ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	EGO Dichtstoffwerke GmbH & Co. Betriebs KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DBC-EGO-20240400-IBF1-EN
Issue date	10.01.2025
Valid to	09.01.2030

EGO SMP HYBRID 818 ▪ EGO SMP HYBRID 805 ▪ EGO HYBRID 815 ▪ EGO HYBRID 825

EGO Dichtstoffwerke GmbH & Co. Betr. KG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

EGO Dichtstoffwerke GmbH & Co. Betr. KG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DBC-EGO-20240400-IBF1-EN

This declaration is based on the product category rules:

Reaction resin products, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

10.01.2025

Valid to

09.01.2030

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

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

EGO SMP HYBRID 818 ▪ EGO SMP HYBRID 805 ▪ EGO HYBRID 815 ▪ EGO HYBRID 825

Owner of the declaration

EGO Dichtstoffwerke GmbH & Co. Betriebs KG
Kaltenbrunn 27
82467 Garmisch-Partenkirchen
Germany

Declared product / declared unit

1 kg EGO SMP HYBRID 818, 1kg EGO SMP HYBRID 805, 1kg EGO HYBRID 815, 1kg EGO HYBRID 825

Scope:

This is a manufacturer-individualised EPD based on model declaration 'Products based on polyurethan or silane-modified polymer, group 1' (EPD-FEI-20220021-IBG1-EN) from Deutsche Bauchemie e.V. (DBC), European Federation for Construction Chemicals (EFCC), Association of the European Adhesive and Sealant Industry (FEICA) and Industrieverband Klebstoffe e.V. (IVK) in which the product exhibiting the highest environmental impact in a particular group was selected from the group to calculate the LCA. This verified EPD entitles the holder to bear the symbol of the Institut Bauen und Umwelt e.V.. It exclusively applies to products produced in Europe and applies to a period of five years from the date of issue. This EPD may be used by members of DBC, EFCC, FEICA and IVK and their members provided. It has been proven that the respective product can be represented by this EPD.
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 14025:2011
☐ internally ☒ externally

Matthias Schulz,
(Independent verifier)

2. Product

2.1 Product description/Product definition

EGO SMP HYBRID 818, EGO SMP HYBRID 805, EGO HYBRID 815 and EGO HYBRID 825 comply a volatile organic copound (VOC) content ≤1 % (VOC definition according to *Decopaint Directive*) and a castor oil/-derivatives content ≤ 10%. EGO SMP HYBRID 818, EGO SMP HYBRID 805, EGO HYBRID 815 and EGO HYBRID 825 are manufactured as a one-component system from polyols and alkoxysilane in a preliminary stage. The product displaying the highest environmental impacts was used as a representative product for calculating the Life Cycle Assessment results (worst-case approach). For the application and use of the products the respective national provisions apply.

2.2 Application

EGO SMP HYBRID 818, EGO SMP HYBRID 805, EGO HYBRID 815 and EGO HYBRID 825 are used for the following applications:

Module 7: Adhesives and sealants
Reactive products for use as:

· Structural and repair adhesives

· Surface and joint sealants

Applications in accordance with the manufacturer's technical documentation/declaration of performance

2.3 Technical Data

The density of the products is between 1,2 and 1,6 g/cm³, other relevant technical data can be found in the manufacturer's technical documentation.

Module 7: Adhesives and sealants
Performance characteristics in accordance with the manufacturer's technical documentation / declaration of performance

Name	Value	Unit
Density acc. to EN ISO 2811-1	1200 - 1600	kg/m^3
Shore hardness A acc. to ISO 48-4	>15	
Elastic recovery EN ISO 7389	> 70	%
Loss of volume EN ISO 10563	<10	mm
Allowable Movement Capacity	> 20	%

Other performance characteristics in accordance with the manufacturer's technical documentation/declaration of performance

2.4 Delivery status

Liquid or pasty in containers made of tinplate or plastic packed in separate or combi-containers for the required mixing ratio. Packages containing one kg of product in different types of containers.
Sealants in plastic cartridges and foil packs. Typical container sizes contain 10 to 25 kg of material. For major works, vats containing approx. 200 kg or IBCs (intermediate bulk containers) containing 1 tonne or more are also used. The LCA is based on tinplate, plastic and wood packaging.

