

Environmental Product Declaration

Average EPD

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

IsoZero 200 & IsoZero 150

Ecocon Solutions AB



Programme

EPD Square | www.epdsquare.com

Programme operator

EPD Square, s.r.o.

EPD Registration number

SQ 00-022

Publication date

25.02.2025

Valid until

24.02.2030

General information

Product

IsoZero 200 and IsoZero 150

Program operator

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Registration number

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Publication date

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24.02.2030

Owner of the declaration

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Manufacturer

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Place of production

Sweden

Product Category Rules (PCR)

The CEN standard EN 15804+A2 serves as the core PCR.
In addition, EPD Square PCR v1.0, 2024 is used.

Declared unit

1 m³

Mass per DU

290 kg

UN CPC code

375 - Articles of concrete, cement and plaster

Geographical scope

Sweden, Europe

Year of study

2024

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in the context of the building.

EPD author

Sarah Curpen, Silvia Vilčeková, EPD Clarity s.r.o.

Verification type

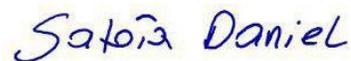
Independent verification of the declaration and data,
according to ISO14025:2006

Internal:

External:

Verified by

Daniel Satola, Daniel Satola Consulting



The owner of the declaration shall be liable for the underlying information and evidence.

EPD Square shall not be liable with respect to manufacturer, life cycle assessment data and evidence.

System boundaries

Cradle to gate with modules C1–C4 and module D. The LCA was carried out considering the product stage A1-A3, A4, modules C1–C4, module D. This is an average EPD based on 3 months production data since this is a new product introduced to the market. The EPD must be re-verified at the end of it's validity (1 year) presented on the cover page.

Modules declared and geographical scope

	Product stage			Constructi on process stage		Use stage							End of life stage			Resource recovery stage	
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	✓	✓	✓	✓	MND	MND	MND	MND	MND	MND	MND	MND	✓	✓	✓	✓	✓
Geography	EU	EU	SE	SE	MND	MND	MND	MND	MND	MND	MND	MND	SE	SE	SE	SE	SE

MND = Modules not declared.

Description of Organization

We deliver innovative foam concrete for infrastructure, ground, and foundation projects. With our experienced in-house team, we provide on-site services and offer a more sustainable alternative to traditional materials like crushed aggregate and polystyrene.

Our ambition is to contribute to a sustainable future while creating value for contractors with our unique product.

With decades of experience in both the industry and our specialized product, we work closely with the leading contractors in the Nordics and the largest players in infrastructure projects.

Product information

Product name

IsoZero 200 and IsoZero 150. This is an EPD based on the average results of IsoZero 200 and IsoZero 150.

Product description

Concrete foam, also known as cellular concrete, is a lightweight, versatile building material created by mixing cement, water and a foaming agent. The foaming agent generates air bubbles, resulting in a cellular structure that reduces the material's density while maintaining strength. This material is valued for its thermal insulation, fire resistance, and acoustic properties.

IsoZero 200

Compressive strength 28 days [MPa] : 0.52

Thermal conductivity [W/m*K]: 0.062

IsoZero 150

Compressive strength 28 days [MPa] : 0.24

Thermal conductivity [W/m*K]: 0.052

Product application

It is used in various applications, such as filling voids, lightweight construction, and thermal insulation layers.

