MRPI®-EPD+ STICHTING MRPI

ECO PLATFORM
EPD
EN 15804 VERIFIED

MRPI
milieu relevante product informatie

PROGRAMME OPERATOR
Stichting MRPI®
Zuid-Hollandlaan 7
2596AL
Den Haag

COMPANY INFORMATION

Concrix®

Contec Fiber AG
Via Innovativa 21
CH-7013 Domat/Ems, Switzerland
Phone: +41 81 632 61 61
Email: info@contecfiber.com

PRODUCT
Concrix fiber

MRPI®-REGISTRATION
2.1.00024.2017

EPD-REGISTRATION
00000626

DATE OF ISSUE
22-12-2017

DATE OF EXPIRY
22-12-2022

DECLARED UNIT/FUNCTIONAL UNIT
1 kg of Concrix fiber.
These fibers are used as reinforcement in
concrete structures.

SCOPE OF DECLARATION
This MRPI®-EPD+ certificate is verified by EcoChain.
The LCA study has been done by EcoReview.
The certificate is based on an LCA-dossier according to ISO14025 and NEN-EN15804+A1.
It is verified according to the EPD-MRPI® verification protocol May 2017.
EPD of construction products may not be comparable if they do not comply with NEN-EN15804+A1.
Declaration of SVHC that are listed on the "Candidate List of Substances of Very High Concern for authorisation" when content exceeds the limits for registration with ECHA.

VISUAL PRODUCT

DESCRIPTION OF PRODUCT
Concrix is a bi-component Macrofiber serving as a structural concrete reinforcement. The rough fiber surface ensures superior bonding within the concrete, and the fiber bundles guarantee fast three-dimensional distribution throughout the matrix during the mixing process. The enhanced technical parameters of the concrete can be used for structural design purposes conditions.

MORE INFORMATION:
www.contecfiber.com

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]
independent verification of the declaration and data, according to EN ISO 14025:2010
☐internal   ☑external
(where appropriate[b]) Third party verifier: <EcoChain, Niels Jonkers>
a Product Category Rules b Optional for B-to-B communication; mandatory for B-to-C communication (see EN ISO 14025:2010,9.4).

DETAILED PRODUCT DESCRIPTION

Concrix serves as a structural reinforcement, increases the impact resistance of the concrete, and can also be used in structural applications. Concrix prevents sedimentation – the subsequent settlement of the matrix. Concrix creates a high level of resistance for concrete structures exposed to aggressive waters and creeping (long term tested for more than 4 years)!

Based on project-specific data our engineers prepare a static calculation according to latest standards (Eurocode).

Concrix is used in tunnelling (shotcrete), prefabrication applications, slabs and concrete walls, industrial floors, outside standings, for concrete repair works, concrete piles, special foundation works and different special applications. On the basis of Eurocode 2 and the Fibre Concrete Guidelines it is possible to prove the adequate structural strength of slabs, concrete fields, foundations, walls and other structures and eliminate the steel reinforcement partially or completely. The recommended approximate dosage for Concrix as a structural reinforcement is 2.0 to 7.5 kg/m^3 of concrete.

COMPONENT*	[KG]
Polypropylene, main component	Confidential

> 1% TOTAL MASS

SCOPE AND TYPE

The type of this EPD is Cradle-to-Gate. All major steps from the extraction of naturalresources to the factory gate are included in the environmental performance of the manufacturing phase, except those that are not relevant to the environmental performance of the product.

The software EcoChain used to perform the LCA. The background databases used are:
• Ecoinvent (v3.4)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishement	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	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA

X = included, MNA = Module Not Assessed

REPRESENTATIVENESS

This EPD is representative for products produced and sold in the EU. The Concrix Fiber is produced in one production site in Germany.