2.5 Base materials/Ancillary materials

Products based on polyurethane or silane-modified polymer with a VOC content ≤1 % and a castor oil/-derivatives content ≤10 % usually comprise a reactive polymer and a crosslinking system.
The polymer component contains polyether and/or polyester polyols. Crosslinking takes place after installation on site. In the case of two-component systems, this involves the use of pre-polymers and polymers based on typically Methylene diphenyl diisocyanate (MDI), Toluene diisocyanate (TDI), Hexamethylene diisocyanate (HDI) or Isophorone diisocyanate (IPDI). The resin mixing ratio is adjusted according to the stoichiometric requirements. Crosslinking starts directly after the components have been mixed. There are also one-component reactive polymer formulations based on PU or SMP which crosslink in the presence of moisture. They comprise prepolymers based on e.g. MDI, TDI, HDI, IPDI or those with alkoxy-silane groups in the case of SMP formulations. In formulations with aqueous dispersions, dispersible isocyanates are used for crosslinking. The formulations can contain auxiliary materials such as accelerators, catalysts, wetting agents, foam regulators and viscosity regulators for fine-tuning the product features. Typically, the products covered by this EPD contain the following ranges of base materials and auxiliaries: Polyol component: up to approx.
50 % Crosslinking component: up to approx. 95 % SMP component: up to approx. 80 % Plasticiser: ~ 0-25 % Additives / Pigments: ~ 0-30 % Water: ~ 0-60 % VOC: ≤1 % according to the *Decopaint Directive* (**mandatory**) Castor oil and derivatives: ≤10 % **(mandatory)**

These ranges are average values and the composition of products complying with the EPD can deviate from these concentration levels in individual cases. More detailed information is available in the respective manufacturer's documentation (e.g. product data sheets). *Note: For companies to declare their products within the scope of this EPD it is not sufficient to simply comply with the product composition shown above. The application of this EPD is only possible for member companies of DBC, EFCC, FEICA, and IVK member associations and only for specific formulations with a total score below the declared maximum score for a product group according to the associated guidance document.*

1. substances from the 'Candidate List of Substances of Very High Concern for Authorisation' (SVHC)
This product contains substances listed in the candidate list (date: 14.06.2023) exceeding 0.1 percentage by mass: no
2. CMR substances in categories 1A and 1B
This product contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: no.

3. Biocide products added to the construction product
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): yes EGO SMP HYBRID 818, EGO SMP HYBRID 805, EGO HYBRID 815, EGO HYBRID 825 contain 2-Octyl-2H-isothiazol-3-on.

2.6 Manufacture

The components of the formulation are usually mixed batch-wise and packaged for delivery.

2.7 Environment and health during manufacturing

As a general rule, no other environmental protection measures other than those specified by law are necessary.

2.8 Product processing/Installation

Products based on polyurethane or silane-modified polymer, are processed by trowelling/knife-coating or rolling, pouring, spraying or injection.

Precautions for safe handling and storage (e.g. air exchange, exhaust ventilation, personal protective measures, precautions required in the handling of isocyanates, conditions for safe storage) must be observed in accordance with the information on the safety data sheet.

2.9 Packaging

A detailed description of packaging is provided in section 2.4. Empty containers and clean foils can be recycled.

2.10 Condition of use

During the use phase, products based on polyurethane or silane-modified polymer are crosslinked and essentially comprise an inert three-dimensional network. They are long-lasting products which protect our buildings in the form of adhesives, coatings or sealants as well as make an essential contribution in retaining their function and long-term value.

2.11 Environment and health during use

Option 1: Products for applications outside indoor areas with permanent stays by people

During use, the reactive products lose their reactive properties and become inert. No risks are known for water, air and soil if the products are used as designated.

Option 2: Products for applications inside indoor areas with permanent stays by people

When used in indoor areas with permanent stays by people, evidence of the emission performance of construction products in
contact with indoor air must be submitted according to national requirements (see chapter 7). No further influences by emissions on the environment and health are known.

2.12 Reference service life

Cured products based on polyurethane or silane-modified polymer fulfil manifold, often specific functions in the construction or refurbishment of building structures. They decisively improve the usability of building structures and significantly extend their original service lives.
The anticipated reference service life depends on the specific installation situation and the exposure associated with the product. It can be influenced by weathering as well as mechanical or chemical loads.
Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

Even without any special fire safety features, cured products based on polyurethane or silane-modified polymer comply with at least the requirements of *EN 13501-1* standard for fire classes E and Efl. In terms of the volumes applied, they have only a marginal influence on the fire performance characteristics (e.g. smoke gas development) of the building structure in which they have been installed. As crosslinked polyurethane systems do not melt or drip, they do not contribute towards spreading fire.

