

ENVIRONMENTAL PRODUCT DECLARATION

According ISO 14025 and EN 15804

Owner of the Declaration

Studio Wae

Publisher

NIBE Research bv

Calculation number

EPD-NIBE-20200626-10418

Issue date

Valid until

**1 m3 mortel betontegels the Right Wae collection -
granulaat van Rutte**

Studio Wae

www.epdnibe.com

studio
wae

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804

studio
wae

1. GENERAL

1.1 COMPANY INFORMATION / DECLARATION OWNER



Manufacturer: Studio Wae
Production Location: Dikkenberg Betonelementen
Address: Bruinhorsterpad 20
6741 PP Lunteren
E-mail: Tynke@studiowae.nl
Website: www.studiowae.nl

1.2 EPD INFORMATION

EPD for: 1 m3 mortel betontegels the Right Wae collection - granulaat van Rutte
Calculation number: EPD-NIBE-20200626-10418
Date of issue:
End of validity:
Version NIBE's EPD Application: v2.0
Version Environmental Profile database: v2.94 (2020-07-13)
PCR: SBK bepalingmethode v3.0 incl. amendments July 2019, Jan 2020

1.3 SCOPE OF DECLARATION

This is a cradle to gate with options EPD. The life cycle stages included are as shown below:
(X = included, MND = module not declared)

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

1.4 VERIFICATION OF THE DECLARATION

CEN standard EN 15804:2012 serves as the core PCR
Independent verification of the declaration, according to EN ISO 14025:2010. Internal External

ENVIRONMENTAL PRODUCT DECLARATION

According ISO 14025 and EN 15804

studio
wae

2. PRODUCT

2.1 PRODUCT DESCRIPTION

Betonmortel met een dichtheid van 2200 kg/m³ t.b.v. beton tegels van Studio Wae, geproduceerd door Dikkenberg Beton.

Het granulaat is afkomstig van Rutte Groep.

Inclusief energieverbruik voor het vormen van een tegel. De resultaten kunnen worden vermenigvuldigd met de dikte van de tegel om de MKI van 1 m² betontegels te verkrijgen (A1-A3).

2.2 DESCRIPTION OF THE MANUFACTURING PROCESS

Production

De betonmortel wordt geproduceerd door Dikkenberg Beton Elementen.

De grondstoffen worden aangeleverd per vrachtwagen. De grondstoffen worden afgewogen en via banden naar de menger gebracht. Alle grondstoffen worden in de menger gemengd tot een homogeen mengsel.

NOT VERIFIED

ENVIRONMENTAL PRODUCT DECLARATION

According ISO 14025 and EN 15804

studio
wae

3. CALCULATION RULES

3.1 CUT-OFF CRITERIA

In the Life cycle assessment the following is included in this study:

Product stage (A1-A3)

The production stage consists of the extraction of raw materials, transportation of the raw materials, processing the raw materials into materials and the production of the product. The required energy for production, external treatments, ancillary materials, packaging material and production emissions are included.

NOT VERIFIED

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804

studio
wae

3.2 ALLOCATION

Not applicable in this LCA.

3.3 SOURCE OF BACKGROUND DATA

Material	Source	Comments
Raw Material profiles		
Concrete granulate free of burden	n.a.	
Crusher sand free of burden	n.a.	
ENCI CEM I 52.5 R	ENCI	LCA of CEM I 52.5 R (portland cement) produced by HeidelbergCement Benelux for the Netherlands. SGS INTRON-rapport: A873490/R20140152
Eco2cem GGBS	Orcem	
Tap water - part of the product	EcoInvent 3.5	
Water - Tap water	EcoInvent 3.5	
Zand 0-4 Cascade (cat 2, 2020)	LCA VAN ZAND- EN GRINDWINNING, cat2 voor NMD, SGS Search, mei 2020	o.b.v. LCA gemaakt voor Rutte groep: N:\733 - EPD tool\733.055 - Rutte Groep\733.055 - Inhoudelijk
Energy profiles		
Electricity (NL) - low voltage (max 1kV)	EcoInvent 3.5	
Waste profiles		
0240-sto&Stort beton, cellenbeton (o.b.v. Waste concrete {Europe without Switzerland} treatment of waste concrete, inert material landfill Cut-off, U)	NMD/EcoInvent 3.5	
0270-reC&Breken, per kg steenachtig (o.b.v. SBK Breken steenachtig MRPI)	NMD/EcoInvent 3.5	
Gravel, round (RoW)	EcoInvent 3.5	