ENVIRONMENTAL IMPACT per functional or declared unit

	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	[kg Sb-Eq.]	4.36E-2	1.05E-7	1.28E-6	4.36E-2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ADPF	[MJ]	4.55E-2	2.73E-4	1.16E-2	5.74E-2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
GWP	[kg CO_2-Eq.]	2.68	0.037	1.444	4.16	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ODP	[kg CFC11-Eq.]	3.75E-9	6.91E-9	6.68E-8	7.74E-8	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
POCP	[kg ethene-Eq.]	5.75E-4	2.23E-5	1.55E-4	7.52E-4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
AP	[kg SO_2-Eq.]	8.46E-3	1.63E-4	2.04E-3	1.07E-2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EP	[kg $(PO_4)^{3-}$-Eq.]	7.97E-4	3.21E-5	2.99E-4	1.13E-3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Toxicity indicators (only for Dutch Market)																			
HTP	[kg DCB-Eq]	5.09E-2	1.60E-2	1.73E-1	2.40E-1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FAETP	[kg DCB-Eq]	3.80E-3	4.72E-4	3.55E-3	7.82E-3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MAETP	[kg DCB-Eq]	1.06E+2	6.47E+0	6.85E+2	7.97E+2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
TETP	[kg DCB-Eq]	1.82E-4	1.28E-4	1.05E-2	1.08E-2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources
GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; POCP = Formation potential of tropospheric ozone photochemical oxidants; AP = Acidification potential of land and water; EP = Eutrophication potential; HTP = Human Toxicity Potential; FAETP = Fresh-water Aquatic Ecotoxicity Potential; MAETP = Marine Aquatic Ecotoxicity Potential; TETP = Terrestrial Ecotoxicity Potential

INA = Indicator Not Assessed

RESOURCE USE per functional or declared unit

	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	6.61E-1	7.88E-3	4.37E+0	5.04E+0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERM	[MJ]	0	2.61E+1	0	2.61E+1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERT	[MJ]	6.61E-1	7.88E-3	4.37E+0	5.04E+0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRE	[MJ]	1.00E+2	6.11E-1	2.29E+1	1.24E+2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRM	[MJ]	0	2.61E+1	0	2.61E+1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRT	[MJ]	1.00E+2	6.11E-1	2.29E+1	1.24E+2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
SM	[kg]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RSF	[MJ]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NSRF	[MJ]	6.61E-1	7.88E-3	4.37E+0	5.04E+0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FW	[m^3]	1.40E-3	0	1.75E-2	1.89E-2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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 = Use of net fresh water

INA = Indicator Not Assessed

OUTPUT FLOWS AND WASTE CATEGORIES per functional or declared unit

	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	1.60E-6	4.27E-6	1.55E-4	1.60E-4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NHWD	[kg]	3.11E-2	3.48E-2	4.88E-2	1.15E-1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RWD	[kg]	1.10E-6	3.93E-6	8.33E-5	8.83E-5	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
CRU	[kg]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MFR	[kg]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MER	[kg]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EEE	[MJ]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EET	[MJ]	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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; EEE = Exported electrical energy; EEE = Exported thermal energy

INA = Indicator Not Assessed

CALCULATION RULES

Data quality
Data flows have been modeled as realistically as possible. Data quality assessment is based on the principle that the primary data used for processes occurring at the production site is selected in the first instance. Where this is not available, other reference data is selected from appropriate sources.

Data collection period
The dataset is representative for the production processes used in 2016

Methodology and reproducibility
The process descriptions and quantities in this study are reproducible in accordance to the reference standards that have been used. The references of all sources, both primary and public sources and literature, have been documented in the LCA report. In addition, to facilitate the reproducibility of this LCA, a full set of data records has been generated which can be accessed via the EcoChain tool. This data portfolio contains a summary of all the data used in this LCA, and correspondingly, in Contec Fibers Ecochain account.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1. Raw materials supply
This module considers the extraction and processing of all raw materials and energy which occur upstream to the Concrix Fibers manufacturing process, as well as waste processing up to the end-of waste state.

A2. Transport of raw materials to manufacturer
This includes the transport distance of the raw materials to the manufacturing facility via road, boat and/or train.

A3. Manufacturing
This module covers the manufacturing of the Concrix Fibers and includes all processes linked to production such as extrusion, mixing, packing and internal transportation. Use of electricity, fuels and auxiliary materials in fiber production is taken into account as well.

DECLARATION OF SVHC

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation", or they do not exceed the threshold with the European Chemicals Agency

REFERENCES

- EN 15804:2012+A1:2013 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products, of 11/2013.

- ISO 14040/14044 on Life Cycle Assessments

REMARKS
None