Water

Cured reactive products based on polyurethane or silane-modified polymer are chemically inert and insoluble in water. They are often used to protect building structures from harmful water ingress or the effects of flooding.

Mechanical destruction

Mechanical destruction of cured reactive products based on polyurethane or silane-modified polymer does not lead to any decomposition products which are harmful to the environment or health.

2.14 Re-use phase

According to present knowledge, no environmentally harmful effects are generally anticipated in landfilling, for example, as a result of de-construction and recycling of building materials with adherent crosslinked products. If the crosslinked products can be removed from construction products without large effort, thermal recovery is a practical recycling variant on account of their energy content. Minor adhesion is not taken into consideration during disposal. It does not interfere with the disposal/recycling of the remaining components/building materials.

2.15 Disposal

Residual material which cannot be used or recycled must be combined at a specified ratio and hardened. Hardened product residue is not special waste. Non-hardened product residue is hazardous waste. Empty, dried containers (free of drops and scraped clean) are directed to the recycling process. Residue must be directed to proper waste disposal taking into consideration the local guidelines. The following waste codes according to the European List of Waste (*2000/532/EC*) can apply: Hardened product residue:
European Waste Calalogue (EWC) code 080112 (waste paint and varnish with the exception of that mentioned in 08 01 11)
EWC code 080410 (waste adhesives and sealants other than mentioned in 08 04 09)

2.16 Further information

More information is available on the manufacturer's product or safety data sheets and on the manufacturer's websites or on request. Valuable technical information is also available on the associations' websites.

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to the declared unit of 1 kg of product based on polyurethane or silane-modified polymer, group 1; applied into the building with a density of 0.85 - 1.8 g/cm³ in accordance with the *IBU PCR* part B for reaction resin products.

The results of the Life Cycle Assessment provided in this declaration have been selected from the product with the highest environmental impact (worst-case scenario).

Depending on the application, a corresponding conversion factor such as the density to convert volumetric use to mass must be taken into consideration.

The Declaration type is according to *EN 15804*: Cradle to gate with options, modules C1–C3, and module D (A1–A3, C, D) and additional modules.

Declared unit

Name	Value	Unit
Declared unit	1	kg
Gross density	0,85 - 1,8	g/cm³
Productiveness (mean value)	40000 - 100000	kg/m^2
Layer thickness	12	mm

3.2 System boundary

Modules A1, A2 and A3 are taken into consideration in the LCA:

- A1 Production of preliminary products

- A2 Transport to the plant

- A3 Production incl. provision of energy, production of packaging as well as auxiliaries and consumables and waste treatment

- A4 Transport to site

- A5 Installation, product applied into the building during A5 phase operations and packaging disposal. This stage considers VOC emissions during the installation phase. The declared product does not contain substances in the formulation that directly emit (as) VOC, but VOCs are generated by a chemical reaction that are occurring during this phase. The end of life for the packaging material considered is described below:

-Incineration, for materials like plastic and wood.

-Landfill, for inert material like metals (where used).

-C1-C2-C3-D

The building deconstruction (demolition process) takes place in the C1 module which considers energy production and consumption in terms of diesel and all the emissions connected with the fuel-burning process to run the machines. After the demolition, the product is transported to the end-of-life processing (C2 module) where all the impacts related to the transport processes are considered. For precautionary principle and as a worst-case scenario, thermal treatment is the only end-of-life scenario considered. This is modelled by the incineration process (module C3) where the product ends its life cycle.

Module D accounts for potential benefits that are beyond the defined system boundaries. Credits are generated during the incineration of wastes and related electricity produced that are occurring in the A5 module.

3.3 Estimates and assumptions

For this EPD formulation and production data defined and collected by FEICA were considered. Production waste was assumed to be disposed of by incineration without credits as a worst-case.

An average of steel and plastic containers, and wooden pallets was considered in the LCA.

3.4 Cut-off criteria

All raw materials submitted for the formulations and production data were taken into consideration.

The manufacture of machinery, plant and other infrastructure required for the production of the products under review was not taken into consideration in the LCA.

Transport of packaging materials is excluded.

3.5 Background data

Data from the *GaBi* database SP40 (2020) was used as background data.

3.6 Data quality

Representative products were applied for this EPD and the product in the group displaying the highest environmental impact was selected for calculating the LCA results. The background data sets used are less than 4 years old.

