epd-norway

Global Program Operator

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ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Flügger Interior High Finish 90

Flügger Group A/S

Programme: The International EPD® system, www.environdec.com
Programme operator: EPD International AB
EPD registration number: S-P-12710
Publication date: 23-02-2024
Valid until: 22-02-2029
Geographical scope: Scandinavia and Northern Europe
EPD scope: “EPD of multiple products, based on worst-case results”

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Flügger Group A/S
Address	Islevdalvej 151
Contact details	anpap@flugger.com
Website	https://www.flugger.com/

PRODUCT IDENTIFICATION

Product name	Flügger Interior High Finish 90
Additional label(s)	-
Product number	-
Place(s) of production	Kolding, Denmark
EPD Description	EPD of multiple products, based on worst-case results
CPC code	3511-Paint and varnishes and related products

EPD INFORMATION

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs, cover products with identical functions, technical performances and use (e.g. identical declared/functional units), have equivalent system boundaries and descriptions of data, apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors), have equivalent content declarations, and be valid at the time of comparison.

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the International EPD System PCR 2019:14 Construction products, version 1.3.2 is used. Product specific complementary category rules have not been applied in this EPD.
EPD author	Flügger Group A/S
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	22-02-2024
EPD verifier	Anni Oviir
EPD number	S-P-12710
Publishing date	23-02-2024
EPD valid until	22-02-2029

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Flügger Interior High Finish 90 is water-based enamel for finishing wood and metal indoor surfaces. It is an acrylic enamel with a smooth, supple consistency and good coalescence.

Flügger Interior High Finish 90 is easy to use and produces an attractive and enamel-like surface. It is recommended for subjects where there are high aesthetic and functional requirements.

This EPD is an EPD of multiple products, based on worst-case results. The worst-case and most representative formulation is chosen for this EPD. For products with a selection of colours, this will be the formulation with the highest titanium dioxide content. Therefore, in this study, the life cycle analysis was carried out for the offwhite variant, which is estimated to have the greatest environmental impact.

The products that are covered by this study are the following:

- Flügger Interior High Finish 90 White
- Flügger Interior High Finish 90 Base 1
- Flügger Interior High Finish 90 Base 3
- Flügger Interior High Finish 90 Base 4
- Flügger Interior High Finish 90 Black
- Flügger Interior High Finish 90 Offwhite

PRODUCT APPLICATION

The Flügger Interior High Finish 90 can be applied on doors, door frames, profiled boards, casings, skirting boards, cupboard doors, windows, recesses, windowsills, panels, furniture, and iron or metals with anti-corrosion protection.

Before its use, the substrate needs to be primed, clean, dry, solid, and suitable for paint treatment. It is recommended to apply 1-2 coats. Some colours require additional treatments.

It can be applied by brush, roller, or spray. It is recommended to decide the corresponding tool depending on the finish. Apply wet on wet and finish by brushing in the same direction. Always use the same batch number on continuous surfaces. Cold and heat can affect the viscosity of the material. Material temperature for spray painting should be a minimum of 12^{o}C. Condensation during drying/curing must not occur. Cold weather and high atmospheric humidity extend drying time, full curing, and re-coat interval. High temperature and low humidity reduce drying time and full curing. Always apply test treatments to check and accept the adhesion and results.

TECHNICAL SPECIFICATIONS

Product type: Acrylic enamel
Nominal spreading rate: 9 m^2/liter
Paint layers: 1-2
Min. working temp. during application and drying/curing: Min. +10°C
Humidity: Max. humidity 80 % RH.
Drying time at 20° C, 60 % RH (Hours): 1
Re-coatable at 20° C, 60 % RH (Hours): 6
Fully cured at 20° C, 60 % RH (Days): 28

Washability acc. to EN 13300/ISO 11998: Class 1
Emission acc. to ISO 16000-9:2011 (µg/m^{2}h after 28 days): 10
Dilution: Water. When spraying, do not dilute.
Cleaning of Tools etc.: Water

PRODUCT STANDARDS

All paints covered by the Flügger Interior High Finish 90 EPD, contribute to Green Building Standard credits by meeting the following specific requirements:

- EU Ecolabel: SE/044/002

PHYSICAL PROPERTIES OF THE PRODUCT

Physical properties for products covered by this EPD:

- Density: 1,23 kg/liter
- Solid weight: 49%
- Solids by volume: 39%
- Gloss: Gloss, 90

REFERENCE SERVICE LIFE, PRODUCT

The reference service life of the product is highly dependent on the conditions of use.

