

Environmental Product Declaration

In accordance with ISO14025 and EN15804+A2

St. Astier NHL 3.5



Owner of the declaration
Einar Stange AS

Product name
St. Astier NHL 3.5

Declared unit
1 kg of St. Astier NHL 3.5

Product category /PCR
NPCR Part A for Construction products and services ver2.

Part B for Technical - Chemical products for building and construction industry (references to EN15804+A2) ver2.0.

Program holder and publisher
The Norwegian EPD foundation

Declaration number
NEPD-14118-14447

Issue date
18.11.2025

Valid to
18.11.2030

General Information

Product

St. Astier NHL 3.5

Program operator

The Norwegian EPD Foundation
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Declaration number

NEPD-14118-14447

This declaration is based on Product Category Rules

NPCR Part A for Construction products and services ver2.

NPCR 009 Part B for Technical - Chemical products for building and construction industry (references to EN15804+A2)

Statement of liability

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data, and evidence.

Declared unit

1 kg of St. Astier NHL 3.5

Declared unit with options

A1-A3, A4, C1, C2, C3, C4, & D

Functional unit

Not relevant

Verification

Independent verification of the declaration and data, according to ISO14025:2010

Internal ☐

External ☒



Independent verifier approved by EPD Norway

Owner of the declaration

Einar Stange AS
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Manufacturer

Stange Industri AS, Follummoveien 38, 3516 Hønefoss, Norway

Place of production

Stange Industri AS, Follummoveien 38, 3516 Hønefoss, Norway

Management system

N/A

Organization no

925 799 351

Issue date

18.11.2025

Valid to

18.11.2030

Year of study

2023

Comparability

EPD of construction products may not be comparable if they do not comply with EN 15804+A2

The EPD has been worked out by

Modi Michael Elisa | Energiråd AS

Approved



Manager of EPD Norway

Product

Product description

Since 1911, Einar Stange AS, has been a specialist retailer of masonry products in Norway. Products such as lime, mortar, cast, brick, leca, insulation, anchoring and reinforcing steel are within our niche.

NHL 3.5 is a versatile mortar with moderate strength. It is a factory-blended dry product containing NHL 3.5 binder and sands, requiring only the addition of water. It provides an excellent balance of strength, elasticity, and vapor permeability.

The all-rounder for masonry, plastering, and flooring in both new build and restoration projects. It is also available as a "grundingsmørtel " (base coat mortar) with a 0-4mm sand grading for the first coat on absorbent backgrounds.

Product specification

The average material inputs in the product (s) are shown below.

Materials	Weight (%) in declared product
Sand	70-90
Lime, hydraulic	5-15
Lime, hydrated	3-10
Fillers	0-5
Packaging, Plastics	1.58

Technical data

- Strength Class: NHL 3.5 (3.5 N/mm² at 28 days)
- Available Gradings: grundingsmørtel 0-4mm (1:1.5), and mortars in 0-4mm (1:2), 0-2mm (1:2), and 0-1mm (1:2.5).
- Key Property: Provides an optimal balance for general use, including cold and coastal climates.

More info can be found at www.einarstange.no

Market

Norway

Reference service life, product

Not relevant

Reference service life, building

Not relevant

Additional technical information

Not relevant

LCA: Calculation rules

Declared unit

1 kg of St. Astier NHL 3.5

Cut-off criteria

All major raw materials and energy sources are included. Inputs contributing less than 1% to total environmental impact are excluded, except for hazardous substances, which are always considered. Machinery, infrastructure, and capital goods are excluded.

Allocation

Allocation follows EN 15804: A2. Energy, water use, and waste from production are distributed proportionally by product mass. Environmental impacts from recycled materials are assigned to the primary product using them. This product does not contain recycled materials.

Data quality

The Life Cycle Assessment (LCA) integrates both primary and secondary data sources.

Primary (foreground) data were obtained directly from Stange Industri AS, representing actual production processes and bill of materials from the year 2023. Secondary data were selected based on relevance, quality, and compliance with EN 15804+A2. Where available, verified EPDs conforming to EN 15804+A2 were used. In the absence of such EPDs, generic datasets from Ecoinvent v3.11 (2024) were applied, with adjustments made to ensure alignment in terms of technological representativeness, geographic relevance, and temporal consistency.