Production data and packaging are based on details provided by the manufacturer. The formulation used for evaluation refers to a specific product.

The data quality of the background data is considered to be good.

3.7 Period under review

Representative formulations are valid for 2021.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

3.9 Allocation

Mass allocation has been applied when primary data have been used and implemented into the LCA model.

3.10 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 database SP40 (2020) was used.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The packaging material contains biogenic carbon content which is presented below.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.016	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Transport to the building site (A4)

Name	Value	Unit
Transport distance	1000	km
Gross weight	34 - 40	t
Payload capacity	27	t

Assembly (A5)

Name	Value	Unit
Other resources for packaging material	0.1	kg
Material loss	0.01	kg

Material loss regards the amount of product not used during the application phase into the building. This amount is 1% of the product, impacts related to the production of this part are charged to the A5 module.
This percentage is considered as waste to disposal and impacts of its end of life have been considered in the LCA model and declared in A5.

End of life (C1-C3)

Name	Value	Unit
Collected as mixed construction waste	1	kg
Incineration	1	kg

Due to incineration of the product in C3, module C4 is not relevant and indicator results are zero.

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				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	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg of product based on polyurethane or silane modified polymer, group 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	4.79E+00	5.27E-02	1.8E-01	2.79E-04	1.24E-02	2.21E+00	0	-9.5E-01
GWP-fossil	kg CO_2 eq	4.81E+00	5.22E-02	9.38E-02	2.66E-04	1.18E-02	2.21E+00	0	-9.47E-01
GWP-biogenic	kg CO_2 eq	-3.57E-02	1.52E-04	8.62E-02	1.24E-05	5.42E-04	8.82E-05	0	-2.23E-03
GWP-luluc	kg CO_2 eq	4.5E-03	4.22E-04	4.84E-05	6.39E-09	2.79E-07	2.08E-05	0	-6.66E-04
ODP	kg CFC11 eq	6.76E-09	6.27E-18	6.76E-11	2.84E-20	1.24E-18	2.62E-16	0	-9.93E-15
AP	mol H^+ eq	1.02E-02	1.56E-04	1.29E-04	3.6E-06	3.73E-05	1.31E-03	0	-1.33E-03
EP-freshwater	kg P eq	1.93E-05	1.59E-07	1.98E-07	5.75E-11	2.51E-09	4.4E-08	0	-1.23E-06
EP-marine	kg N eq	2.67E-03	6.96E-05	3.5E-05	1.63E-06	1.72E-05	6.31E-04	0	-3.43E-04
EP-terrestrial	mol N eq	2.93E-02	7.8E-04	4.11E-04	1.79E-05	1.89E-04	7.26E-03	0	-3.68E-03
POCP	kg NMVOC eq	9.47E-03	1.38E-04	7.2E-03	4.91E-06	3.39E-05	1.62E-03	0	-9.87E-04
ADPE	kg Sb eq	8.18E-06	3.74E-09	8.22E-08	8.06E-12	3.52E-10	4.65E-09	0	-1.56E-07
ADPF	MJ	1.05E+02	6.94E-01	1.11E+00	3.81E-03	1.66E-01	5.87E-01	0	-1.61E+01
WDP	m^3 world eq deprived	1.34E+00	4.66E-04	2.69E-02	5.27E-07	2.3E-05	2.17E-01	0	-9.86E-02

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg of product based on polyurethane or silane modified polymer, group 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	6.67E+00	3.9E-02	6.65E-01	1.2E-05	5.25E-04	8.23E-02	0	-3.52E+00
PERM	MJ	5.85E-01	0	-5.85E-01	0	0	0	0	0
PERT	MJ	7.26E+00	3.9E-02	7.99E-02	1.2E-05	5.25E-04	8.23E-02	0	-3.52E+00
PENRE	MJ	8.33E+01	6.95E-01	1.63E+00	3.81E-03	1.67E-01	2.21E+01	0	-1.61E+01
PENRM	MJ	2.2E+01	0	-5.2E-01	0	0	-2.15E+01	0	0
PENRT	MJ	1.05E+02	6.95E-01	1.11E+00	3.81E-03	1.67E-01	5.87E-01	0	-1.61E+01
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	4.03E-02	4.52E-05	7.22E-04	2.16E-08	9.41E-07	5.11E-03	0	-4.08E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; 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 = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg of product based on polyurethane or silane modified polymer, group 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.12E-05	3.23E-08	1.12E-07	3.7E-13	1.62E-11	3.34E-10	0	-6.41E-09
NHWD	kg	1.66E-01	1.06E-04	4.75E-02	3.9E-07	1.7E-05	1.11E-02	0	-7.44E-03
RWD	kg	2.34E-03	8.6E-07	2.54E-05	4.09E-09	1.79E-07	2.37E-05	0	-1.2E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.12E-01	0	0	0	0	0
EET	MJ	0	0	3.86E-01	0	0	0	0	0

