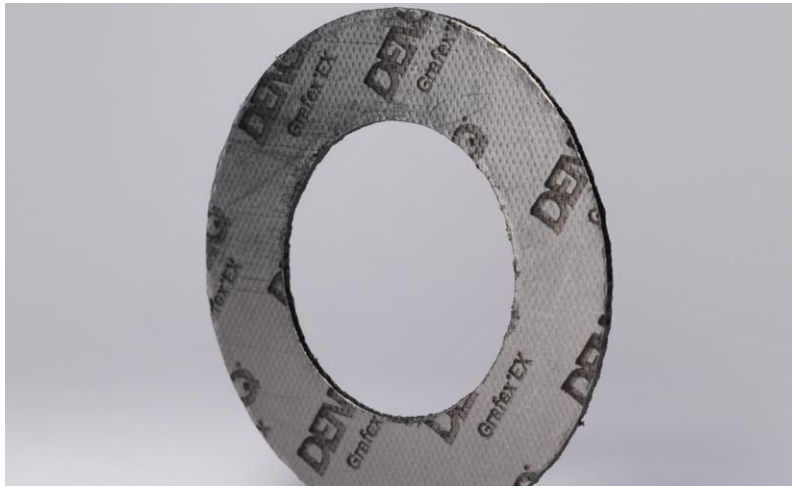


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Grafex EX
DENSIQ AB



EPD HUB, HUB-7414
Published on 15.09.2026, last updated on 15.09.2026, valid until 14.09.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	DENSIQ AB
Address	EA Rosengrens gata 18, 421 31, Västra Frölunda, SWEDEN
Contact details	info@densiq.com
Website	www.densiq.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Fredrik Sjödell, DENSIQ AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Elena Antuña-Bernardo as an authorized verifier for EPD Hub

This EPD is intended for business-to-business communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Grafex EX
Additional labels	-
Product reference	-
Place(s) of raw material origin	Germany
Place of production	Gothenburg, Sweden
Place(s) of installation and use	Sweden, Finland
Period for data	01-01-2025 to 31-12-2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	11,3

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Grafex EX
Declared unit mass	1 kg
Mass of packaging	0,2575 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,86
GWP-total, A1-A3 ($kgCO_2e$)	4,11
Secondary material, inputs (%)	25,6
Total energy use, A1-A3 (kWh)	31,4
Net freshwater use, A1-A3 (m^3)	0,23

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

DENSIQ is a leading supplier of total solutions in the field of sealing technology to the Nordic process industry and its subcontractors. We make this possible by working closely with our customers, knowledgeable and committed employees as well as the market's strongest range of services, products and technical consulting.

PRODUCT DESCRIPTION

Grafex EX is made from fine gauge 316L austenitic stainless acid-resistant expanded metal mesh on both sides covered with 100% expanded natural graphite without the addition of binders or fillers.
Sealing of flange joints at high pressures and temperatures. Can be used with virtually all commonly used media including steam, water, petroleum products, solvents, acids, caustics, gases etc. with the exception of strongly oxidising acids at high temperature. Can be used in applications with high temperatures, e.g. exhaust flanges etc. Grafex® EX can also replace spiral wound gaskets in favourable cases.

Further information can be found at:
www.densiq.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	30	Europe
Minerals	70	Europe
Fossil materials	0	-
Bio-based materials	0	-

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	0,033

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Grafex EX
Mass per declared unit	1 kg
Functional unit	N/A
Reference service life	years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

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		
x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.
Grafex® EX is made from fine gauge SS 316L austenitic stainless acid-resistant expanded metal mesh on both sides covered with 100% expanded natural graphite without the addition of binders or fillers.
The upstream stage (A1–A2) includes extraction, processing, and transportation of sheet consisting of stainless steel and natural graphite. Material is transported approximatelly 1049 km from Germany to Sweden. Industry-average datasets representative of the graphite and steel supply chains have been applied for life cycle modelling. The manufacturing stage (A3) takes place at DENSIQ's production facility in Västra Frölunda (VF), Sweden. The process consists of cutting operation and the final inspection, packaging and shipping.
These processes are predominantly mechanical and require electricity and involve no chemical curing or thermal bonding processes. Energy consumption includes electricity (renewable from water) for cutting operations and district heating (Bra Miljöval) for the facilties. Energy have been allocated to 1 kg Grafex EX by distributing the total weight of materials processed in the period 2025-01-01 - 2025-12-31.
Waste generated during production consists mainly of metal and graphite off-cuts, which are collected and transported 25 km by our recycling partner. We have calculated assuming a 50% waste generation during production. Material losses during manufacturing are included in the system boundary. 85% of the steel scrap goes to recycling and 15% to landfill (world steel association). 100 % of the graphite is conservatively assumed to be incinerated.