All datasets used are less than 10 years old, ensuring the LCA reflects up-to-date and reliable information.

The modelling was conducted using OpenLCA version 2.5.0 (2024), using Ecoinvent v3.11(2024) as the background database and impact assessment methods fully aligned with EN 15804+A2.

Material/Component	Source	Data Type	Reference Year	Data Quality Assessment (PEF Scheme)
Sand	NEPD-6492-5753-EN	EPD	2023	Very Good (Geographical: Representative of stated location; Technological: Exact process; Time: <3 years old)
Lime, hydraulic	Ecoinvent v3.11	Generic Database	2024	Good (Geographical: Well representative; Technological: Very similar; Time: <3 years old)
Lime, hydrated	Ecoinvent v3.11	Generic Database	2024	Good (Geographical: Well representative; Technological: Very similar; Time: <3 years old)
Fillers	Ecoinvent v3.11	Generic Database	2024	Good (Geographical: Well representative; Technological: Very similar; Time: <3 years old)
Packaging, Plastic	Ecoinvent v3.11	Generic Database	2024	Good (Geographical: Well representative; Technological: Very similar; Time: <3 years old)

System boundary

This EPD is based on a LCA with a "cradle-to-gate with additional modules" scope, covering modules A4, A5, C1–C4, and D.

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	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	MND	MND	MND	MND	MND	X	X	X	X	X

Figure 1 System boundaries (X=included, MND=module not declared, MNR=module not relevant)