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 OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg of product based on polyurethane or silane modified polymer, group 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	ND	ND	ND	ND	ND	ND	ND	ND
IR	kBq U235 eq	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND	ND	ND	ND	ND
SQP	SQP	ND	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Potential Human exposure efficiency relative to U235, Disclaimer 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and (from) some construction materials is also not measured by this indicator.

ADP minerals & metals, ADP fossil, WDP, ETF-fw, HTP-c, HTP-nc, SQP, Disclaimer 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.

Additional environmental impact indicators (suggested by *EN15804*, table 4) are not declared in the EPD. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high and as there is limited experience with the indicator (see ILCD classification in EN 15804, table 5). For this reason, results based on these indicators are not considered suitable for a decision-making process and are thus not declared in the EPD.

6. LCA: Interpretation

The majority of impacts are associated with the production phase (A1-A3). The most significant contribution to the production phase impacts is the upstream production of raw materials as the main driver. Another substantial contributor in the production phase, in the category of Abiotic depletion potential for nonfossil resources (ADPminerals& metals), is the steel sheet used as a packaging material. Emissions associated with the manufacturing of products also have some influence on the Formation potential of tropospheric ozone (POCP) in the production phase. In all EPDs, CO_2 is the most important contributor to Global Warming Potential (GWP). For the Acidification Potential (AP), NOx and SO_2 contribute the largest share. In some cases, HCl in water also impacts AP due to the use of TiO_2 as a pigment.

The majority of life cycle energy consumption takes place during the production phase (A1-A3). Significant contributions to Primary Energy Demand – Non-renewable (PENRT) come from the energy resources used in the production of raw materials. The largest contributor to Primary Energy Demand – Renewable (PERT) impacts comes from the consumption of renewable energy resources required for the generation and supply of electricity. It should be noted that Primary Energy Demand – Renewable (PERT) generally represents a small percentage of the production phase primary energy demand with the bulk of the demand coming from non-renewable energy resources.

Transportation to the construction site (A4) and the installation process (A5) make a low contribution to all impacts.

The installation phase influences mainly the Photochemical ozone formation indicator, due to the emission of VOC during the operations. These emissions are not directly related to the pre-products in the resins, but they are related to the reaction products between pre-products and air components (water and oxygen).

The end-of-life phases influence climate change indicators, due to the incineration processes occurring in the C3 module, the process used for modelling the thermal treatment process of the resin.

7. Requisite evidence

VOC

EGO SMP HYBRID 818, EGO SMP HYBRID 805, EGO HYBRID 815 and EGO HYBRID 825 were tested in accordance with the test criteria "GEV-EMICODE classification criteria/requirements for emission-controlled flooring installation materials, adhesives and building products" of the German Association for Emission Controlled Flooring Installation Materials, Adhesives and Building Products (GEV). eco-INSTITUT Germany GmbH carried out the test and confirmed in its report dated 8 November 2019 that the emission class EMICODE EC1 PLUS was achieved as the test target.
The table below shows the measured results for EGO SMP HYBRID 818, EGO HYBRID 815 and EGO HYBRID 825 and the corresponding assessment based on the EMICODE requirements

