ENVIROCON

CAPTURING CONCRETE EXCESS

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2:2019 for:

AUSTRALASIA EPD®
ENVIRONMENTAL PRODUCT DECLARATION

ECO PLATFORM EPD VERIFIED

PROGRAMME: EPD Australasia, https://epd-australasia.com/
PROGRAMME OPERATOR: EPD Australasia Limited
EPD REGISTRATION NUMBER: S-P-03850

VERSION 1.1: 2023-03-22
VALID FROM: 2022-11-25
VALID UNTIL: 2027-11-24
GEOGRAPHICAL SCOPE OF EPD: New Zealand

ABOUT US

Our world is built on concrete, and in New Zealand we produce over

10 millions tonnes of it per year.

About

300,000

tonnes of this high quality certified concrete will end up as waste, simply because it can not be used before it dries.

But waste in the construction sector isn't just limited to concrete. Bad design of traditional building materials creates waste during the build process, and waste at the end of life of the structure through destructive dismantling.

Eliminating waste is why Envirocon exists.

We work with NZ's leading companies to close the loop on concrete for good.

Success requires capturing concrete in its original form, and creating products which can be mass produced and mass marketed. Matching seemingly unpredictable supply with mass market demand, and no reduction in quality, is Envirocon's core competency.

We achieve this through innovative product and system design.

We think about the people who will use our blocks, and the places our blocks will be used. We think about how the needs of a structure may change over time, and what will happen at the end of its life.

Our designs harness the power of simplicity - because simple products are fast to learn, and easy to use.

From this comes our precast concrete wall systems. At the core of the systems is a concrete block. The block designs look simple enough, but when you dive deeper they deliver a powerful combination of benefits.

They start life with low embodied carbon.

They reduce time, labour, and materials waste during installation.

They deliver unparalleled durability, increasing the life of the structure.

They can be non-destructively dismantled and reused at the end of life.

It's CarbonSmart. Low Carbon, Zero Waste.

