

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Z-fix excellent



mira
byggeprodukter a/s

EPD-Global

Owner of the declaration:

Mira Byggeprodukter AS

Product:

Z-fix excellent

Declared unit:

1 kg

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR

NPCR 009:2021 Part B for Technical - Chemical products for building and construction industry

Program operator:

EPD-Global

Declaration number:

NEPD-14698-15360

Issue date:

23.01.2026

Valid to:

23.01.2031

EPD software:

LCAno EPD generator ID: 1120931

General information

Product

Z-fix excellent

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

NEPD-14698-15360

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2021 Part B for Technical - Chemical products for building
and construction industry

Statement of liability:

The owner of the declaration shall be liable for the underlying
information and evidence. EPD-Global shall not be liable with respect
to manufacturer information, life cycle assessment data and
evidences.

Declared unit:

1 kg Z-fix excellent

Declared unit with option:

A1-A3, A4, A5, C1, C2, C3, C4, D

Functional unit:

Not declared

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information
and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4.
Verification of each EPD is made according to EPD-Global's guidelines
for verification and approval requiring that tools are i) integrated into
the company's environmental management system, ii) the procedures
for use of the EPD tool are approved by EPD-Global, and iii) the
process is reviewed annually by an independent third party verifier.
See Appendix G of EPD-Global's General Programme Instructions for
further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data
and test-EPD in accordance with EPD-Global's procedures and
guidelines for verification and approval of EPD tools. NEPD73

Third party verifier:

Linda Høbye, Life Cycle Assessment Consulting

(no signature required)

Owner of the declaration:

Mira Byggeprodukter AS
Contact person: Thomas Blomdell
Phone: +45 46191946
e-mail: info@mira.eu.com

Manufacturer:

Mira Byggeprodukter AS
Egegårdsvej 2
4621 Gadstrup, Denmark

Place of production:

Mira - Production Site (Denmark)
Egegårdsvej, 2
4621 Gadstrup, Denmark

Management system:

Organisation no:

39581914

Issue date:

23.01.2026

Valid to:

23.01.2031

Year of study:

2024

Comparability:

EPD of construction products may not be comparable if they not
comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03,
developed by LCA.no. The EPD tool is integrated in the company's
management system, and has been approved by EPD-Global.
NEPD73

Developer of EPD: Niklas Frøberg

Reviewer of company-specific input data and EPD: Thomas Blomdell

Approved:



Håkon Hauan, CEO EPD-Global

Product

Product description:

Z-Fix Excellent is based on white, low-alkaline cement, offering good workability on the substrate and easy cleaning of tools. Suitable for transparent natural stone and glass mosaic. Provides particularly strong adhesion to dense tiles and clinker. High load-bearing capacity ensures slip-free installation on walls.

It is extra lightweight and offers more than 30% greater coverage compared to other tile adhesives.

Product specification

- Substrates with high shrinkage/deformation
- All types of ceramic tiles, natural stone, and glass mosaic
- Classification: C1TE S2 flexible
- Lightweight adhesive
- Dust-reduced
- Glass content: 90% post-consumer recycled

Materials	kg	%
Additives	0.000277	0.0277
Aggregate	0.1432	14.32
Cement	0.4773	47.73
Chemical	0.02506	2.51
Glass	0.1575	15.75
Mineral	0.1193	11.93
Oil	0.005694	0.5694
Polymer - Unspecified	0.0716	7.16
Total	1.00	100.00

Packaging	kg	%
Packaging - Paper	0.01	36.98
Packaging - Wood	0.02	63.02
Total incl. packaging	1.03	100.00

Technical data:

Standard	EN 12004- 2007+A1:2012
Density	1180 kg/m ³
Reaction to fire	E
Product class acc. to EN 12004	C1TE S2
Open time	=> 0,5 N/mm ² after 30 min
Slip	=> 0,5 N/mm
Tensile adhesion strength after Water immersion	=> 0,5 N/mm ²
Tensile adhesion strength after Heat aging	=>0,5 N/mm ²
Tensile adhesion strength after Freeze thaw cycle	=>0,5 N/mm ²
Deformability	< 5 mm

Market:

European market

Reference service life, product

Not applicable

Reference service life, building

LCA: Calculation rules

Declared unit:

1 kg Z-fix excellent

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

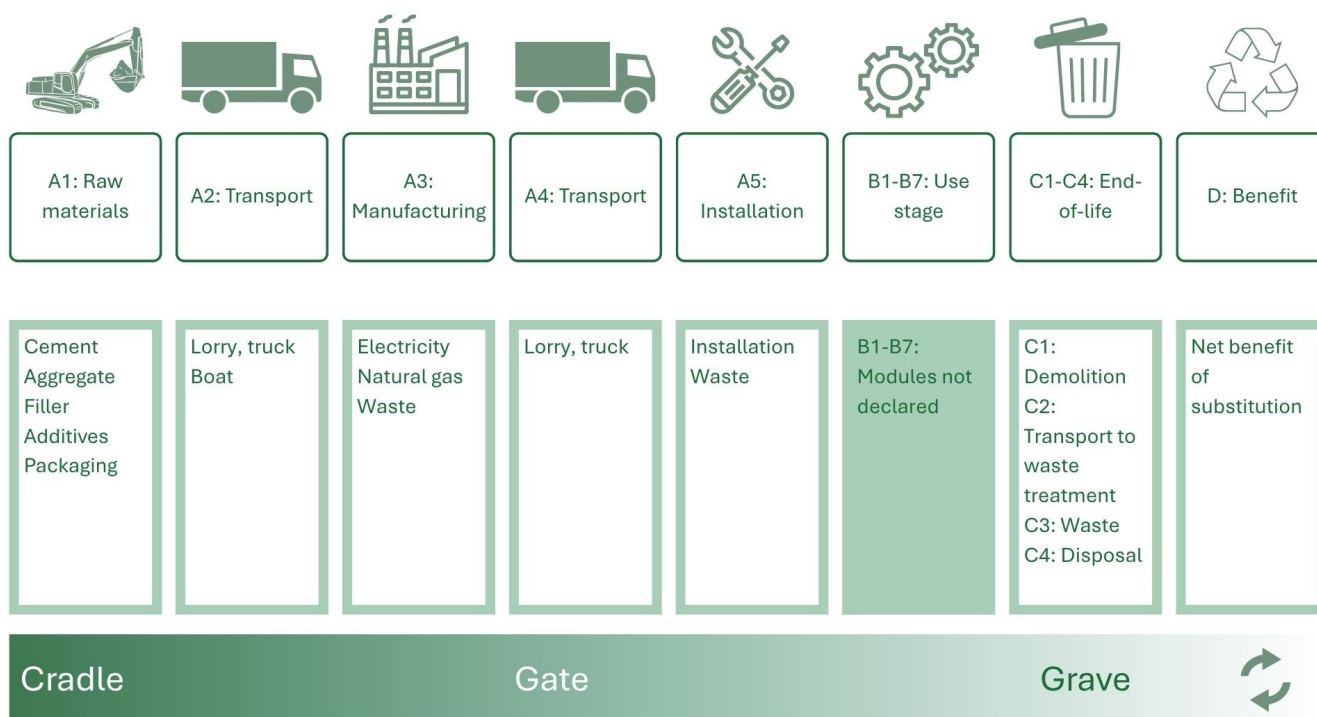
Materials	Source	Data quality	Year
Additives	ecoinvent 3.10.1	Database	2023
Aggregate	ecoinvent 3.10.1	Database	2023
Cement	S-P-02234	EPD	2020
Chemical	ecoinvent 3.10.1	Database	2023
Glass	ecoinvent 3.10.1	Database	2023
Mineral	ecoinvent 3.10.1	Database	2023
Oil	ecoinvent 3.10.1	Database	2023
Packaging - Paper	ecoinvent 3.10.1	Database	2023
Packaging - Wood	ecoinvent 3.10.1	Database	2023
Polymer - Unspecified	ecoinvent 3.10.1	Database	2023

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	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	X	X	MND	MND	MND	MND	MND	MND	MND		X	X	X	X	X

System boundary:

This EPD covers the life cycle modules A1–A3 (raw material extraction, transport to factory, and production). Modules A4–A5 (transport to storage and further to market with subsequent consumption). B1–B7 (use phase) is not included. C1–C4 (end-of-life phase) and D (potential benefits from recycling) are included. The system boundaries are defined according to EN 15804+A2.