%}

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804

studio
wae

4. RESULTS

4.1 DECLARED UNIT

Impact category	Unit	Total Amount
Depletion of abiotic resources-elements	Kg Sb	3.15E-2
Depletion of abiotic resources-fossil fuels	Kg Sb	5.99E-1
Global warming	Kg CO2 Equiv.	1.72E+2
Ozone layer depletion	Kg CFC-11 Equiv.	6.44E-6
Photochemical oxidants creation	Kg Ethene Equiv.	2.62E-2
Acidification of soil and water	Kg SO2 Equiv.	2.86E-1
Eutrophication	Kg PO43- Equiv.	7.16E-2
Human toxicity	kg 1.4 DB	1.50E+1
Ecotoxicity. fresh water	kg 1.4 DB	4.76E-1
Ecotoxicity. marine water (MAETP)	kg 1.4 DB	2.16E+3
Ecotoxicity. terrestrial	kg 1.4 DB	2.84E-1
Parameter	Unit	Total Amount
renewable primary energy ex. raw materials	MJ	1.73E+1
renewable primary energy used as raw materials	MJ	1.10E+1
renewable primary energy total	MJ	2.03E+1
non-renewable primary energy ex. raw materials	MJ	4.02E+2
non-renewable primary energy used as raw materials	MJ	0.00E+0
non-renewable primary energy total	MJ	1.20E+3
use of secondary material	Kg	1.70E+3
use of renewable secondary fuels	MJ	1.22E+2
use of non-renewable secondary fuels	MJ	7.90E+1
use of net fresh water	M3	5.72E+0
hazardous waste disposed	Kg	3.33E-1
non hazardous waste disposed	Kg	2.39E+1
radioactive waste disposed	Kg	2.34E-3
Components for re-use	Kg	0.00E+0
Materials for recycling	Kg	2.18E+1
Materials for energy recovery	Kg	0.00E+0
Exported energy	MJ	0.00E+0

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804

studio
wae

4.2 PRODUCT STAGE (A1 - 3)

- A1. raw material extraction and processing, processing of secondary material input (e.g. recycling processes)
- A2. transport to the manufacturer
- A3. manufacturing

Impact category	Unit	A1	A2	A3
Depletion of abiotic resources-elements	Kg Sb	3.11E-2	4.08E-5	3.25E-4
Depletion of abiotic resources-fossil fuels	Kg Sb	3.79E-1	1.36E-1	8.39E-2
Global warming	Kg CO2 Equiv.	1.43E+2	1.75E+1	1.22E+1
Ozone layer depletion	Kg CFC-11 Equiv.	2.38E-6	3.41E-6	6.52E-7
Photochemical oxidants creation	Kg Ethene Equiv.	1.35E-2	1.08E-2	1.93E-3
Acidification of soil and water	Kg SO2 Equiv.	1.98E-1	5.87E-2	2.94E-2
Eutrophication	Kg PO43- Equiv.	5.40E-2	1.08E-2	6.77E-3
Human toxicity	kg 1.4 DB	5.91E+0	7.84E+0	1.29E+0
Ecotoxicity. fresh water	kg 1.4 DB	2.21E-1	2.18E-1	3.63E-2
Ecotoxicity. marine water (MAETP)	kg 1.4 DB	1.18E+3	8.26E+2	1.54E+2
Ecotoxicity. terrestrial	kg 1.4 DB	2.03E-1	2.54E-2	5.61E-2
Parameter	Unit	A1	A2	A3
renewable primary energy ex. raw materials	MJ	1.71E+1	0.00E+0	1.71E-1
renewable primary energy used as raw materials	MJ	1.09E+1	0.00E+0	1.09E-1
renewable primary energy total	MJ	1.59E+0	3.00E+0	1.58E+1
non-renewable primary energy ex. raw materials	MJ	3.98E+2	0.00E+0	3.98E+0
non-renewable primary energy used as raw materials	MJ	0.00E+0	0.00E+0	0.00E+0
non-renewable primary energy total	MJ	7.35E+2	3.02E+2	1.66E+2
use of secondary material	Kg	1.68E+3	0.00E+0	1.68E+1
use of renewable secondary fuels	MJ	1.21E+2	0.00E+0	1.21E+0
use of non-renewable secondary fuels	MJ	7.82E+1	0.00E+0	7.82E-1
use of net fresh water	M3	5.45E+0	5.07E-2	2.14E-1
hazardous waste disposed	Kg	3.29E-1	1.71E-4	3.73E-3
non hazardous waste disposed	Kg	1.47E+0	2.14E+1	1.04E+0
radioactive waste disposed	Kg	3.63E-6	1.92E-3	4.09E-4
Components for re-use	Kg	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	Kg	0.00E+0	0.00E+0	2.18E+1
Materials for energy recovery	Kg	0.00E+0	0.00E+0	0.00E+0
Exported energy	MJ	0.00E+0	0.00E+0	0.00E+0

5. REFERENCES

ISO 14040

ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044

ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006

ISO 14025

ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

SBK-verification protocol

SBK-verification protocol – inclusion data in the Dutch environmental database, Final Version 3.0, January 2019, SBK

SBK-Assessment Method

Assessment Method Environmental Performance Construction and Civil Engineering Works (GWW), Version "3.0 January 2019", SBK

Protocol EPD-online

25011.16.03.015 - Protocol EPD online - NMD, version 1.2, November 2016, NIBE

NOT VERIFIED