

Owner: Connovate ApS
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804




Owner of declaration

Connovate ApS
Silicavej 11, 8000 Århus C
[VAT no. 33378092]


Issued:

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Programme

EPD Danmark
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- ☐ Industry EPD
☒ Product EPD

Declared product(s)

Connovate® Build C-110 and Connovate® Build C-120

Number of declared datasets/product variations: 1

Production site

Silicavej 11, 8000 Århus C

Product use

Ingredient for improving concrete properties

Declared/ functional unit

1 kg

Year of data

2020

EPD version

1st version

Basis of calculation

This EPD is developed in accordance with the European standard EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- ☐ Cradle-to-gate with modules C1-C4 and D
☐ Cradle-to-gate with options, modules C1-C4 and D
☐ Cradle-to-grave and module D
☒ Cradle-to-gate
☐ Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ internal ☒ external

Third party verifier:

Ninkie Bendtsen

Henrik Fred Larsen
EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Filler	30-60
Coarse sand	15-25
Cementitious material	5-20
Fine sand	10-30
Admixture	1-5
Binder	1-5
Other	<2

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of Connovate® Build on the production site located in Århus. Product specific data are collected for the period 2020. Background data are based on GaBi/Sphera and eco-invent 3.7.1 and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Picture of product(s)



Hazardous substances

The product does not contain substances listed in the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics

The product is not covered by a European harmonised technical specification, but performance values and further technical information can be obtained by contacting the manufacturer or on the manufacturers website:

<https://www.connovate.com/technology/>

Reference Service Life (RSL)

No RSL is defined for the product since the use stage modules are not declared.

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 kg.

Name	Value	Unit
Declared unit	1	kg
Density	900	kg/m ³
Conversion factor to 1 kg.	1	-

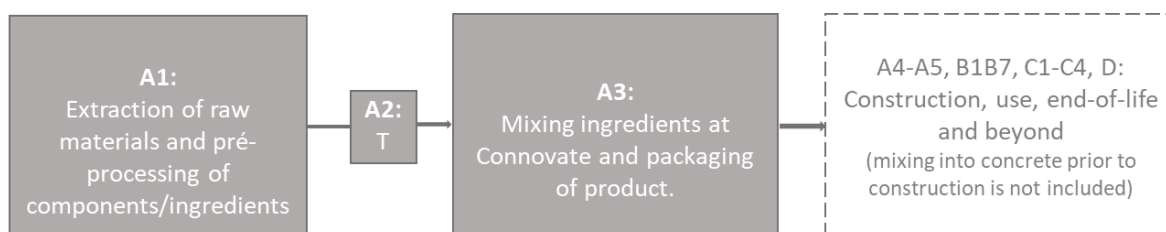
No functional unit is described for the product as this depends on the final product in which this product is used/mixed.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804 and to the extend it is relevant also EN 16757.

Functional unit

Flowdiagram



Modules not declared

T=Transport



System boundary

This EPD is based on a cradle-to-gate LCA, in which > 98 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, mixing of ingredients, packaging and waste processing up to the “end-of-waste” state or final disposal. The LCA results are not declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared separately.

The production process involves the mixing of ingredients. This process does not cause waste of ingredients.