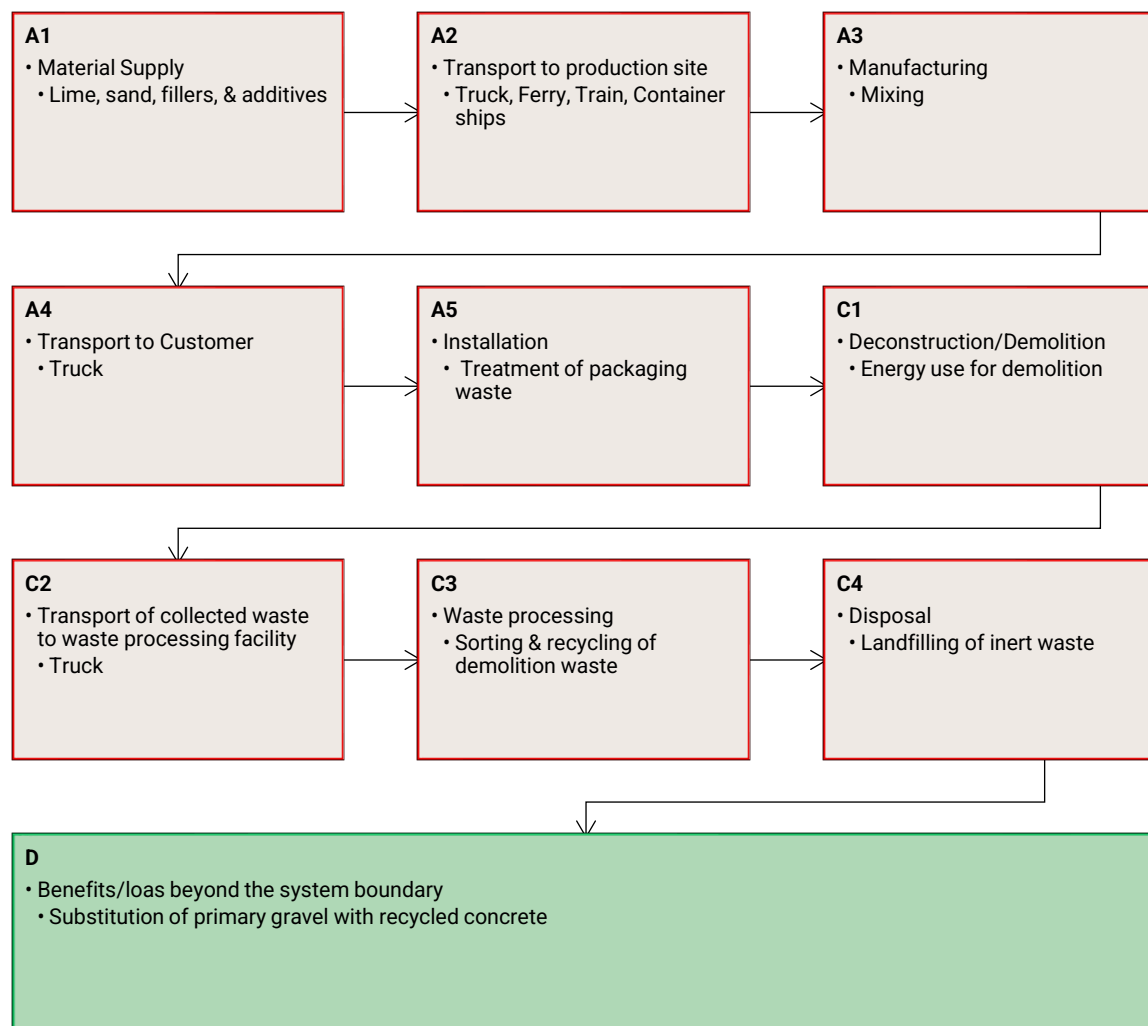


Figure 2 EPD System Boundary (Cradle-to-gate with options A4, A5, C1-C4, & D)

LCA: Scenarios and additional technical information

A4: The product is moved from the factory to the construction site using a large truck (over 32 tons). This journey covers 300 kilometers and includes fuel use and emissions from the truck.

A5: This stage covers the energy and materials used during normal construction work at the site. It also includes handling and disposal of packaging waste, but not other types of construction waste.

Note – This EPD covers the production of NHL 3.5 at Stange Industri AS, Follummoveien 38, 3516 Hønefoss, Norway. The product is intended for application in construction works within the Norwegian market. All end-of-life (EoL) scenarios, including waste processing, recovery, and disposal, are based on current Norwegian practices and infrastructure, reflecting typical conditions for construction and demolition waste management in Norway.

C1: When the building is taken apart or demolished, machines and equipment use energy. This point focuses on the fuel and electricity used during that process.

C2: After demolition, the waste is taken to a disposal or recycling center. A medium to large truck (16 – 32 tons) travels about 50 kilometers to deliver the waste.

C3: The waste is treated using Norway's average methods, which include recycling, burning for energy, and landfilling. Some materials are reused or recovered, which earns environmental credits.

C4: This step involves burying leftover waste that cannot be reused or recycled. It focuses on final landfilling of materials that are stable and don't break down easily.

D: This point accounts for the environmental savings from recycling and energy recovery. These benefits are based on the results from the waste processing stage (C3).

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) [%]	Distance [km]	Fuel/Energy consumption	Unit	Value
Truck, over 32 tons, EURO 6	53.2	300	0.023	l/tkm	2.30

Assembly (A5)	Unit	Value
Water consumption	m3	0.00
Electricity consumption	kWh	0.00
Other energy carriers	MJ	0.00
Material loss	kg	0.00
Output materials from waste treatment	kg	0.0016

End of Life (C1, C3, C4)	Unit	Value
Demolition of building per kg of product	kg	1.00
Hazardous waste disposed	kg	0.00
Collected as mixed construction waste	kg	0.00
Reuse	kg	0.00
Recycling	kg	0.36
Energy recovery	kg	0.00
To landfill	kg	0.64

Transport to waste processing (C2)	Capacity utilisation (incl. return) [%]	Distance [km]	Fuel/Energy consumption	Unit	Value
Truck, 16-32 tons, EURO 6	36.7	50	0.023	l/tkm	0.46

Benefits and loads beyond the system boundaries (D)	Unit	Value
Substitution of electricity, in Norway	MJ	0.00
Substitution of thermal energy, district heating, in Norway	MJ	0.00
Substitution of primary aggregates with crushed recycled inert products	kg	0.36

LCA: Results

The result tables are given using a location-based approach for foreground system (A3). More information about transparent reporting of electricity in the additional requirements section.