ESTIMATED SERVICE LIFE, OBJECT

The coated object is not declared.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at https://www.flugger.com/.

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). The product contains no substances given by the Norwegian priority list.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer material, %	Renewable material, %	Country Region of origin
Water	0,1-0,5	-	-	Europe
Binder	0,5-0,7	-	-	Europe
Filler	-	-	-	Europe
Pigment	0,1-0,5	-	-	Europe
Additive	0,01-0,05	-	-	Europe
Biocide	<0,005	-	-	Europe
Solvent	0,05-0,1	-	-	Europe
Transportation packaging	0,053	-	-	Europe
Product packaging	0,045	100% for 0.75L buckets	-	Europe

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The manufacturing stage (A1-A3) consists of four main stages: premixing, dispersion, adjusting, and filling. The first stage is premixing where pigments, extenders, binders, additives, and solvents are weighted and mixed. The next stage is the dispersion process where the pigments and extenders are grinded, embedded in binders, and stabilized. In the adjusting stage, the coating mixture is adjusted by adding more solvent/water or additives to adjust colour, viscosity, gloss, etc. to meet specifications.

The last two steps include the filling of the product into cans and loading it to pallets. The paint is filled in 0.75L and 3L cans in filling machines and then loaded onto pallets. The full pallets are moved to a warehouse within the site. Eventually, the paint is moved out and transported to the construction site. Also, emissions and handling of waste formed in the production processes at the manufacturing facility are included in this stage.

All materials used for the production of Flügger Interior High Finish 90 are purchased from European suppliers. No packaging is considered for these materials since all of them are delivered in bulk form due to the considerable amounts transported.

The raw materials are transported to the Kolding, Denmark manufacturing site. The modelling includes road and/or maritime transportation of each raw material from 2021.

TRANSPORT AND INSTALLATION (A4-A5)

The transportation and installation stages (A4-A5) analyse the impacts that occurred during the transportation of the products to the construction site, as well as the impacts generated during the application of the product.

The transportation impacts were calculated for 1 kg of paint, with a final destination being a construction site in Oslo, and the transportation method is assumed to be a lorry.

The paint is applied to wood or metal surface. Paint waste during application in this EPD assumes a commercial painting scenario and is based on values measured by Flügger's professional product support team. Packages and transportation packaging are handled as waste and are transported for 50 km to the closest disposal facilities.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not include the product use and maintenance stage (B1-B7). Therefore, environmental impacts related to this stage have not been studied.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life stage analyses the impacts related to the disposal of remnant paint on a surface when that surface reaches the end of its service life. The consumption of energy and natural resources is considered negligible for disassembling of the end-of-life product. Therefore, the

impacts of demolition are assumed zero (C1).

