

Owner: ISOKLINKER ApS  
No.: MD-14001-EN  
Issued: 07-04-2014  
Valid to: 07-04-2019

3<sup>rd</sup> PARTY VERIFIED

**EPD**

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of declaration**

Isoklinker ApS  
CVR: 34895465



**Issued**

07-04-2014

**Valid to**

07-04-2019

**Programme operator**

Danish Technological Institute  
www.dti.dk



**Basis of calculation**

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

**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.

**Programme**

EPD Danmark  
www.epddanmark.dk



**Validity**

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

**Declared product**

ISOKLINKER® System 80, 100, 120, 140, 160

**EPD type**

- Cradle-to-gate
- Cradle-to-gate with options
- Cradle-to-grave

**Production site**

ISOKLINKER PRODUKTIONS GmbH  
Schamerloh 147  
D - 31606 Warmsen, DE

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:
 <i>Ninkie Bendtsen</i>

**Products use**

ISOKLINKER® is a panel construction for brick facing and insulation without foundations for existing buildings, new buildings and prefabricated houses. The ISOKLINKER system makes it possible to face the walls of old, prefabricated and new buildings with the additional effect of thermal-insulation. ISOKLINKER is a natural composite of the thermal insulator polyurethane with high-quality branded clay facing bricks. ISOKLINKER is attached without preparation directly to the exterior wall with wall plugs.

 <i>Peter Ishøj</i> Peter Ishøj Director - EPD Danmark
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**Declared unit**

1 m<sup>2</sup>

**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. These make up 99 weight-percent.

Material	Weight-% of declared product
Tiles	81
Sand	9
Polyurethane foam	9

## Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of 1 m<sup>2</sup> ISOKLINKER system 80 on the production site located in Warmssen, Germany. Product specific data are based on annual averages from 2012. Background data are based on GaBi and are less than 10 years old. Additionally, this EPD gives LCA results for the systems 100, 120, 140 and 160. These products are the same as System 80, but with a thicker layer of polyurethane foam.

## Dangerous substances

ISOKLINKER 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 (CE)

ISOKLINKER is not covered by a harmonised technical specification.

Technical information for ISOKLINKER panels can be found on the manufacturers website:

<http://www.isoklinker.de/en/isoklinker-vendor-information/>

## Reference Service Life (RSL)

No RSL is declared.

This EPD is based on a cradle-to-gate assessment.

# LCA background

## Declared unit

The results in this EPD relates to 1 m<sup>2</sup> ISOKLINKER panel.

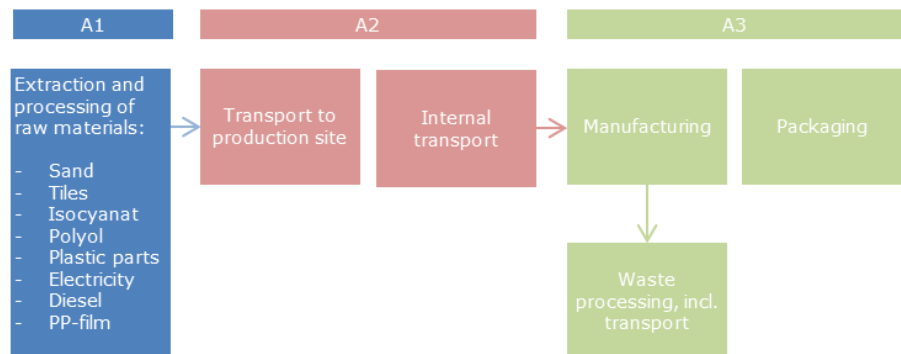
Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Density	34,9	kg/m <sup>2</sup>
Conversion factor to 1 kg.	0,029	-

## PCR

This EPD is developed according to the core rules for the product

category of construction products in EN 15804.

### Flow diagram



### System boundaries

This EPD is based on a cradle-to-gate LCA, in which >99 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.