Packaging materials (e.g. pallets, plastic wrapping, and protective layers) are also included in this life cycle stage. The products is packaged in protective layers or plastic wrapping, placed in cardboard boxes and placed on pallet.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

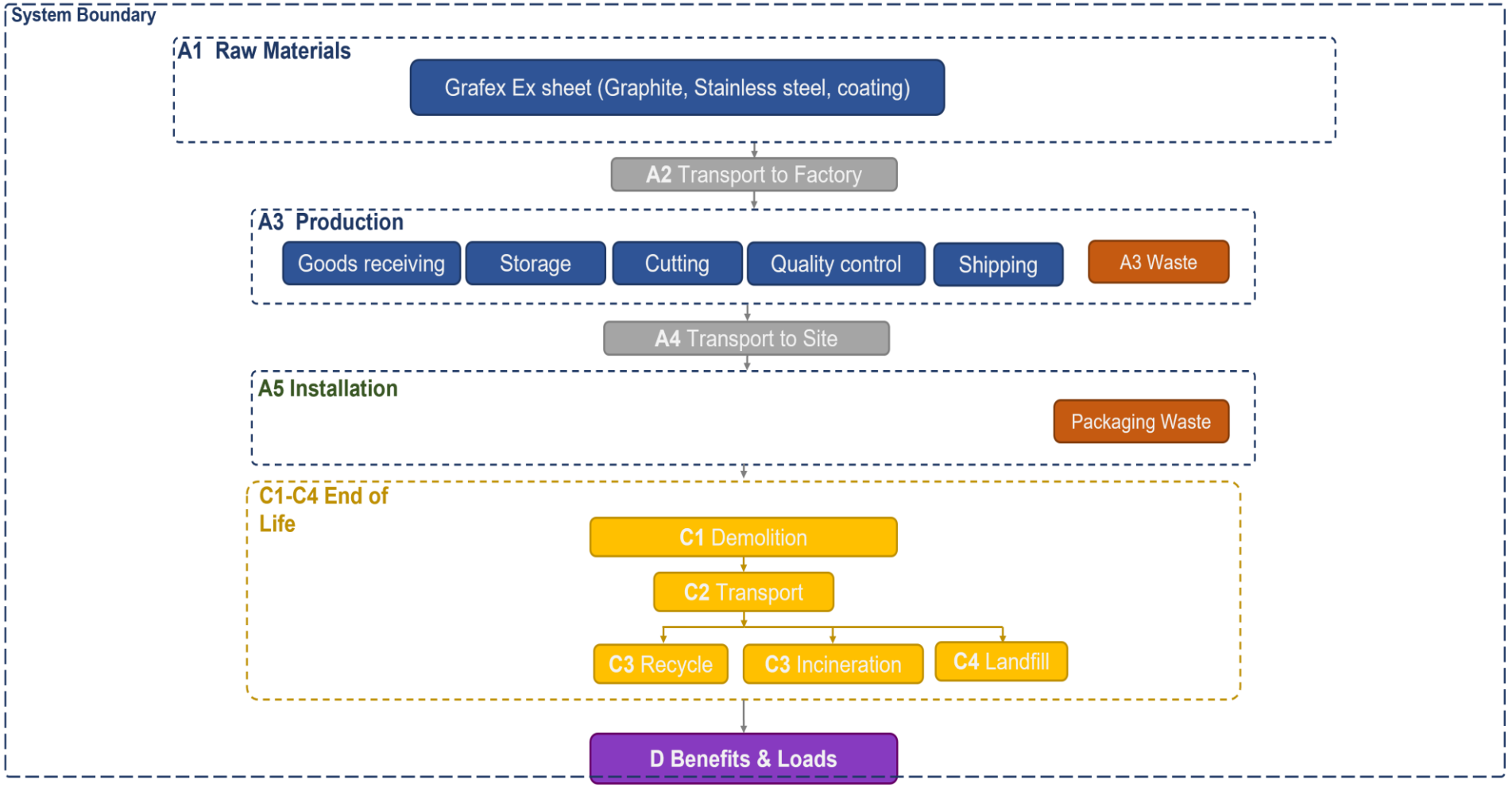
Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transportation from the production site to the customer or installation site is assumed to take place by road using a lorry. An average transport distance of 365km is applied as a representative scenario. We have used the avarage transport distance from our booking system Logtrade in year 2025. Due to the relatively low contribution of transport to the overall life cycle impact, variations in load factor are considered to have negligible influence on the results.
Products are delivered in appropriate packaging, and no material losses are assumed to occur during transportation.
Installation of the gasket products is assumed to require minimal energy and no significant additional materials, as installation typically consists of manual assembly (e.g., placement and tightening within flange connections).
No water use is required during installation.
Ancillary materials (e.g., bolts, lubricants, or sealing aids) are not included in this module, as they are considered part of the overall system rather than the gasket product itself.
Packaging waste generated at the installation stage (e.g., cardboard, plastic wrapping and wooden pallets) is included and treated according to standard waste handling scenarios (recycling, incineration, or landfill). No direct emissions to air are expected during installation. Emissions associated with transport, energy use, and waste treatment are accounted for in the respective datasets used in the life cycle assessment.