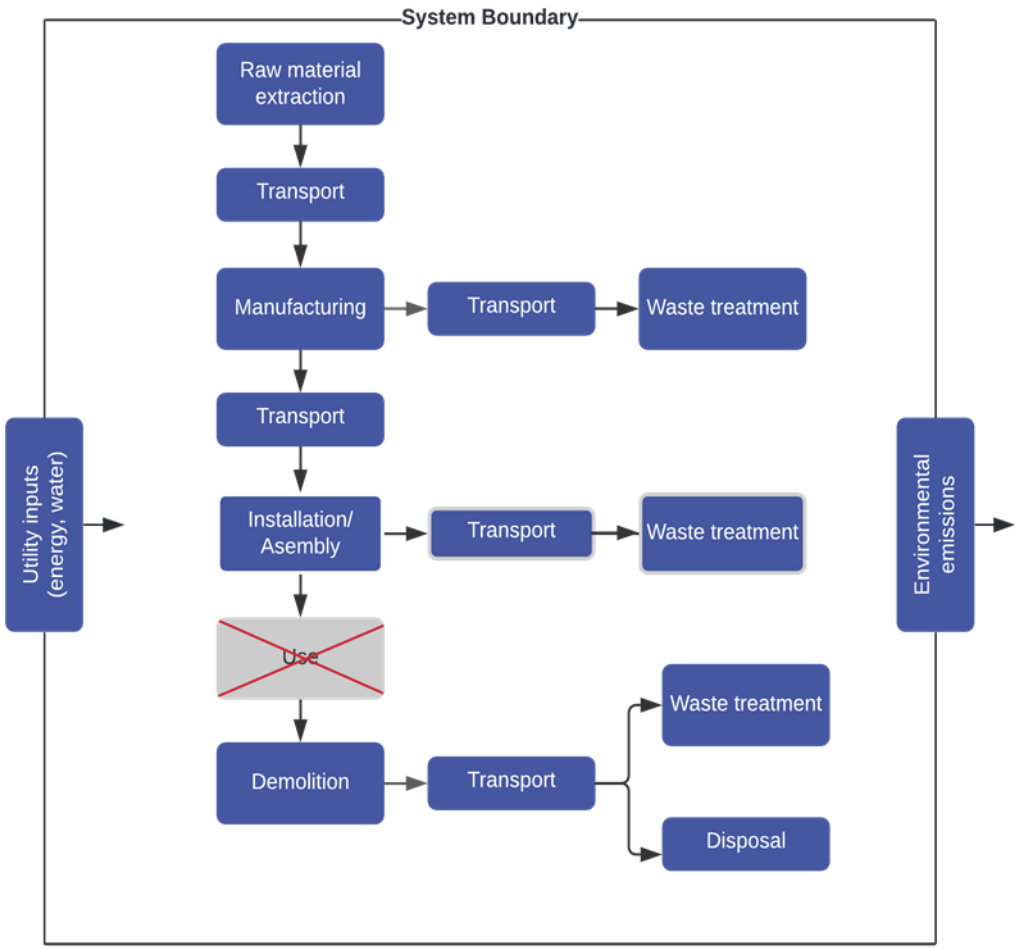
Module (C2) includes the transport of the waste paint to the closest disposal facilities. All end-of-life product is assumed to be sent to the closest disposal facilities, assuming a transportation distance equal to 50 km.

Module (C3) is assumed zero, as no further waste processing for reuse, recovery, or recycling takes place in this analysis for the mineral substrates.

Module (C4) is the disposal of end-of-life paint, which in this case incineration is considered as the final disposal method.

Module (D) includes the potential loads and benefits from recycling and incinerating packaging products at the end of life.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	Not declared
Reference service life	Not declared

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,0010

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Geography: Scandinavia and Northern Europe																		
EU	EU	EU	EU	EU	-	-	-	-	-	-	-	EU				EU		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr. /Demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw materials and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more

than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The cut-off criteria do not apply to hazardous materials and substances. Therefore, 100% of the total product content is included and extensively analysed. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution, and end-of-life stages. The production of capital equipment, construction activities, infrastructure, maintenance, personnel-related, and administration activities are excluded.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order.

1. Allocation should be avoided.

2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

As it is impossible to collect data separately for each product produced in the plant, data such as incoming energy, water, and waste production in-house is primarily allocated among all products through volume allocation. The recycling process and transportation of the material are allocated to this analysis. No co-product allocation is relevant for paints.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs.

Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology ‘allocation, cut-off, EN 15804’. This methodology is in line with the requirements of the EN 15804 -standard.

All estimations and assumptions considered are presented below:

Module A4

The transportation distance is defined according to PCR 2019:14 Construction Products. The transportation distance was calculated by estimating the distance that needs to be covered from Flügger’s production plant in Kolding, Denmark to Flügger’s main warehouse in Bollebygd, Sweden (537 km), and then to Oslo, Norway (338 km) and to the final construction site assuming an average transportation distance equal to (30 km). The transportation method is assumed to be a lorry. Transportation does not cause losses as products are packaged accordingly. The volume capacity utilization factor is assumed to be 1 for the packaged products.

The transported mass was calculated by considering both the product and transportation packaging, as well as 1 kg of the assessed product mass. It is worth mentioning that for calculating the transported mass in the A4 module, the entire weight of the wooden pallets was considered, without the reuse scenario.

Module A5

The installation stage at the construction site includes unwrapping of the plastic buckets and application of the paint on top of the surface with a roller or brush. The consumption of energy and natural resources is negligible for the assembly stage. The application losses assume a commercial painting scenario and are equal to 3,6%. The value was measured by Flügger’s professional product support team. Packages and transportation packaging are handled as waste and assumed to be sorted and sent to the closest disposal facilities such as recycling, incineration,

and landfill. The transportation distance to the closest disposal facilities is assumed to be 50 km and the transportation method is assumed to be a lorry.