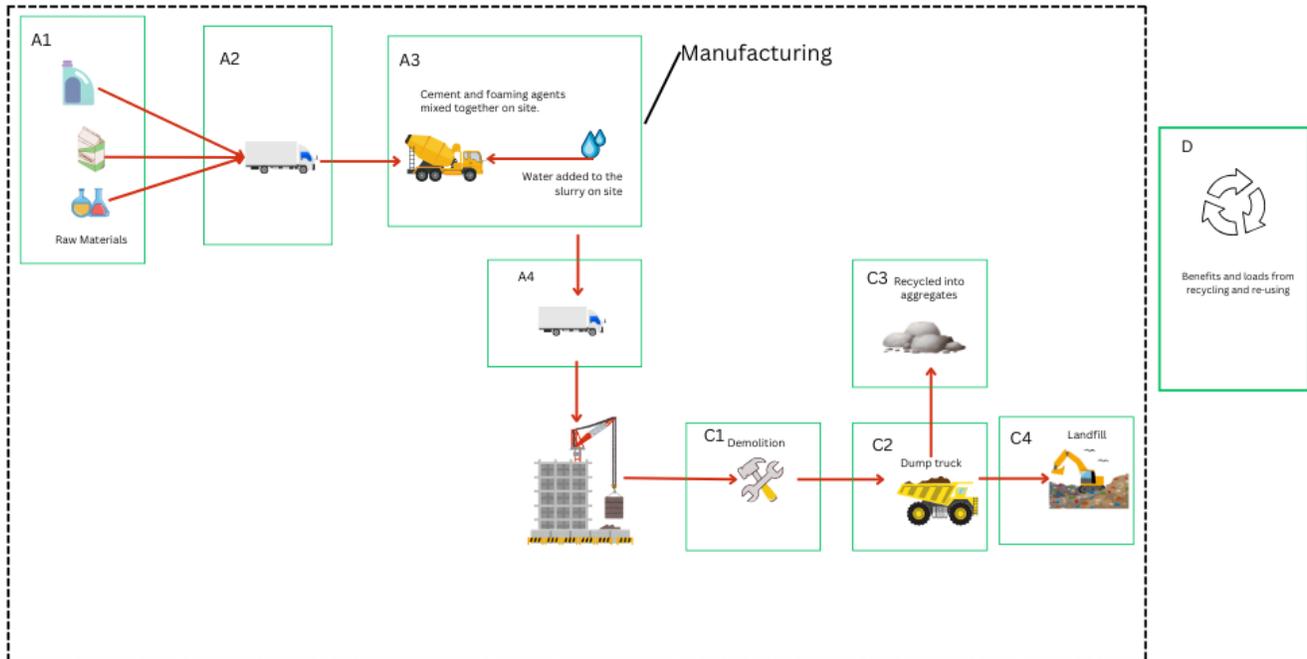
Geographical scope

Sweden, Europe

Product contents information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
CEM I 52,5 R	150-190	-	-
Foaming agent SB	2.0-2.2	-	-
Foaming agent L	1.5	-	-
Water	109-123	-	-
TOTAL	290	-	-

Manufacturing process and System Boundaries



Cellular concrete is produced directly on-site using a mobile plant equipped with a 33-tonne cement silo and multiple mixing stations. The process involves combining cement, water, and a biotechnological additive to create a lightweight, highly fluid foam. The production capacity reaches approximately 50 cubic meters per hour on a continuous basis. For large-scale projects, additional cement is required after producing around 300 cubic meters, as the mix uses approximately 100 kilograms of cement per cubic meter. Water is continuously supplied during production, while the biotechnological additive is added at a rate of about 1.5 liters per cubic meter.

Life cycle assessment

Two types of cement foam are included in this EPD. As such an average EPD is produced based on the average results of each cement foam (IsoZero 150 & IsoZero 200). The rationale is that each cement foam is produced in equal quantity (50%/50%) and therefore reflect the production. In the Life Cycle Assessment (LCA) study, one set of results is declared, representing the average results. This approach is taken to ensure that the declared results reflect a balanced view of the environmental impacts.

Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Allocation, estimations, and assumptions

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 m³ of the products which are used within this study are calculated by considering the total product weight per annual production. In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced products output fixed to 1 m³ and the corresponding amount of product is used in the calculations.

Database(s) and LCA software

This EPD has been created using One Click LCA Pre-Verified EPD Generator. Ecoinvent v3.8 and One Click LCA databases were used as sources of environmental data.

LCA Scenarios and additional technical information

Manufacturing (A1-A3)

The raw materials are brought from different part of europe by road (lorry). The raw materials are mixed with part of the total water to form a slurry. Upon arrival to the building site, additional water is added to the slurry and the final mix is then poured into forms.

Manufacturing energy scenario

Fuel Data Source and quality	0.2 L/m ³ , Propane burnt in building machine, Ecoinvent 3.8
Emission CO2e / MJ	0.0898

Transport (A4)

The products are transported by lorry to various building sites within Sweden. A weighted average distance of 30 km is considered based on records from the data collection period.

End of Life (C1, C2, C3, C4)

The fuel usage involved in the deconstruction and dismantling process is estimated based on the reference background process available in Ecoinvent v3.8 designed for this specific task that is 17.9 MJ are required to demolish 1m³ of the product. At this stage, the transport of the dismantled product system is also taken into account, with an assumed distance of 50 km to the disposal site. 95% of the concrete product is recycled into aggregates while the remaining 5% is assumed to be landfilled.