PRODUCT END OF LIFE (C1-C4, D)

At the end of their service life, gasket products are typically removed as part of maintenance, repair, or decommissioning activities. The removal process (C1) is assumed to require negligible additional energy, as it forms part of standard disassembly operations of the connected equipment (e.g., flange disassembly). Any minor energy use is considered insignificant and is included in the overall system context rather than attributed specifically to the gasket product.
It is assumed that 100% of the removed gasket waste is collected and transported to a waste treatment facility (C2). A representative transport distance of 50 km by lorry is applied.
The end-of-life treatment (C3–C4) depends on the material composition of the gasket. The stainless steel is sent for recyling (85%) and rest goes to landfill (15%). Non-metallic components (graphite) are generally assumed to be treated through incineration with energy recovery.
In module D, benefits and loads beyond the system boundary are accounted for where recycling occurs. Recovered metals are assumed to substitute primary raw materials in future production systems, generating environmental credits. Packaging materials (cardboard, wooden pallets and plastic packaging) are assumed to be treated according to typical waste management practices, with incineration with energy recovery or recycling where applicable.
No direct emissions to air are expected from the gasket itself during end-of-life handling. Emissions related to transport, waste treatment, and recycling processes are included in the respective life cycle inventory datasets.

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material 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 production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

Following processes have been excluded from the LCA.
The main process is cutting of the gasket sheet into customized sizes for our customers using stainless steel knifes. Total consumption by weight of the knifes in relation to the total produced volume was less then 0.1%.
During the cutting process we use cutting pads made of high-grade homogeneous polypropylene plastic. Total consumption by weight of the pads in relation to the total produced volume is less then 0.1%.
Detailed information on these calculations is part of the background report only disclosed for the verifier.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage.

The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

Inconsistency comment: The Inconsistency between the results for Primary energy (A1-A3-Total use of non-renewable primary energy impact value in use of natural resource table) and ADP-FF values (A1-A3 ADP fossil in EN 15804+A2 table) is due to the datapoint we have to use for graphite. There is no EPD for graphite available.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Physical Properties
Packaging material	Physical Properties
Ancillary materials	Not applicable
Manufacturing energy and waste	Physical Properties

Grafex EX EPD – Assumptions and background data, 2026-07-06
Product description
Biogenic carbon content
The biogenic carbon content in the packaging = 0,033.
GWP biogenic kg CO2e for Eur-flat pallet production = 0,06 kg
GWP biogenic corrugated board box production = 0,06 kg
Declared unit

Volume of declared unit
1 sheet of Grafex EX with the dimensions 1000 mm*2000 mm*1,5 mm is 4,48 kg which results in the volume of one unit (1 kg) is 0,0007 m3.

Mass of packaging
Mass of packaging is 0,2574 kg which is calculated by allocating total purchased volume of packaging with total weight of products manufactured in one year (2025).
Packaging film Allocated by mass = 0,00654.
Corrugated board Allocated by mass = 0,2143.
EUR-flat pallet allocated by mass = 0,03657.

Manufacturing
Manufacturing energy use is allocated by using the total volume of the site and divided the electricity and district heating.
Electricty 2025 = 5,84 kWh/kg
District heating 2025 = 2,97 kWh/kg

Generated waste
Our experience with cutting gaskets show that we are able to use 40-60% of the material. This depends on a lot of what kind of size of gaskets that are produced from the sheet. We have chosen the average value 50% for our calculations.