Module C1

Since the consumption of energy and natural resources is negligible for disassembling the end-of-life product, the impacts of demolition are assumed zero.

Module C2

It is estimated that the product loses some of its mass as the solvents of the paint evaporate during its use. In this study is assumed that all solvents in the paint have been released. All the end-of-life product is assumed to be sent to the closest disposal facilities. The transportation distance is assumed to be 50 km and the transportation method is assumed a lorry.

Module C3

No further waste treatment processes are considered to be taken place in the examined system.

Module C4

Paint waste is gathered as part of another product, in this case, a wood substrate, and is generally not separated from it at the end of life. The typical disposal scenario for paint applied on a wood substrate is the same as for wooden construction waste (CEPE, 2018). In this case, as the dried film paint is not currently recycled, it is assumed that all of it goes for incineration (CEPE, 2018).

Module D

Plastic materials are incinerated with energy recovery, while wood-based packaging is converted into secondary raw materials after recycling.
We assume a 73% of power plant efficiency. Electricity accounts for 11% and heat for 62% (Eriksson O., et al., 2017).

AVERAGES AND VARIABILITY

In general, GWP-GHG varies with the amount of pigment present in the paint. More specifically, pigments provide the colour and opacity of the paint, as well as some of its physical properties. One of the most common pigments is titanium dioxide (TiO_2) which is used as a white pigment. It is widely accepted that the impact of titanium dioxide dominates all paints, with a concentration of 10% or greater (Kougoulis, J.S., et al., 2012).

In this study, the differences are spotted for Flügger Interior High Finish 90 Base 1, Flügger Interior High Finish 90 Base 3, Flügger Interior High Finish 90 Base 4, and Flügger Interior High Finish 90 Black.

More specifically, Flügger Interior High Finish 90 Base 3 has TiO_2 concentration ranging between 0,02 - 0,04 kg, while Flügger Interior High Finish 90 Base 4, and Flügger Interior High Finish 90 Black do not include any pigment in their formulations. At the same time, the Flügger Interior High Finish 90 Base 1 has a 34% lower TiO_2 concentration than the reported worst-case recipe.

The International EPD System additional data requirements
Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	> 90%
Variation in GWP-GHG between products	-23% (Base 3), -28% (Base 4), -39% (Black), -12% (Base 1)
Variation in GWP-GHG between sites	-

Variability overview for all core EN 15804+A2 impact indicators, for all included modules (from A to C).

The below variability was calculated against the reported worst-case results of the offwhite variant.

Impact indicator	Flügger Interior High Finish 90 Base 3	Flügger Interior High Finish 90 Base 4	Flügger Interior High Finish 90 Base 1	Flügger Interior High Finish 90 Black
GWP – total	-17,8	-23,9	*-9,9*	-29,5
GWP – fossil	-17,4	-23,6	*-9,5*	-29,5
GWP – biogenic	*0,0*	*0,0*	*0,0*	*0,0*
GWP – LULUC	-25,3	-33,1	-13,3	-56,5
Ozone depletion pot.	-17,8	-21,1	-11,4	-49,7
Acidification potential	-62,6	-76,3	-26,8	-79,5
EP-freshwater	-30,7	-39,4	-15,6	-53,4
EP-marine	-33,2	-40,9	-15,7	-49,9
EP-terrestrial	-26,9	-33,4	-13,3	-43,3
POCP (“smog”)	-27,6	-34,2	-12,9	-45,0
ADP-minerals & metals	-22,1	-25,7	-11,1	-50,9
ADP-fossil resources	-11,8	-13,0	*-6,7*	-23,4
Water use	-42,1	-51,7	-19,9	-62,3

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Note: additional environmental impact data may be presented in annexes.