#### 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 aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

# LCA results

## Environmental impacts

Parameter	Unit	System 80 A1-A3	System 100 A1-A3	System 120 A1-A3	System 140 A1-A3	System 160 A1-A3
Global warming (GWP)	[kg CO <sub>2</sub> eq.]	<b>1,98E+01</b>	2,35E+01	2,72E+01	3,09E+01	3,46E+01
Ozone depletion (ODP)	[kg CFC11 eq.]	<b>2,75E-08</b>	2,76E-08	2,77E-08	2,78E-08	2,79E-08
Acidification for soil and water (AP)	[kg SO <sub>2</sub> eq.]	<b>4,41E-02</b>	5,05E-02	5,69E-02	6,33E-02	6,96E-02
Eutrophication (EP)	[kg (PO <sub>4</sub> ) <sup>3-</sup> eq.]	<b>6,43E-03</b>	7,39E-03	8,34E-03	9,30E-03	1,03E-02
Photochemical ozone creation (POCP)	[kg Ethen eq.]	<b>6,77E-03</b>	7,85E-03	8,93E-03	1,00E-02	1,11E-02
Depletion of abiotic resources-elements (ADPe)	[kg Sb eq.]	<b>8,59E-05</b>	9,56E-05	1,05E-04	1,15E-04	1,25E-04
Depletion of abiotic resources-fossil fuels (ADPf)	[MJ]	<b>3,75E+02</b>	4,45E+02	5,15E+02	5,85E+02	6,55E+02

## Resource use

Parameter	Unit	System 80 A1-A3	System 100 A1-A3	System 120 A1-A3	System 140 A1-A3	System 160 A1-A3
Use of renewable primary energy	[MJ]	<b>1,76E+01</b>	2,12E+01	2,49E+01	2,85E+01	3,21E+01
Use of renewable primary energy resources as raw materials	[MJ]	<b>4,63E+00</b>	4,63E+00	4,63E+00	4,63E+00	4,63E+00
Total use of renewable primary energy resources	[MJ]	<b>2,22E+01</b>	2,58E+01	2,95E+01	3,31E+01	3,68E+01
Use of non-renewable primary energy	[MJ]	<b>3,96E+02</b>	4,70E+02	5,45E+02	6,20E+02	6,95E+02
Use of non-renewable primary energy resources as raw materials	[MJ]	<b>7,66E+00</b>	7,66E+00	7,66E+00	7,66E+00	7,66E+00
Total use of non-renewable primary energy resources	[MJ]	<b>4,03E+02</b>	4,78E+02	5,53E+02	6,27E+02	7,02E+02
Use of secondary material	[kg]	-	-	-	-	-
Use of renewable secondary fuels	[MJ]	-	-	-	-	-
Use of non-renewable secondary fuels	[MJ]	-	-	-	-	-
Net use of fresh water	[m <sup>3</sup> ]	<b>8,31E-02</b>	1,02E-01	1,20E-01	1,39E-01	1,57E-01

## Waste categories and other output flows

Parameter	Unit	System 80 A1-A3	System 100 A1-A3	System 120 A1-A3	System 140 A1-A3	System 160 A1-A3
Hazardous waste disposed	[kg]	<b>2,64E-02</b>	3,15E-02	3,66E-02	4,17E-02	4,67E-02
Non-hazardous waste disposed	[kg]	<b>8,84E-01</b>	9,14E-01	9,44E-01	9,73E-01	1,00E+00
Radioactive waste disposed	[kg]	<b>1,09E-02</b>	1,29E-02	1,49E-02	1,68E-02	1,88E-02
Components for re-use	[kg]	-	-	-	-	-
Materials for recycling	[kg]	-	-	-	-	-
Materials for energy recovery	[kg]	-	-	-	-	-
Exported energy	[MJ]	-	-	-	-	-

## Additional information

### Indoor air

The product is not in contact with the indoor air after installation.

*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

<b>Publisher</b>	 <a href="http://www.epddanmark.dk">http://www.epddanmark.dk</a>
<b>Programme operator</b>	Danish Technological Institute Sustainable Construction Kongsvang Allé 29 DK-8000 Aarhus C <a href="http://www.teknologisk.dk">http://www.teknologisk.dk</a>
<b>LCA-practitioner</b>	Danish Technological Institute Sustainable Construction Kongsvang Allé 29 DK-8000 Aarhus C <a href="http://www.teknologisk.dk">http://www.teknologisk.dk</a>
<b>LCA software /background data</b>	GaBi 6.3 incl. databases
<b>3<sup>rd</sup> party verifier</b>	Ninkie Bendtsen – ALECTIA A/S

### General programme instructions

Version 1.6

[www.epddanmark.dk](http://www.epddanmark.dk)

#### EN 15804

DS/EN 15804 + A1:2013 - "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"