Prüfparameter	Ergebnis			Anforderung			Anforderung erfüllt [ja/nein]
Emissionsanalysen							
Messzeitpunkt: 3 Tage nach Prüfkammerbeladung							
K1A und 1B-Stoffe (gem. EU-Einstufung und TRGS 905, Summe)	<	1	µg/m³	≤	10	µg/m³	ja
Formaldehyd	<	2	µg/m³	≤	50	µg/m³	ja
Acetaldehyd	<	2	µg/m³	≤	50	µg/m³	ja
Acetaldehyd und Formaldehyd (Summe)	<	0,002	ppm	≤	0,05	ppm [1]	ja
Gesamtkonzentration flüchtiger organischer Stoffe ohne Berücksichtigung der Essigsäure ($TVOC_{DIN\ EN\ 16516}$) [2] [5]		170	µg/m³	≤	750	µg/m³ [3]	ja, EC 1 PLUS
Messzeitpunkt: 28 Tage nach Prüfkammerbeladung							
K1A und 1B-Stoffe (gem. EU-Einstufung und TRGS 905, Summe)	<	1	µg/m³	≤	1	µg/m³	ja
Gesamtkonzentration flüchtiger organischer Stoffe ohne Berücksichtigung der Essigsäure ($TVOC_{DIN\ EN\ 16516}$) [2] [5]	<	5	µg/m³	≤	60	µg/m³ [3]	ja, EC 1 PLUS
Gesamtkonzentration schwerflüchtiger organischer Stoffe ($TSVOC_{DIN\ EN\ 16516}$) [2]	<	5	µg/m³	≤	40	µg/m³ [3]	ja, EC 1 PLUS
Summe VOC ohne NIK	<	5	µg/m³	≤	40	µg/m³ [4]	ja
R-Wert		0,0		≤	1 [4]		ja

[1] 1 ppm Formaldehyd ≙ 1250 µg/m³ Formaldehyd; 1 ppm Acetaldehyd ≙ 1820 µg/m³ Acetaldehyd
[2] für TVOC und TSVOC werden nur Substanzen ≥ 5 µg/m³ berücksichtigt
[3] Anforderungswert für Emissionsklasse EMICODE EC 1 PLUS
[4] zusätzlicher Anforderungswert für Emissionsklasse EMICODE EC 1 PLUS
[5] In der Bewertung für den EMICODE findet Essigsäure keine Berücksichtigung

The table below shows the measured results for EGO SMP HYBRID 805 and the corresponding assessment based on the EMICODE requirements

Prüfparameter	Ergebnis			Anforderung			Anforderung erfüllt [ja/nein]
Emissionsanalysen							
Messzeitpunkt: 3 Tage nach Prüfkammerbeladung							
K1A und 1B-Stoffe (gem. EU-Einstufung und TRGS 905, Summe)	<	1	µg/m³	≤	10	µg/m³	ja
Formaldehyd	<	2	µg/m³	≤	50	µg/m³	ja
Acetaldehyd	<	2	µg/m³	≤	50	µg/m³	ja
Acetaldehyd und Formaldehyd (Summe)	<	0,002	ppm	≤	0,05	ppm [1]	ja
Gesamtkonzentration flüchtiger organischer Stoffe ohne Berücksichtigung der Essigsäure ($TVOC_{DIN\ EN\ 16516}$) [2] [3]		5	µg/m³	≤	750/ 1000/ 3000	µg/m³ [4]	ja, EC 1 PLUS
Messzeitpunkt: 28 Tage nach Prüfkammerbeladung							
K1A und 1B-Stoffe (gem. EU-Einstufung und TRGS 905, Summe)	<	1	µg/m³	≤	1	µg/m³	ja
Gesamtkonzentration flüchtiger organischer Stoffe ohne Berücksichtigung der Essigsäure ($TVOC_{DIN\ EN\ 16516}$) [2] [3]	<	5	µg/m³	≤	60/ 100/ 300	µg/m³ [4]	ja, EC 1 PLUS
Gesamtkonzentration schwerflüchtiger organischer Stoffe ($TSVOC_{DIN\ EN\ 16516}$) [3]	<	5	µg/m³	≤	40/ 50/ 100	µg/m³ [4]	ja, EC 1 PLUS
Summe VOC ohne NIK	<	5	µg/m³	≤	40	µg/m³ [5]	ja
R-Wert [3]		0,00		≤	1 [5]		ja

[1] 1 ppm Formaldehyd ≙ 1250 µg/m³ Formaldehyd; 1 ppm Acetaldehyd ≙ 1820 µg/m³ Acetaldehyd
[2] für TVOC und TSVOC werden nur Substanzen ≥ 5 µg/m³ berücksichtigt
[3] In der Bewertung für den EMICODE findet Essigsäure keine Berücksichtigung
[4] Anforderungswerte für die Emissionsklassen EMICODE EC 1 PLUS / EC 1 / EC 2
[5] zusätzlicher Anforderungswert für Emissionsklasse EMICODE EC 1 PLUS

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The literature referred to in the Environmental Product Declaration must be listed in full.Standards already fully quoted in the EPD do not need to be listed here again.
The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.

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