Disclaimer: We discourage the use of the results of modules A1-A3 without considering the results of module C.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,46E+00	8,56E-02	3,17E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,40E-03	0,00E+00	1,25E+00	-7,93E-02
GWP – fossil	kg CO_2e	2,46E+00	8,64E-02	3,11E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,40E-03	0,00E+00	1,25E+00	-7,92E-02
GWP – biogenic	kg CO_2e	9,53E-04	0,00E+00	6,03E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-6,98E-03	0,00E+00
GWP – LULUC	kg CO_2e	1,36E-03	3,24E-05	5,21E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,43E-06	0,00E+00	3,36E-06	-4,25E-05
Ozone depletion pot.	kg CFC_{-11}e	2,91E-07	2,16E-08	1,23E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,05E-10	0,00E+00	1,13E-09	-9,73E-09
Acidification potential	mol H^+e	3,80E-02	2,75E-04	1,41E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-05	0,00E+00	1,09E-04	-1,79E-04
EP-freshwater	kg Pe	8,97E-05	6,17E-07	3,30E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,58E-08	0,00E+00	1,27E-07	-3,00E-06
EP-marine	kg Ne	2,24E-03	6,08E-05	9,60E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,09E-06	0,00E+00	4,89E-05	-3,15E-05
EP-terrestrial	mol Ne	2,20E-02	6,74E-04	9,64E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,32E-05	0,00E+00	5,41E-04	-3,51E-04
POCP ("smog")[2)]	kg NMVOCe	9,15E-03	2,65E-04	3,81E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,01E-06	0,00E+00	1,33E-04	-1,09E-04
ADP-minerals & metals[3)]	kg Sbe	2,13E-05	2,12E-07	7,88E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,21E-08	0,00E+00	4,18E-08	-7,02E-08
ADP-fossil resources	MJ	4,45E+01	1,38E+00	1,72E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,20E-02	0,00E+00	1,10E-01	-1,41E+00
Water use[4)]	m^3e depr.	2,88E+00	6,37E-03	1,07E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,53E-04	0,00E+00	2,91E-02	-1,18E-02

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,72E-07	1,00E-08	7,14E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,09E-10	0,00E+00	8,75E-10	-5,48E-10
Ionizing radiation[5)]	kBq U235e	2,21E-01	7,11E-03	8,58E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,74E-04	0,00E+00	3,58E-04	-1,18E-02
Ecotoxicity (freshwater)	CTUe	7,59E+01	1,15E+00	2,87E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,40E-02	0,00E+00	3,35E-01	-3,18E-01
Human toxicity, cancer	CTUh	2,43E-09	2,98E-11	2,17E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,33E-12	0,00E+00	1,60E-09	-1,26E-11

Human tox. non-cancer	CTUh	5,32E-08	1,17E-09	2,46E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,33E-11	0,00E+00	4,85E-09	-3,41E-10
SQP[6]	-	1,19E+01	1,61E+00	5,52E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,51E-02	0,00E+00	4,27E-02	-5,96E-01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[7]	MJ	2,59E+00	1,79E-02	9,52E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,75E-04	0,00E+00	3,02E-03	-1,33E-01
Renew. PER as material	MJ	3,78E-02	0,00E+00	-3,72E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-6,37E-04	0,00E+00
Total use of renew. PER	MJ	2,63E+00	1,79E-02	5,80E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,75E-04	0,00E+00	2,38E-03	-1,33E-01
Non-re. PER as energy	MJ	3,31E+01	1,38E+00	1,31E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,20E-02	0,00E+00	1,10E-01	-1,41E+00
Non-re. PER as material	MJ	1,29E+01	0,00E+00	-1,68E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,12E+01	0,00E+00
Total use of non-re. PER	MJ	4,59E+01	1,38E+00	-3,68E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,20E-02	0,00E+00	-1,11E+01	-1,41E+00
Secondary materials	kg	5,68E-02	3,89E-04	2,11E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,78E-05	0,00E+00	2,33E-04	-8,54E-05
Renew. secondary fuels	MJ	2,53E-03	3,43E-06	9,14E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,87E-07	0,00E+00	9,49E-07	-3,38E-07
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	2,25E-01	1,83E-04	8,14E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,02E-06	0,00E+00	9,62E-05	-3,97E-04

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,28E-01	1,48E-03	1,19E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,11E-05	0,00E+00	0,00E+00	-1,87E-03
Non-hazardous waste	kg	5,95E+00	2,57E-02	3,00E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,09E-03	0,00E+00	5,21E-01	-1,35E-01
Radioactive waste	kg	1,01E-04	9,52E-06	4,37E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,57E-07	0,00E+00	0,00E+00	-3,74E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	8,28E-03	0,00E+00	3,00E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Materials for energy rec	kg	2,98E-02	0,00E+00	4,91E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	1,27E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2,46E+00	8,64E-02	3,11E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,40E-03	0,00E+00	1,25E+00	-7,92E-02