Transport distance
The transport distance from DENSIQ to the customers is a avarage of all transports for 2025. See emission report 2025 logtrade in teamssite Sustainability and quality. Total of 5247 transports in 2025 and the average distance was 365 km.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

- EPD Hub Core Product Category Rules version 1.2, March 2025
- EPD Hub General Program Instructions version 1.3, March 2025
- EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- EN 15941:2024 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
- EN 15942:2011 Sustainability of construction works - Environmental product declarations - Communication format business-to-business
- ISO 14025:2006 Environmental statements and programmes for products - Principles and general requirements
- ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework

- ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines
- Wooden packaging waste treatment: EUROSTAT, https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519174/default/table?lang=en
- Plastic packaging waste treatment: EUROSTAT, https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519242/default/table?lang=en

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,39E+00	1,72E-01	1,55E+00	4,11E+00	4,85E-02	1,32E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-02	5,66E-03	1,67E+00	-6,23E-01
GWP – fossil	kg CO_2e	2,36E+00	1,72E-01	1,33E+00	3,86E+00	4,85E-02	1,61E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-02	5,73E-03	1,67E+00	-3,69E-01
GWP – biogenic	kg CO_2e	2,74E-02	4,15E-05	-3,53E-02	-7,84E-03	2,51E-05	1,16E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,50E-06	-8,26E-05	1,15E-04	-2,55E-01
GWP – LULUC	kg CO_2e	2,53E-03	7,96E-05	2,57E-01	2,60E-01	1,70E-05	6,89E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,91E-06	7,08E-06	1,33E-05	9,62E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	2,40E-08	2,72E-09	1,82E-08	4,50E-08	1,10E-09	9,41E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,61E-10	7,61E-11	5,56E-10	-3,57E-10
Acidification potential	mol H^+e	1,46E-02	4,53E-04	2,95E-03	1,80E-02	1,57E-04	4,29E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,77E-05	6,84E-05	3,82E-04	-1,53E-03
EP-freshwater[2)]	kg Pe	2,37E-03	1,91E-05	4,24E-04	2,81E-03	3,45E-06	2,21E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,74E-07	3,82E-06	5,50E-06	-3,60E-04
EP-marine	kg Ne	2,40E-03	1,19E-04	1,09E-03	3,61E-03	5,51E-05	4,38E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,24E-05	1,52E-05	2,17E-04	-5,00E-04
EP-terrestrial	mol Ne	2,47E-02	1,27E-03	9,08E-03	3,51E-02	5,98E-04	1,44E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,35E-04	1,72E-04	1,85E-03	-5,07E-03
POCP ("smog")[3)]	kg NMVOCe	8,05E-03	6,82E-04	2,75E-03	1,15E-02	2,59E-04	5,38E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,55E-05	5,09E-05	4,64E-04	-1,60E-03
ADP-minerals & metals[4)]	kg Sbe	6,43E-05	5,09E-07	5,62E-06	7,05E-05	1,41E-07	5,51E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,09E-08	4,06E-07	1,18E-07	-4,29E-06
ADP-fossil resources	MJ	2,95E+01	2,54E+00	3,85E+01	7,05E+01	7,05E-01	9,03E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-01	7,74E-02	3,19E-01	-2,81E+00
Water use[5)]	m^3e depr.	1,06E+00	1,48E-02	8,66E+00	9,74E+00	4,07E-03	2,76E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,33E-04	1,51E-03	1,11E-01	6,83E-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, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,00E-07	1,65E-08	4,12E-08	2,58E-07	4,90E-09	1,58E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,09E-09	9,36E-10	2,05E-09	-2,96E-08
Ionizing radiation[6)]	kBq U235e	2,27E-01	2,12E-03	1,95E+00	2,18E+00	7,59E-04	2,68E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,36E-04	6,66E-04	5,11E-04	5,37E-02
Ecotoxicity (freshwater)	CTUe	8,06E+01	5,20E-01	8,86E+01	1,70E+02	9,50E-02	2,64E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,61E-02	3,79E-01	3,29E+00	-1,54E+01
Human toxicity, cancer	CTUh	2,35E-09	2,72E-11	1,17E-09	3,54E-09	7,66E-12	1,12E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,78E-12	5,08E-12	1,42E-10	-3,72E-11
Human tox. non-cancer	CTUh	4,87E-08	1,57E-09	7,56E-09	5,78E-08	4,39E-10	5,19E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,01E-10	3,48E-10	4,98E-09	-1,80E-09
SQP[7)]	-	1,31E+01	2,53E+00	1,69E+01	3,25E+01	7,13E-01	7,27E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-01	1,48E-01	1,04E-01	-2,30E+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	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	7,39E+00	3,53E-02	4,26E+01	5,01E+01	1,10E-02	-3,87E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,18E-03	1,42E-02	1,31E-02	-3,47E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,30E+00	3,30E+00	0,00E+00	-3,30E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,57E+00
Total use of renew. PER	MJ	7,39E+00	3,53E-02	4,59E+01	5,34E+01	1,10E-02	-7,17E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,18E-03	1,42E-02	1,31E-02	-9,00E-01
Non-re. PER as energy	MJ	2,81E+01	2,54E+00	3,24E+01	6,30E+01	7,05E-01	-1,73E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-01	7,74E-02	-2,12E+01	-2,86E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	3,23E-01	3,23E-01	0,00E+00	-3,23E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,32E-01
Total use of non-re. PER	MJ	2,81E+01	2,54E+00	3,27E+01	6,33E+01	7,05E-01	-4,96E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-01	7,74E-02	-2,12E+01	-2,72E+00
Secondary materials	kg	2,56E-01	1,06E-03	2,19E-01	4,76E-01	2,99E-04	1,35E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,71E-05	9,42E-05	2,92E-04	3,68E-01
Renew. secondary fuels	MJ	1,28E-03	1,39E-05	3,88E-02	4,01E-02	3,95E-06	8,63E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,60E-07	4,40E-06	9,55E-06	-2,00E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	2,45E-02	3,70E-04	2,06E-01	2,31E-01	9,33E-05	-9,08E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,32E-05	3,46E-05	1,88E-03	2,39E-04