Additional technical information:

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

A4: European market, 90km average. A5: The installation of the product into the building requires water and energy for blending the raw materials. Mixing electricity consumption is estimated as 0,216 MJ/kg. This is equivalent to the use of a 1200-Watt handheld mixer for 3 minutes. Apart from the waste of sales and transport packaging for the final Mira product (paper, plastics), there is a 2% loss of the product generated during installation. The demolition process (C1) is modelled as diesel use in demolition equipment. The diesel consumption is based on a consumption of 10kWh/ton. All end-of-life products are sent to the closest disposal facilities, estimating a transportation distance equal to 50 km via road transport by a Euro 6 lorry of 16-32 metric ton. Module (C3) is considered zero, as no further waste processing for incineration, reuse, recovery or recycling takes place in this analysis. Module (C4) is the disposal of end-of-life products including physical pre-treatment. In this case, the landfill is considered the final disposal method.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	38.8 %	300.00	0.044	l/tkm	13.20
Assembly (A5)	Unit	Value			
Waste, packaging, wood (kg)	kg	0.0167			
Electricity, Denmark (kWh)	kWh	0.06			
Water, tap water (kg)	kg	0.50			
Material loss during installation (kg)	kg	0.02			
Waste, cardboard and paper, to average treatment (kg) - incl. 85 km transp.	kg	0.0098			
De-construction demolition (C1)	Unit	Value			
Diesel, burned (MJ)	MJ	0.036			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	38.8 %	50.00	0.044	l/tkm	2.20
Disposal (C4)	Unit	Value			
Treatment of waste concrete-based, inert material landfill (kg)	kg	1.00			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of thermal energy, district heating (MJ)	MJ	0.000000546			
Substitution, Packaging, Pallet, EUR wooden pallet, single use (kg)	kg	0.01079			
Substitution of thermal energy, district heating (MJ)	MJ	0.000000051			
Substitution of electricity (MJ)	MJ	0.000000052			
Substitution of electricity (MJ)	MJ	0.000000208			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact										
Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	1.27E+00	5.85E-02	9.68E-02	3.61E-03	9.75E-03	2.62E-02	5.90E-03	1.31E-02
	GWP-fossil	kg CO ₂ -eq	1.28E+00	5.84E-02	3.72E-02	3.60E-03	9.74E-03	0.00E+00	5.88E-03	-2.68E-03
	GWP-biogenic	kg CO ₂ -eq	-1.73E-02	4.51E-05	5.95E-02	6.05E-07	7.52E-06	2.62E-02	1.52E-05	1.58E-02
	GWP-luluc	kg CO ₂ -eq	9.18E-04	2.10E-05	5.92E-05	3.69E-07	3.50E-06	0.00E+00	1.07E-06	-1.36E-05
	ODP	kg CFC11 -eq	1.63E-08	1.23E-09	5.72E-10	5.50E-11	2.05E-10	0.00E+00	2.19E-10	-3.19E-10
	AP	mol H+ -eq	7.50E-03	1.22E-04	2.13E-04	3.25E-05	2.03E-05	0.00E+00	3.66E-05	-1.48E-05
	EP-FreshWater	kg P -eq	3.39E-04	3.94E-06	1.39E-05	1.04E-07	6.56E-07	0.00E+00	2.65E-07	-9.23E-07
	EP-Marine	kg N -eq	1.54E-03	2.92E-05	4.33E-05	1.51E-05	4.87E-06	0.00E+00	1.57E-05	-4.50E-06
	EP-Terrestrial	mol N -eq	1.68E-02	3.15E-04	4.83E-04	1.65E-04	5.25E-05	0.00E+00	1.71E-04	-5.05E-05
	POCP	kg NMVOC -eq	5.98E-03	2.02E-04	1.61E-04	4.93E-05	3.37E-05	0.00E+00	6.92E-05	-2.20E-05
	ADP-minerals&metals ¹	kg Sb-eq	5.94E-06	1.95E-07	4.18E-07	1.29E-09	3.24E-08	0.00E+00	7.50E-09	-1.54E-08
	ADP-fossil ¹	MJ	1.64E+01	8.22E-01	5.10E-01	4.72E-02	1.37E-01	0.00E+00	1.47E-01	-4.69E-02
	WDP ¹	m ³	2.46E-01	4.09E-03	2.21E-02	1.18E-04	6.81E-04	0.00E+00	5.02E-04	-1.75E-03

GWP-total = Global 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 = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

This EPD might use cement EPDs as input in which the Net approach* has been applied. See the Data Quality table on page 3.