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, Denmark, residual mix, One Click LCA modified dataset based on Ecoinvent 3.6, year: 2022
Electricity CO_2e / kWh	0,73
District heating data source and quality	District Heat, Denmark, One Click LCA modified dataset based on Ecoinvent 3.6, year: 2021
District heating CO_2e / kWh	0,0507

Transportation scenario documentation (A4)

Scenario parameter	Value
Type	Lorry
Type of vehicle	>32 t, EURO 6
Capacity utilisation (%)	100
Fuel consumption (liter/tkm)	0,01078
Global warming potential (kg CO2 eq/tkm)	0,087
Distance (km)	537 km (Kolding, Denmark -Bollebygd, Sweden) 338 km (Bollebygd, Sweden – Oslo, Norway) 30 km (Construction site in Norway)

End of life documentation (C1-C4)

Scenario parameter	Value
Collected separately (kg)	-
Collected with mixed construction waste (kg)	0,52
Re-use (kg)	-
Recycling (kg)	-
Incineration (kg)	0,52
Landfill (kg)	-
Transportation to disposal site (km)	50

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ABOUT THE MANUFACTURER

Flügger is an international group based in the Nordic region that develops, produces, markets, and sells a wide range of building paints, wood stains, fillers, wallpapers, and accessories. The philosophy of Flügger is to make products and solutions that enable painters and consumers to deliver sustainable, beautiful, and high-quality painting results in an efficient way. Flügger's passion for paint and good craftsmanship, as well as respect for the environment, is deeply anchored in its history, which spans several centuries and roots back to 1783.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Flügger Group A/S
EPD author	Flügger Group A/S
EPD verifier	Anni Oviir
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804), CEPE, and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for paints and coatings.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents, and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD.
- The background report (project report) for this EPD

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Anni Oviir
EPD verification started on	2024-02-06
EPD verification completed on	2024-02-22
Supply-chain specific data %	>90%
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Flügger Group A/S
EPD author training completion	2022-01-18
EPD Generator module	Paints, Coatings, Sealants and Adhesives
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Srl.
Software verification date	2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Signature

VERIFICATION AND REGISTRATION (INTERNATIONAL EPD SYSTEM)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.3.2
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Anni Oviir
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com

ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2,40E+00	8,56E-02	3,08E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,37E-03	0,00E+00	1,25E+00	-7,80E-02
Ozone depletion Pot.	kg CFC_{-11}e	2,66E-07	1,71E-08	1,10E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,38E-10	0,00E+00	9,88E-10	-8,53E-09
Acidification	kg SO_2e	3,38E-02	2,23E-04	1,25E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,30E-06	0,00E+00	7,66E-05	-1,49E-04
Eutrophication	kg PO_4^3e	6,21E-03	4,73E-05	2,56E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,81E-06	0,00E+00	8,73E-05	-1,08E-04
POCP (“smog”)	kg C_2H_4e	1,67E-03	1,04E-05	6,14E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,08E-07	0,00E+00	2,05E-06	-8,20E-06
ADP-elements	kg Sbe	1,94E-05	2,06E-07	7,18E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-08	0,00E+00	3,29E-08	-7,00E-08
ADP-fossil	MJ	4,53E+01	1,38E+00	1,75E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,20E-02	0,00E+00	1,10E-01	-1,41E+00

ANNEX 2 : ENVIRONMENTAL PERFORMANCE USING THE DECLARED UNIT «1 m^2 of painted surface»

For product level calculations, the declared unit can be freely chosen based on the product and life cycle stages studied. However, the most common choice is the 1 kg of product, as it offers numerous benefits, including consistency, simplicity, alignment with common usage, practicality, ease of data collection, and adherence to global standards.

In the section below, the steps to convert "1 kg of product" into "1 m^2 of painted surface" are outlined.

