epddanmark

ECO PLATFORM EPD VERIFIED

Owner: COVIA EUROPE ApS
No.: MD-21100-EN
Issued: 07-01-2022
Valid to: 07-01-2027

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

Owner of declaration
COVIA EUROPE ApS
Ågade 103
7000 Fredericia
33395531

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

Declared product(s)
BioFlex infill

Number of declared datasets/product variations: 1

Production site
Ågade 103
7000 Fredericia
Denmark

Product(s) use
Stabilizing infill in synthetic turf

Declared unit
1 kg

Year of data
2020

EPD version
First

Issued: 07-01-2022
Valid to: 07-01-2027

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	X	X	X	X	X

Product information

Product description

BioFlex is a coated sand. It is edged with a corn size of 0.8 - 1.2 mm and a bulk density of 1200 kg/m^3. The product is closed cell and therefore hydrophobic.

The main product components are shown in the table below. The packaging quantity is 1.25 gram per declared unit.

Material	Weight-% of declared product
Silica sand	96-99.5
LDPE coating	0.5-3
Water and additives	<2

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of BioFlex infill at the production site located in Fredericia. Product specific data are based on the product recipe and production data collected for 2020. Background data are based on GaBi, Sphera 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

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

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

BioFlex was approved against the toy standard DS/EN 71-3 regarding migration of certain elements.

Essential characteristics

BioFlex is approved against DIN 18035-7:2014 applicable to outdoor synthetic turf areas with a filled or unfilled pile surface. Furthermore, the product is used in turf meeting FIFA Quality and Quality PRO requirements (FIFA 2015).

A technical datasheet with further details can be obtained by contacting the manufacturer or on the manufacturers website:

www.coviacorp.com

Reference Service Life (RSL)

No reference service life is specified as the use stage is not declared.

LCA background

Declared unit

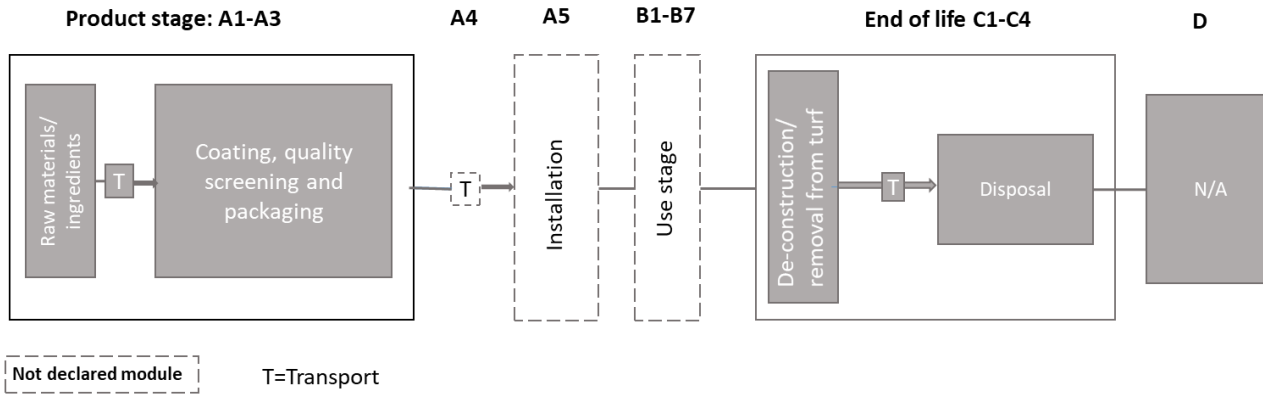
The LCI and LCIA results in this EPD relates to the declared unit as specified in the table:

Name	Value	Unit
Declared unit	1	kg
Density	1200	kg/m^3
Conversion factor to 1 kg.	1	-

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804+A2.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate with the optional modules C1-C4 and D LCA, in which 100 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, packaging and waste processing up to the ”end-of-waste” state or final disposal. The LCA results are declared in disaggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared separately.

Selected sand with a specified grain distribution is, in a heated process, mixed with polymer, which makes a coating around the sand grains. Afterwards the product is cooled down, screened and bagged in bigbags.

End of Life (C1-C4) includes:

Deconstruction in module C1 includes removal of the used infill from the turf using a brushing unit and packing in bigbags.

The disposal at end-of-life is based on a 100% landfill scenario.

Re-use, recovery and recycling potential (D) includes:

There are no activities in module D due to the selected end-of-life landfill scenario.