*The Net approach excludes the emissions from waste incineration used to produce heat required in the cement manufacturing process.

The product is certified GEV-Emicode EC1 Plus

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	3.27E-08	4.31E-09	1.21E-09	9.25E-10	7.19E-10	0.00E+00	9.27E-10	-2.70E-10
 IRP ²	kgBq U235 -eq	8.04E-02	1.06E-03	5.02E-03	2.09E-05	1.77E-04	0.00E+00	1.25E-04	-2.81E-04
 ETP-fw ¹	CTUe	1.54E+01	1.09E-01	3.66E-01	2.60E-03	1.82E-02	0.00E+00	7.84E-03	-1.25E-02
 HTP-c ¹	CTUh	1.89E-09	0.00E+00	4.40E-11	0.00E+00	0.00E+00	0.00E+00	1.00E-12	-1.70E-11
 HTP-nc ¹	CTUh	1.35E-08	6.16E-10	6.18E-10	6.00E-12	1.03E-10	0.00E+00	2.20E-11	-3.10E-11
 SQP ¹	dimensionless	7.84E+00	4.97E-01	4.39E-01	3.30E-03	8.28E-02	0.00E+00	2.97E-01	-1.41E+00

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 = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

1. The results of this environmental impact 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										
Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	1.45E+00	1.44E-02	2.61E-01	2.99E-04	2.40E-03	0.00E+00	3.02E-03	-1.05E-01
	PERM	MJ	4.87E-01	0.00E+00	-3.69E-01	0.00E+00	0.00E+00	-1.16E-01	0.00E+00	-1.54E-01
	PERT	MJ	1.94E+00	1.44E-02	-1.08E-01	2.99E-04	2.40E-03	-1.16E-01	3.02E-03	-2.60E-01
	PENRE	MJ	1.40E+01	8.22E-01	4.64E-01	4.72E-02	1.37E-01	0.00E+00	1.47E-01	-3.68E-02
	PENRM	MJ	2.95E+00	0.00E+00	-1.19E-02	0.00E+00	0.00E+00	-2.72E+00	0.00E+00	-1.02E-02
	PENRT	MJ	1.70E+01	8.22E-01	4.52E-01	4.72E-02	1.37E-01	-2.72E+00	1.47E-01	-4.69E-02
	SM	kg	9.92E-04	0.00E+00	1.98E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	8.19E-03	4.83E-06	1.65E-04	5.12E-08	8.05E-07	0.00E+00	8.73E-07	-5.20E-03
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.80E-08
	FW	m ³	8.41E-03	1.12E-04	1.23E-03	3.12E-06	1.87E-05	0.00E+00	1.67E-04	-4.06E-05

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = $9.0 \cdot 10^{-3}$ = 0.009"

End of life - Waste										
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D	
 HWD	kg	4.59E-02	1.20E-03	1.92E-03	5.25E-05	1.99E-04	0.00E+00	1.10E-04	-2.01E-04	
 NHWD	kg	1.02E+00	2.52E-02	6.59E-02	7.15E-04	4.20E-03	0.00E+00	2.65E-03	-5.14E-03	
 RWD	kg	4.28E-06	2.64E-04	7.01E-06	5.13E-09	4.39E-05	0.00E+00	0.00E+00	-7.32E-08	

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

End of life - Output flow										
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D	
 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	9.30E-05	0.00E+00	2.03E-02	0.00E+00	0.00E+00	0.00E+00	5.54E-07	0.00E+00	
 MER	kg	5.80E-11	0.00E+00	9.40E-11	0.00E+00	0.00E+00	0.00E+00	2.18E-09	0.00E+00	
 EEE	MJ	8.72E-07	0.00E+00	6.06E-07	0.00E+00	0.00E+00	0.00E+00	1.64E-05	0.00E+00	
 EET	MJ	1.62E-06	0.00E+00	7.64E-07	0.00E+00	0.00E+00	0.00E+00	6.77E-06	0.00E+00	

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	7.15E-03
Biogenic carbon content in accompanying packaging	kg C	1.13E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	1.29E+00	5.85E-02	3.73E-02	3.61E-03	9.75E-03	0.00E+00	5.89E-03	-2.70E-03

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

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 EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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 NPCR Part A: Construction products and services. Ver. 2.0, 24.03.2021 EPD Norway.
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