The following paint characteristics need to be considered in this unit conversion:

- Paint coverage (m^2/liter)
- Density (kg/liter)
- Number of layers needed in its application.

$$Declared\ unit = Paint\ coverage\ \left(\frac{kg}{m2}\right) * Number\ of\ layers\ (paint\ layers)$$

Flügger Interior High Finish 90

- Paint coverage: 9 m^2/liter
- Density: 1,23 kg/liter
- Required paint layers: 2 layers.

$$Declared\ unit = \left(\left(\frac{1}{9\ m^2}\right) * 1{,}23\ kg/liter\right) * 2\ layers$$ = 0,273 kg of paint

Carbon emissions conversion

- **Total carbon emissions per 1 kg of paint:** GWP $_{total}$ (A1-A3) = 2,46 kg CO2 eq
- **Total carbon emissions per declared unit:** GWP $_{total}$ (A1-A3) = 2,46 kg CO2 eq/kg * 0,273 kg = 0,67 kg CO2 eq

ANNEX 3 : ENVIRONMENTAL IMPACT DATA FOR «1 m² of painted surface»

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	6,64E-01	2,34E-02	8,63E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,30E-04	0,00E+00	3,41E-01	-2,16E-02
GWP – fossil	kg CO_2e	6,63E-01	2,36E-02	8,46E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,29E-04	0,00E+00	3,41E-01	-2,16E-02
GWP – biogenic	kg CO_2e	2,47E-04	0,00E+00	1,64E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,89E-03	0,00E+00
GWP – LULUC	kg CO_2e	3,70E-04	8,85E-06	1,42E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,90E-07	0,00E+00	9,16E-07	-1,16E-05
Ozone depletion pot.	kg CFC_{-11}e	7,91E-08	5,88E-09	3,34E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,20E-10	0,00E+00	3,10E-10	-2,66E-09
Acidification potential	mol H^+e	1,04E-02	7,52E-05	3,85E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,77E-06	0,00E+00	2,97E-05	-4,89E-05
EP-freshwater	kg Pe	2,43E-05	1,69E-07	8,94E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,05E-09	0,00E+00	3,47E-08	-8,17E-07
EP-marine	kg Ne	6,07E-04	1,66E-05	2,60E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,70E-07	0,00E+00	1,34E-05	-8,60E-06
EP-terrestrial	mol Ne	5,95E-03	1,84E-04	2,61E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,33E-06	0,00E+00	1,48E-04	-9,58E-05
POCP ("smog")[2)]	kg NMVOCe	2,47E-03	7,24E-05	1,03E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,46E-06	0,00E+00	3,64E-05	-2,96E-05
ADP-minerals & metals[3)]	kg Sbe	5,75E-06	5,78E-08	2,13E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,32E-09	0,00E+00	1,14E-08	-1,92E-08
ADP-fossil resources	MJ	1,19E+01	3,77E-01	4,61E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,42E-02	0,00E+00	3,00E-02	-3,84E-01
Water use[4)]	m^3e depr.	7,81E-01	1,74E-03	2,91E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,92E-05	0,00E+00	7,95E-03	-3,23E-03

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4,66E-08	2,74E-09	1,93E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,45E-11	0,00E+00	2,39E-10	-1,50E-10
Ionizing radiation[5)]	kBq U235e	6,02E-02	1,94E-03	2,33E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,48E-05	0,00E+00	9,78E-05	-3,22E-03
Ecotoxicity (freshwater)	CTUe	2,06E+01	3,13E-01	7,81E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,20E-02	0,00E+00	9,14E-02	-8,69E-02
Human toxicity, cancer	CTUh	6,52E-10	8,15E-12	5,90E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,64E-13	0,00E+00	4,36E-10	-3,45E-12
Human tox. non-cancer	CTUh	1,45E-08	3,19E-10	6,70E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,18E-11	0,00E+00	1,32E-09	-9,29E-11
SQP[6)]	-	3,22E+00	4,39E-01	1,50E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,23E-02	0,00E+00	1,17E-02	-1,63E-01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[7)]	MJ	7,02E-01	4,88E-03	2,58E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,12E-04	0,00E+00	8,25E-04	-3,63E-02
Renew. PER as material	MJ	1,03E-02	0,00E+00	-1,02E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,67E-04	0,00E+00
Total use of renew. PER	MJ	7,13E-01	4,88E-03	1,57E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,12E-04	0,00E+00	6,59E-04	-3,63E-02
Non-re. PER as energy	MJ	8,90E+00	3,77E-01	3,53E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,42E-02	0,00E+00	3,00E-02	-3,84E-01
Non-re. PER as material	MJ	3,41E+00	0,00E+00	-4,58E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-2,95E+00	0,00E+00
Total use of non-re. PER	MJ	1,23E+01	3,77E-01	-1,05E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,42E-02	0,00E+00	-2,92E+00	-3,84E-01
Secondary materials	kg	1,55E-02	1,06E-04	5,76E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,87E-06	0,00E+00	6,37E-05	-2,33E-05
Renew. secondary fuels	MJ	6,91E-04	9,37E-07	2,50E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,11E-08	0,00E+00	2,59E-07	-9,22E-08
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	6,17E-02	5,00E-05	2,23E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,92E-06	0,00E+00	2,63E-05	-1,08E-04