LCA results

ENVIRONMENTAL IMPACTS PER KG									
Parameter	**Enhed**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	[kg CO_2 eq.]	8,06E-02	8,11E-03	3,90E-02	1,70E-03	3,28E-03	0.00E+00	1,47E-02	0.00E+00
GWP-fossil	[kg CO_2 eq.]	8,00E-02	8,07E-03	3,89E-02	1,63E-03	3,26E-03	0.00E+00	1,51E-02	0.00E+00
GWP-biogenic	[kg CO_2 eq.]	5,38E-04	-1,62E-06	9,27E-05	7,18E-05	-4,15E-06	0.00E+00	-4,39E-04	0.00E+00
GWP-luluc	[kg CO_2 eq.]	6,95E-05	3,85E-05	2,08E-05	2,77E-07	2,67E-05	0.00E+00	4,44E-05	0.00E+00
ODP	[kg CFC 11 eq.]	5,46E-16	9,47E-19	2,64E-16	3,82E-18	4,16E-19	0.00E+00	5,88E-17	0.00E+00
AP	[mol H^+ eq.]	1,27E-04	1,39E-04	5,42E-05	1,71E-05	1,02E-05	0.00E+00	1,08E-04	0.00E+00
EP-freshwater	[kg P eq.]	1,03E-07	1,47E-08	6,28E-08	6,06E-10	9,67E-09	0.00E+00	2,54E-08	0.00E+00
EP-marine	[kg N eq.]	4,96E-05	3,96E-05	1,76E-05	8,87E-06	4,68E-06	0.00E+00	2,80E-05	0.00E+00
EP-terrestrial	[mol N eq.]	5,35E-04	4,35E-04	1,88E-04	9,71E-05	5,23E-05	0.00E+00	3,07E-04	0.00E+00
POCP	[kg NMVOC eq.]	1,49E-04	1,05E-04	5,45E-05	2,47E-05	9,18E-06	0.00E+00	8,47E-05	0.00E+00
ADPm[1]	[kg Sb eq.]	1,40E-08	4,58E-10	5,13E-09	7,46E-11	2,48E-10	0.00E+00	1,43E-09	0.00E+00
ADPf[1]	[MJ]	2,19E+00	1,03E-01	5,84E-01	1,04E-02	4,33E-02	0.00E+00	2,01E-01	0.00E+00
WDP[1]	[m^3 world eq. deprived]	3,55E-02	4,59E-05	1,90E-03	1,03E-05	2,83E-05	0.00E+00	1,62E-03	0.00E+00
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 = Acidifcation; 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	**Enhed**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	2,12E-09	2,20E-09	6,07E-10	3,50E-10	5,73E-11	0.00E+00	1,34E-09	0.00E+00
IRP[2]	[kBq U235 eq.]	1,54E-03	1,73E-05	1,22E-03	3,36E-05	7,52E-06	0.00E+00	2,22E-04	0.00E+00
ETP-fw[1]	[CTUe]	8,13E-01	7,47E-02	3,61E-01	4,90E-03	3,13E-02	0.00E+00	1,14E-01	0.00E+00
HTP-c[1]	[CTUh]	2,52E-11	1,46E-12	1,37E-11	1,37E-13	6,32E-13	0.00E+00	1,69E-11	0.00E+00
HTP-nc[1]	[CTUh]	1,34E-09	7,96E-11	3,85E-10	1,27E-11	3,74E-11	0.00E+00	1,86E-09	0.00E+00
SQP[1]	-	1,22E-01	2,16E-02	1,43E-01	7,99E-04	1,49E-02	0.00E+00	4,05E-02	0.00E+00
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**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	1,37E-01	3,63E-03	1,78E-01	1,08E-03	2,42E-03	0.00E+00	2,70E-02	0.00E+00
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]	1,37E-01	3,63E-03	1,78E-01	1,08E-03	2,42E-03	0.00E+00	2,70E-02	0.00E+00
PENRE	[MJ]	2,24E+00	1,35E+00	1,03E-01	5,33E-01	5,23E-03	0.00E+00	2,01E-01	0.00E+00
PENRM	[MJ]	8,97E-01	8,40E-01	0.00E+00	5,15E-02	5,15E-03	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3,13E+00	2,19E+00	1,03E-01	5,85E-01	1,04E-02	0.00E+00	2,01E-01	0.00E+00
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	[m^3]	1,19E-03	1,02E-03	4,22E-06	1,12E-04	1,54E-06	0.00E+00	4,95E-05	0.00E+00
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**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	4,00E-10	3,47E-12	1,88E-10	1,66E-12	2,19E-12	0.00E+00	2,13E-11	0.00E+00
NHWD	[kg]	6,43E-04	1,34E-05	1,13E-02	3,32E-06	6,45E-06	0.00E+00	1,00E+00	0.00E+00
RWD	[kg]	1,66E-05	1,21E-07	1,02E-05	2,36E-07	5,25E-08	0.00E+00	2,11E-06	0.00E+00
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	0.00E+00	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
Caption	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi								

BIOGENIC CARBON CONTENT PER KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packagaing	[kg C]	0
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
Packaging materials for recycling (PE bags)	0.00125	kg

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	1	kg
For final disposal	1	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	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 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”

DIN 18035-7:2014
DIN 18035-7:2014 – Heavy metals “Sports Grounds - Part 7: Synthetic Turf Areas”

FIFA: 2015
FIFA: 2015 – “FIFA Quality Pro”