	Value	Unit
Collected separately to recycling facility	246	kg
Collected as mixed construction waste	44	kg
Reuse	-	kg
Recycling	246	kg
Energy recovery	-	kg
To landfill	44	kg

Benefits and loads beyond system boundary (D)

The benefits of recycling concrete form C3 are taken into account. The recycled concrete is milled into aggregates.

LCA results

Core environmental impact indicators – EN 15804+A2, PEF 3.0

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	9.62E+01	1.24E+00	1.61E+00	1.26E+00	1.11E+00	2.22E-01	-2.22E+00
GWP-fossil	kg CO2 eq.	9.75E+01	1.24E+00	1.61E+00	1.26E+00	1.11E+00	1.80E-01	-2.22E+00
GWP-biogenic	kg CO2 eq.	-1.60E+00	0.00E+00	0.00E+00	0.00E+00	1.52E+00	8.01E-02	-2.73E-03
GWP-LULUC	kg CO2 eq.	1.17E-01	4.97E-04	3.81E-04	4.73E-04	1.10E-04	3.77E-04	-3.04E-03
ODP	kg CFC11 eq.	3.12E-06	2.88E-07	1.18E-07	3.14E-07	2.37E-07	5.21E-08	-1.81E-07
AP	mol H ⁺ eq.	2.94E-01	3.53E-03	3.80E-03	4.02E-03	1.15E-02	1.61E-03	-1.44E-02
EP-freshwater	kg P eq.	1.92E-03	8.87E-06	1.24E-05	9.00E-06	3.67E-06	1.62E-06	-1.26E-04
EP-marine	kg N eq.	1.06E-01	7.04E-04	1.08E-03	8.86E-04	5.09E-03	6.18E-04	-3.11E-03
EP-terrestrial	mol N eq.	1.18E+00	7.82E-03	1.18E-02	9.81E-03	5.58E-02	6.77E-03	-4.04E-02
POCP	kg NMVOC eq.	2.95E-01	3.01E-03	4.09E-03	3.87E-03	1.54E-02	1.92E-03	-1.04E-02
ADP-M&M	kg Sb eq.	2.18E-04	4.50E-06	5.58E-06	3.09E-06	5.62E-07	3.71E-07	-2.15E-05
ADP-fossil	MJ	3.62E+02	1.85E+01	1.73E+01	2.02E+01	1.49E+01	3.53E+00	-3.20E+01
WDP	m ³	1.21E+04	8.66E-02	7.35E-02	9.27E-02	4.00E-02	1.26E-02	-4.23E+00

GWP-total: Global Warming Potential; **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; See "additional requirements" for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Additional (optional) environmental impact indicators – EN 15804+A2, PEF 3.0

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PM	Disease incidence	1.85E-06	1.00E-07	5.18E-08	1.47E-07	2.36E-06	1.44E-07	-9.41E-07
IRP	kBq U235 eq.	1.51E+00	9.69E-02	2.62E-02	1.04E-01	6.84E-02	1.63E-02	-4.76E-01
ETP-fw	CTUe	3.45E+02	1.54E+01	1.25E+01	1.68E+01	8.95E+00	2.49E+00	-4.02E+01
HTP-c	CTUh	5.98E-08	4.75E-10	6.69E-10	4.35E-10	3.43E-10	7.78E-11	-2.23E-09
HTP-nc	CTUh	1.87E-07	1.51E-08	1.61E-08	1.71E-08	6.47E-09	1.87E-09	-4.12E-08
SQP	Dimensionless	4.25E+02	1.32E+01	1.73E+00	2.35E+01	1.94E+00	5.16E+00	-3.07E+01

PM Particulate matter emissions; *IRP* Ionising radiation, human health; *ETP-fw* Ecotoxicity (freshwater); *ETP-c* Human toxicity, cancer effects; *HTP-nc* Human toxicity, non-cancer effects; *SQP* Land use related impacts / soil quality

Use of Natural Resources

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
RPEE	MJ	6.39E+01	2.69E-01	3.30E-01	2.61E-01	8.51E-02	3.70E-02	-2.88E+00
RPEM	MJ	3.37E+01	0.00E+00	0.00E+00	0.00E+00	-3.20E+01	-1.69E+00	0.00E+00
TPE	MJ	9.77E+01	2.69E-01	3.30E-01	2.61E-01	-3.19E+01	-1.65E+00	-2.88E+00
NRPE	MJ	3.46E+02	1.85E+01	1.73E+01	2.02E+01	1.49E+01	3.53E+00	-3.20E+01
NRPM	MJ	1.74E+01	0.00E+00	0.00E+00	0.00E+00	-1.65E+01	-8.68E-01	0.00E+00
TRPE	MJ	3.64E+02	1.85E+01	1.73E+01	2.02E+01	-1.60E+00	2.66E+00	-3.20E+01
SM	kg	3.94E+01	6.30E-03	1.02E-02	5.68E-03	5.83E-03	1.07E-03	2.75E+02
RSF	MJ	5.50E+01	6.93E-05	6.06E-05	5.00E-05	1.91E-05	1.53E-05	-2.52E-04
NRSF	MJ	3.28E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	m ³	1.80E+00	2.36E-03	1.76E-03	2.67E-03	9.04E-04	2.44E-03	-1.02E-01