For all recipe combinations within the product specification, the calculated cradle-to-gate (A1–A3) GWP impact deviates by no more than $\pm 5.7\%$ from the declared value. This is below the 10% threshold set by EPD Global, confirming that the declared value reliably represents the product across its specified recipe range.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO2 eq	2.94E-01	5.61E-02	8.86E-03	2.27E-02	9.34E-03	5.24E-03	4.01E-03	-2.43E-03
GWP - fossil	kg CO2 eq	2.89E-01	5.60E-02	8.86E-03	2.26E-02	9.33E-03	5.22E-03	4.00E-03	-2.40E-03
GWP - biogenic	kg CO2 eq	5.68E-03	3.89E-05	6.70E-07	2.60E-05	6.49E-06	2.25E-05	1.96E-06	-2.89E-05
GWP - luluc	kg CO2 eq	1.35E-04	1.89E-05	9.28E-08	4.75E-05	3.14E-06	2.42E-06	2.28E-06	-1.25E-06
ODP	kg CFC11 eq	4.53E-09	1.22E-09	4.33E-12	4.23E-10	2.03E-10	1.18E-10	1.12E-10	-4.06E-11
AP	molc H+ eq	8.10E-04	1.20E-04	2.36E-06	1.40E-04	2.00E-05	4.12E-05	2.81E-05	-1.55E-05
EP- freshwater	kg P eq	4.82E-05	3.89E-06	3.39E-08	2.02E-06	6.48E-07	3.02E-06	3.51E-07	-3.66E-07
EP -marine	kg N eq	2.12E-04	2.90E-05	1.94E-06	5.58E-05	4.83E-06	1.44E-05	1.08E-05	-5.08E-06
EP - terrestrial	molc N eq	2.14E-03	3.10E-04	1.13E-05	6.10E-04	5.21E-05	1.60E-04	1.20E-04	-6.32E-05
POCP	kg NMVOC eq	8.78E-04	1.90E-04	3.00E-06	2.00E-04	3.18E-05	5.11E-05	4.24E-05	-1.80E-05
ADP-M&M ²	kg Sb-Eq	5.92E-07	1.97E-07	8.49E-10	5.07E-08	3.28E-08	1.48E-08	6.00E-09	-2.36E-08
ADP-fossil ²	MJ	3.11E+00	7.96E-01	2.68E-03	3.79E-01	1.33E-01	8.96E-02	9.81E-02	-3.53E-02
WDP ²	m ³	8.41E-02	4.22E-03	5.90E-04	7.86E-03	7.00E-04	2.04E-03	4.31E-03	-5.74E-03

GWP-total: Global Warming Potential; GWP-fossil: Global Warming Potential fossil fuels; GWP-biogenic: Global Warming Potential biogenic; GWP-LULUC: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential, Accumulated Exceedance; EP-freshwater: Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq. EP-marine: Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-terrestrial: Eutrophication potential, Accumulated Exceedance; POCP: Formation potential of tropospheric ozone; ADP-M&M: Abiotic depletion potential for non-fossil resources (minerals and metals); ADP-fossil: Abiotic depletion potential for fossil resources; WDP: Water deprivation potential, deprivation weighted water consumption

Reading example: $9.0 \text{ E-}03 = 9.0 \times 10^{-3} = 9.0 \times \frac{1}{10} \times \frac{1}{10} \times \frac{1}{10} = 0.009$ $9.0 \text{ E+}03 = 9.0 \times 10^3 = 9.0 \times 10 \times 10 \times 10 = 9000$

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	9.86E-09	4.20E-09	1.79E-11	1.07E-08	6.99E-10	3.52E-09	6.45E-10	-3.50E-10
IRP ¹	kBq U235 eq.	9.94E-03	9.60E-04	4.12E-06	2.60E-04	1.60E-04	3.60E-04	5.87E-05	-3.50E-04
ETP-fw ²	CTUe	5.35E-01	1.07E-01	1.76E-02	4.80E-02	1.78E-02	2.61E-02	7.10E-03	-7.93E-03
HTP-c ²	CTUh	3.66E-11	9.41E-12	8.55E-13	4.49E-12	1.57E-12	1.32E-12	7.27E-13	-9.76E-13
HTP-nc ²	CTUh	1.79E-09	5.02E-10	2.73E-11	1.50E-10	8.36E-11	6.24E-11	1.64E-11	-2.81E-11
SQP ²	Dimensionless	9.86E-01	4.78E-01	1.41E-03	4.39E-01	7.96E-02	1.09E-01	1.93E-01	-5.09E-02

