, Sphera Solutions GmbH, Leinfelden-Echterdingen, 2020.

ISO 13934-1

DIN EN ISO 13934-1: Textiles -tensile properties of textile fabrics- Part 1 Determination of the greatest tensile force and tensile elongation by means of the strip - tensile experiment.

ISO 14044

DIN EN ISO 14044: Environmental management - Life cycle assessment: – Requirements and guidelines (ISO 14044:2006); German and English version, edition EN ISO 14044:2006-10.

ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and declarations - Type III Environmental declarations - Principles and procedures.

ISO 9001

DIN EN ISO 9001: Quality management systems - requirements (ISO 9001:2015).

PCR Part A

Calculation rules for the LCA and requirements for the project report according to EN 15804+A2:2019, version 1.0, 07/2020, Institut Bauen und Umwelt e.V., Berlin, 2020.

PCR: Wallpaper

Product category rules for building-related products and services. Part B: Requirements for the environmental product declaration for wallpaper, version 1.6, 11/2017, Institut Bauen und Umwelt e.V., Berlin, 2020.

Programming instructions

General guide for the EPD program of the Institut Bauen und Umwelt e.V., version 2.0, 01/2021, Institut Bauen und Umwelt e.V., Berlin, 2021.

Regulation (EU) No. 305/2011

Directive (EU) No. 305/2011 of the European Parliament of 9th March 2011 laying down harmonised conditions for the marketing of construction products.



Issued by
Institut Bauen und Umwelt e.V.
Panoramastr.1
10178 Berlin
Germany

Tel. +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
E-mail info@ibu-epd.com
Web www.ibu-epd.com



Programme owner
Institut Bauen und Umwelt e.V.
Panoramastr.1
10178 Berlin
Germany

Tel. +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
E-mail info@ibu-epd.com
Web www.ibu-epd.com

brands & values[®]
sustainability consultants

Creator of life cycle assessment
brands & values
GmbH Altenwall 14
28195 Bremen
Germany

Tel. +49 421 70 90 84 33
Fax +49 421 70 90 84 35
E-mail info@brandsandvalues.com
Web www.brandsandvalues.com

ERFURT[®]
WÄNDE ZUM WOHLFÜHLEN

Owner of the declaration
Erfurt & Sohn KG
Hugo-Erfurt-Str. 1
42399 Wuppertal
Germany

Tel. +4920261100
Fax +49202/611089451
E-mail info@erfurt.com
Web www.erfurt.com