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	9,27E+00	1,62E-02	2,36E-01	9,52E+00	3,98E-03	1,39E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,29E-04	5,11E-04	2,81E-02	-1,28E-01
Non-hazardous waste	kg	8,09E+00	3,20E-01	1,65E+00	1,01E+01	8,28E-02	1,42E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,02E-02	2,01E-02	7,79E-01	-2,32E+00
Radioactive waste	kg	5,78E-05	5,08E-07	4,86E-04	5,44E-04	1,83E-07	6,58E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,31E-08	1,70E-07	1,28E-07	1,38E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	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	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,28E-01	1,28E-01	0,00E+00	1,88E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,55E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,78E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,40E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,04E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2,35E+00	1,71E-01	1,63E+00	4,15E+00	4,82E-02	4,12E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,09E-02	5,72E-03	1,66E+00	-3,66E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acidification	kg SO_2e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Eutrophication	kg PO_4^3e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP (“smog”)	kg C_2H_4e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-elements	kg Sbe	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2,36E+00	1,72E-01	1,59E+00	4,12E+00	4,85E-02	1,61E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-02	5,74E-03	1,67E+00	-3,68E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. District heat, Göteborg, Sweden, 2023, Sweden, One Click LCA, 0.0425 kgCO2e/kWh
2. Electricity production, hydro, reservoir, non-alpine region, Sweden, Ecoinvent, 0.0512 kgCO2e/kWh
3. Electricity voltage transformation from high to medium voltage, Sweden, Ecoinvent, 0.0279 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry, >32 metric ton, diesel, EURO 5, 365.0 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	157
Volume capacity utilization factor	1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	The electric energy used is 100 % renewable. The basis for our calculation is that we have distributed the factory total output material and distribute this to 1 kg of Grafex EX. Electricity: 5,76 kWh/kg District heating: 2,97 kWh/kg
Water use (m^3)	No water is needed for cutting or installing the product.
Ancillary materials: type and mass (kg)	Nothing to report. See more under further descriptions where we explain the materials we have excluded from the LCA.
Waste materials: type and mass (kg)	- Plastic: 0,0065 kg - Wood: 0,036 kg - Card board: 0,21 kg
Waste materials: output routes	The gasket will after use be placed in recycling treatment. - Plastic: 0,0065 kg; incineration 0,024, landfil 0,0014 kg - Wood: 0,036 kg; incineration 0,0108 kg, landfill 0,013 kg, sorting and shredding 0,011 kg - Cardboard: 0,21 kg; landfill

	0,018 kg, sorting 0,17 kg, incineration 0,016 kg
Direct emissions (kg)	Not relevant

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	
Collection process: Mixed waste (kg)	1 kg
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0,26
Recovery: energy recovery (kg)	0
Disposal (kg)	0
Scenario assumptions e.g. transportation (mode, km) & other	Recycling facility 50 km

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Elena Antuña-Bernardo as an authorized verifier for EPD Hub Limited
15.09.2026