PM: Particulate matter emissions; IRP: Ionizing radiation, human health; ETP-fw: Ecotoxicity (freshwater); ETP-c: Human toxicity, cancer effects; HTP-nc: Human toxicity, non-cancer effects; SQP: Land use related impacts / soil quality

¹ This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

² The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.74E-01	1.31E-02	8.49E-05	4.35E-03	2.19E-03	3.89E-03	9.20E-04	-6.80E-03
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.74E-01	1.31E-02	8.49E-05	4.35E-03	2.19E-03	3.89E-03	9.20E-04	-6.80E-03
PENRE	MJ	3.11E+00	7.96E-01	2.68E-03	3.80E-01	1.33E-01	8.96E-02	9.81E-02	-3.53E-02
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	3.11E+00	7.96E-01	2.68E-03	3.80E-01	1.33E-01	8.96E-02	9.81E-02	-3.53E-02
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	2.00E-03	9.74E-05	1.05E-05	1.90E-04	1.62E-05	3.90E-04	1.00E-04	-1.30E-04

PERE Renewable primary energy resources used as energy carrier; PERM Renewable primary energy resources used as raw materials; PERT Total use of renewable primary energy resources; PENRE Nonrenewable primary energy resources used as energy carrier; PENRM Nonrenewable primary energy resources used as materials; PENRT Total use of non-renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non-renewable secondary fuels; FW Use of net fresh water.

End of life – Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.40E-01	0.00E+00
RWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD Hazardous waste disposed; NHWD Non-hazardous waste disposed; RWD Radioactive waste disposed.

End of life – output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-01	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU Components for reuse; MFR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; EET Exported thermal energy.

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00
Biogenic carbon content in the accompanying packaging	kg C	0.00

Note: 1 kg biogenic carbon is equivalent to 44/12 (approx. 3.67) kg CO₂

Additional requirements

Transparent reporting of energy

The EPD provides the main result tables environmental impact categories based on a location based-based approach. The information below is provided so EPD users are able to understand the effect of these methodological choices.

The table below shows calculation of GWP-total for energy resources used in the manufacturing process (A3) for each approach.

Energy source	Data source	Amount*	Unit	GWP _{total} [kg CO ₂ - eq/unit]	SUM [kg CO ₂ - eq]
Location based approach					
market for electricity, low voltage electricity, low voltage EN15804, NO	Ecoinvent v3.11 (2024)	2.00E-02	kWh	3.00E-02	6.00E-04
Natural gas	N/A	-	l	-	-
Market based approach					
electricity, low voltage, residual mix electricity, low voltage EN15804, NO	Ecoinvent v3.11 (2024)	2.00E-02	kWh	7.27E-01	1.45E-02
Certified biogas	N/A	-	kg	-	-
or: Residual mix gas, foreground					

No energy associated with contractual agreements was included in the LCA for this EPD.

Additional environmental impact indicators required for construction products

To increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required, as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-IOBC	kg CO ₂ -eq.	2.94E-01	5.61E-02	8.86E-03	2.27E-02	9.34E-03	5.24E-03	4.01E-03	-2.43E-03

GWP-IOBC Global warming potential calculated according to the principle of instantaneous oxidation.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available on request to EPD owner.

- ☒ The product contains no substances given by the REACH Candidate list.
- ☐ The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.
- ☐ The product contains dangerous substances, more then 0,1% by weight, given by the REACH Candidate List, see table.
- ☐ The product contains no substances given by the REACH Candidate list.
- ☐ The product is classified as hazardous waste, see table.

Name	CAS no.	Amount

Indoor environment






The product meets the requirements for low emissions.

Carbon footprint

While a carbon footprint analysis has not been conducted for the product separately, the results section does include an evaluation of Global Warming Potential (GWP) with such an analysis. The GWP total results presented in this EPD document represents the carbon footprint of the product studied

Bibliography

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ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
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