LCA results

ENVIRONMENTAL IMPACTS PER KG												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	9,96E-02	2,32E-02	1,92E-02	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	[kg CO ₂ eq.]	9,90E-02	2,31E-02	1,99E-02	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic	[kg CO ₂ eq.]	5,47E-04	-5,22E-06	-7,23E-04	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc	[kg CO ₂ eq.]	2,74E-05	1,12E-04	3,69E-05	ND	ND	ND	ND	ND	ND	ND	ND
ODP	[kg CFC 11 eq.]	3,13E-09	2,71E-18	1,85E-11	ND	ND	ND	ND	ND	ND	ND	ND
AP	[mol H ⁺ eq.]	3,00E-04	3,89E-04	3,36E-05	ND	ND	ND	ND	ND	ND	ND	ND
EP-freshwater	[kg PO ₄ eq.]	6,52E-06	4,26E-08	1,31E-07	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine	[kg N eq.]	9,53E-05	1,11E-04	1,07E-05	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial	[mol N eq.]	1,00E-03	1,22E-03	1,06E-04	ND	ND	ND	ND	ND	ND	ND	ND
POCP	[kg NMVOC eq.]	1,46E-04	2,95E-04	2,91E-05	ND	ND	ND	ND	ND	ND	ND	ND
ADPm ¹	[kg Sb eq.]	1,11E-06	1,32E-09	8,90E-09	ND	ND	ND	ND	ND	ND	ND	ND
ADPf ¹	[MJ]	1,50E+00	2,96E-01	4,04E-01	ND	ND	ND	ND	ND	ND	ND	ND
WDP ¹	[m ³ world eq. deprived]	3,44E-02	1,33E-04	1,54E-03	ND	ND	ND	ND	ND	ND	ND	ND
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use											
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	3,11E-09	6,17E-09	2,96E-10	ND	ND	ND	ND	ND	ND	ND	ND
IRP ²	[kBq U235 eq.]	3,61E-03	4,96E-05	2,31E-03	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw ¹	[CTUe]	9,30E-01	2,14E-01	1,74E-01	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c ¹	[CTUh]	3,27E-11	4,19E-12	9,46E-12	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc ¹	[CTUh]	6,89E-10	2,29E-10	2,70E-10	ND	ND	ND	ND	ND	ND	ND	ND
SQP ¹	-	1,60E-01	6,27E-02	3,22E-01	ND	ND	ND	ND	ND	ND	ND	ND
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)											
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											
	² 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.											



RESOURCE USE PER KG												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	8,18E-02	1,05E-02	3,39E-01	ND	ND	ND	ND	ND	ND	ND	ND
PERM	[MJ]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
PERT	[MJ]	8,18E-02	1,05E-02	3,39E-01	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	[MJ]	1,44E+00	2,96E-01	2,76E-01	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	[MJ]	6,39E-02	0.00E+00	1,28E-01	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	[MJ]	1,50E+00	2,96E-01	4,04E-01	ND	ND	ND	ND	ND	ND	ND	ND
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
FW	[m ³]	8,25E-04	1,22E-05	1,64E-04	ND	ND	ND	ND	ND	ND	ND	ND
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water											

WASTE CATEGORIES AND OUTPUT FLOWS PER KG												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	6,78E-05	1,01E-11	3,47E-10	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	[kg]	4,38E-03	3,85E-05	6,78E-04	ND	ND	ND	ND	ND	ND	ND	ND
RWD	[kg]	2,34E-05	3,47E-07	1,89E-05	ND	ND	ND	ND	ND	ND	ND	ND

CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
MFR	[kg]	0.00E+00	0.00E+00	1.55E-03	ND	ND	ND	ND	ND	ND	ND	ND
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy											

BIOGENIC CARBON CONTENT PER KG		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.0004
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	



Additional information

Technical information on scenarios

Installation of the product in the building (A5)

Scenario information	Value	Unit
Plastic big bags for recycling (PP/PE)	0.0031	kg
Wooden pallets for reuse	0.0103	kg

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

References

Publisher	epddanmark www.epddanmark.dk
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	 FORCE Technology Applied Environmental Assessment Park Allé 345 DK-2605 Brøndby www.forcetechnology.com
LCA software /background data	GaBi database version 10.5.1.125 incl. databases
3rd party verifier	Ninkie Bendtsen Niras A/S Sortemosevej 19 3450 Allerød

General programme instructions

Version 2.0

www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 16757

DS/EN 16757:2017 – "Sustainability of construction works – Environmental product declarations – Product Category Rules for concrete and concrete elements"

EN 15942

DS/EN 15942:2011 – "Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

**ISO 14025**

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"