RPEE Renewable primary energy resources used as energy carrier; *RPEM* Renewable primary energy resources used as raw materials; *TPE* Total use of renewable primary energy resources; *NRPE* Non-renewable primary energy resources used as energy carrier; *NRPM* Non-renewable primary energy resources used as materials; *TRPE* 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; *W* Use of net fresh water

End of life – Waste

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
HW	KG	7.02E-02	2.11E-02	4.26E-02	2.16E-02	0.00E+00	4.66E-03	-1.87E-01
NHW	KG	3.42E+00	3.74E-01	5.11E-01	3.76E-01	0.00E+00	5.94E-02	-5.51E+00
RW	KG	1.37E-03	1.27E-04	1.36E-05	1.39E-04	0.00E+00	2.38E-05	-1.60E-04

HW Hazardous waste disposed; *NHW* Non-hazardous waste disposed; *RW* Radioactive waste disposed

End of life – Output flows

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
CR	kg	0.00E+00						
MR	kg	7.23E-04	0.00E+00	0.00E+00	0.00E+00	2.76E+02	0.00E+00	0.00E+00
MER	kg	2.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	9.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	9.99E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CR Components for reuse; *MR* Materials for recycling; *MER* Materials for energy recovery; *EEE* Exported electric energy; *ETE* Exported thermal energy

Information describing biogenic carbon content at factory gate

Biogenic carbon content	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in the accompanying packaging	-	kg C

Specific data (GWP-GHG) and data variation for A1-A3

Specific data and data variation	
Specific data	75%
Variation - product	10%
Variation - site	Not relevant

Hazardous substances

- The product does not contain any REACH SVHC substances in amounts greater than 0.1 %.

Contact information

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Bibliography

ISO 14020:2000

Environmental labels and declarations – General principles

ISO 14025:2010

Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14040:2006

Environmental management. Life cycle assessment. Principles and frameworks

ISO 14044:2006

Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019

Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.8 (2021) and One Click LCA database

EPD. CEM II/B-M (S-LL) 52.5 N (Viridiscement). The Norwegian EPD Foundation. (08/01/2024-08/01/2029)

EPD. Foaming agent: ISOCEM S/B. The International EPD system. (17/09/2024-16/09/2029)

EPD. Foaming agents: ISOCEM S/L and ISOCEM S/X. The International EPD system. (17/09/2024-16/09/2029)

Annex

Environmental impacts – EN 15804+A1, CML/ISO 21930

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP	kg CO ₂ eq.	2.31E+00	1.23E+00	1.57E+00	1.25E+00	1.09E+00	1.78E-01	-2.16E+00
ODP	kg CFC11 eq.	3.91E-07	2.29E-07	9.87E-08	2.49E-07	1.87E-07	4.13E-08	-1.50E-07
AP	kg SO ₂ eq.	5.99E-03	2.90E-03	2.98E-03	3.26E-03	8.19E-03	1.19E-03	-1.11E-02
EP	kg PO ₄ eq.	1.39E-03	6.25E-04	7.71E-04	6.90E-04	1.90E-03	2.70E-04	-5.21E-03
POCP	kg C ₂ H ₄ eq.	3.40E-04	1.47E-04	3.78E-04	1.52E-04	1.80E-04	3.96E-05	-7.55E-04
ADP-M&M	kg Sb eq.	7.28E-06	4.39E-06	5.57E-06	3.00E-06	5.52E-07	3.64E-07	-2.10E-05
ADP-fossil	MJ	3.46E+01	1.85E+01	1.73E+01	2.02E+01	1.49E+01	3.53E+00	-3.20E+01

Environmental impacts – GWP-GHG

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - GHG	kg CO ₂ e	9.75E+01	1.24E+00	1.61E+00	1.26E+00	1.11E+00	1.80E-01	-2.22E+00

GWP- GHG Global Warming Potential, greenhouse gases