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	8,93E-02	4,04E-04	3,25E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,67E-05	0,00E+00	0,00E+00	-5,11E-04
Non-hazardous waste	kg	1,62E+00	7,03E-03	8,17E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,96E-04	0,00E+00	1,42E-01	-3,69E-02
Radioactive waste	kg	2,74E-05	2,60E-06	1,19E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,74E-08	0,00E+00	0,00E+00	-1,02E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,26E-03	0,00E+00	8,19E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	8,13E-03	0,00E+00	1,34E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	3,46E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	6,63E-01	2,36E-02	8,46E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,29E-04	0,00E+00	3,41E-01	-2,16E-02

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

ENVIRONMENTAL IMPACTS- EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO2e	6,47E-01	2,34E-02	8,40E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,20E-04	0,00E+00	3,41E-01	-2,13E-02
Ozone depletion Pot.	kg CFC-11e	7,24E-08	4,66E-09	3,00E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,74E-10	0,00E+00	2,70E-10	-2,33E-09
Acidification	kg SO2e	9,22E-03	6,10E-05	3,41E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,27E-06	0,00E+00	2,09E-05	-4,06E-05
Eutrophication	kg PO43e	1,66E-03	1,29E-05	6,85E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,95E-07	0,00E+00	2,38E-05	-2,94E-05
POCP (“smog”)	kg C2H4e	4,53E-04	2,84E-06	1,67E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,11E-07	0,00E+00	5,61E-07	-2,24E-06
ADP-elements	kg Sbe	5,23E-06	5,62E-08	1,94E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,24E-09	0,00E+00	8,99E-09	-1,91E-08
ADP-fossil	MJ	1,21E+01	3,77E-01	4,70E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,42E-02	0,00E+00	3,00E-02	-3,84E-01

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Appendix II

Self-declaration from EPD owner, specific Norwegian requirements

1 Applied electricity data set used in the manufacturing phase

The electricity mix for the electricity used in manufacturing (A3) is presented in the table below:

Electricity mix	Data source	Year	Value	Unit
Electricity, Denmark, residual mix	Electricity, Denmark, residual mix, One Click LCA modified dataset based on Ecoinvent 3.6	2022	0,73	kg CO2 eq/ kWh

2 Content of dangerous substances

X The declared products contain no substances given by the REACH Candidate list or the Norwegian priority list.

☐ The product contains substances that are less than 0.1% by weight given by the REACH Candidate or the Norwegian priority list.
☐ The product contains dangerous substances more than 0.1% by weight given in the REACH candidate list or the Norwegian Priority List, concentrations is given in the EPD:

Dangerous substances from the REACH candidate list or the Norwegian Priority List	CAS No.	Quantity (concentration, wt%/FU(DU)).
Substance 1		
Substance n		

3 Transport from the place of manufacture to a central warehouse

Transport distance, and CO_2-eqv. /DU from transport of the product from factory gate to central warehouse in Oslo shall be given. The following table shall be included in the EPD:

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy use	Unit	Kg CO2-eqv. /tkm
Truck	100	Lorry, Europe, EURO6	537 km (Kolding Denmark → Bollebygd, Sweden) 338 km (Bollebygd, Sweden → Oslo, Norway) 30 km (Construction site in Norway)	0,01078	kg/tkm	0,087

4 Impact on the indoor environment

X Indoor air emission testing has been performed; specify test method and reference.

All declared products have been emission tested according to the ISO-16000 (2006) series.

- ☐ No test has been performed
- ☐ Not relevant; specify _____