OUR LOCATIONS

PENROSE MANUFACTURING PLANT
667b Great South Road, Penrose, Auckland

AVONDALE COLLECTION POINT
74e Patiki Road, Avondale, Auckland

SILVERDALE COLLECTION POINT
172 Foundry Road, Silverdale, Auckland

CHRISTCHURCH MANUFACTURING PLANT
160 Mclean Island Road, Harewood, Christchurch

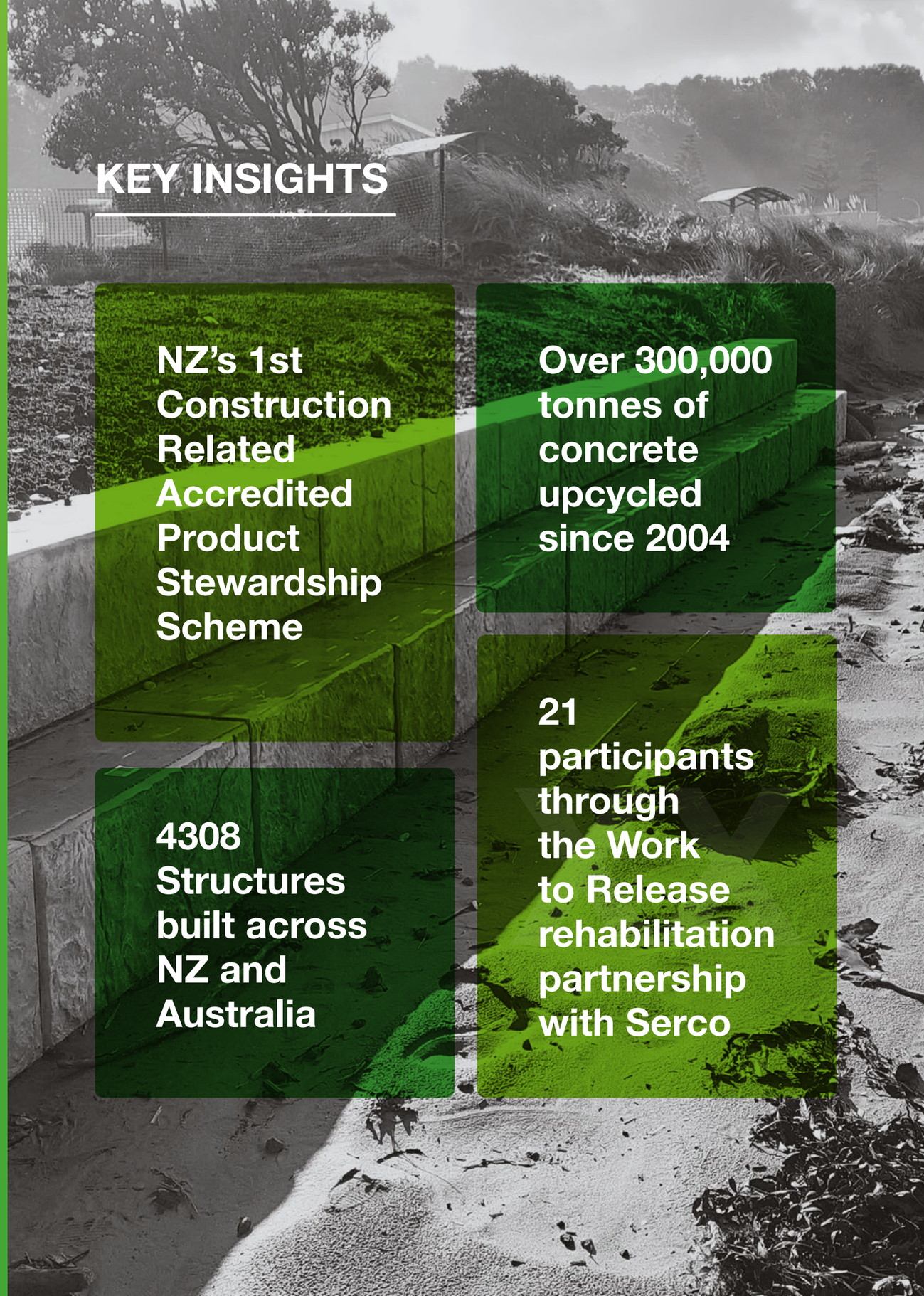
Interbloc

is a high productivity, precast concrete, engineered wall system.

At the heart of the system is a proprietary

concrete block

which incorporate unique features - allowing you to build faster, stronger, and safer.



KEY INSIGHTS

NZ's 1st Construction Related Accredited Product Stewardship Scheme

Over 300,000 tonnes of concrete upcycled since 2004

4308 Structures built across NZ and Australia

21 participants through the Work to Release rehabilitation partnership with Serco

PRODUCT INFORMATION

PRODUCT(S) COVERED BY EPD

This EPD covers Interbloc modular precast concrete blocks manufactured from excess wet concrete by Envirocon in New Zealand. This is an average EPD which groups the environmental impacts of Interbloc produced at two sites (Auckland and Christchurch). Worst case results are presented.

Table 1: Industry classification

Product	Classification	Code	Category
Product name/type	UN CPC Ver.2	375	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone
	ANZSIC 2006	2034	Concrete Product Manufacturing

FUNCTIONAL/DECLARED UNIT

The declared unit for the EPD is 1m^3 of Interbloc concrete mass block.

CONTENT DECLARATION

Table 2: Production Composition

Materials / chemical substances	Mass (kg)	Post-consumer material, % mass	Renewable material, % mass	Environmental / hazardous properties
Excess concrete	2430	0*	0%	None
TOTAL	2430	0*	0%	None

**The product contains 100% pre-consumer recycled material.*

None of the materials in this product are on the Candidate List of substances of very high concern (SVHC), by the European REACH Regulation at a concentration greater than 0.1% by mass.

PACKAGING

The Product is transported in bulk and no packaging is involved.

BLOCK RANGE

6IB-1200EstdP-G
1200 Standard Block
600x600x1200mm
1000kg

6IB-1200EBaseP-G
1200 Base Block
600x600x1200mm
810kg

6IB-1800EstdP-G
1800 Standard Block
600x600x1800mm
1500kg

6IB-600EstdP-G
600 Standard Block
600x600x600mm
500kg

6IB-1200EFtP-G
1200 Flat Top Block
600x600x1200mm
1000kg

6IB-1200EFbP-G
1200 Flat Bottom Block
600x600x1200mm
1000kg

6IB-1200ECapP-G
1200 Capper Block
600x600x1200mm
580kg

6IB-1800EFbP-G
1800 Flat Bottom Block
600x600x1800mm
1500kg

6IB-600ECapP-G
600 Capper Block
600x600x600mm
290kg

6IB-600EAngP-G
600 Angle Block
600x600x600mm
250kg

6IB-1800EFtP-G
1800 Flat Top Block
600x600x1800mm
1500kg

6IB-600EFtP-G
600 Flat Top Block
600x600x600mm
500kg

OUR MANUFACTURING PROCESS

It all starts with high quality ready mix concrete from certified concrete suppliers. Concrete is ubiquitous to a modern economy, and in New Zealand we produce around 10 million tonnes of it per year. A small percentage (~2.5%) of this will end up as excess concrete - ‘wet’ uncured concrete. This concrete is highly perishable with just hours to be used before it dries and becomes a waste product.

The traditional ‘recycling’ approach would see this concrete crushed for landfill or use as a subgrade base fill. The crushing process increases the embodied carbon while creating a single use, low value, product.

In contrast, Envirocon’s unique manufacturing system captures the concrete in its wet form, and upcycles the concrete into value-added precast concrete products. The concrete products can then be reused over and over again, closing the loop on waste for good.

Ready mix concrete trucks with excess concrete return to one of four Envirocon collection points. Collection points are located as close to ready mix plants as practicable to minimise additional transport carbon.

Concrete is discharged into moulds at the collection point with minimal additional resources used. The moulds represent products which can be mass produced, mass sold, and reused.

The concrete cures in the mould, is demoulded, and stored for 28 days curing.

The precast block is dispatched to customers to build the structure required.

Once the structure is no longer required the blocks are non-destructively dismantled and repurposed - or sold back to Envirocon via our unique Buyback Guarantee.

QA PROCESSES

1

READY MIX CONCRETE PLANT AUDIT SCHEME

all Envirocon members operate plants certified through the Concrete NZ’s plant audit scheme.

2

TRACEABILITY

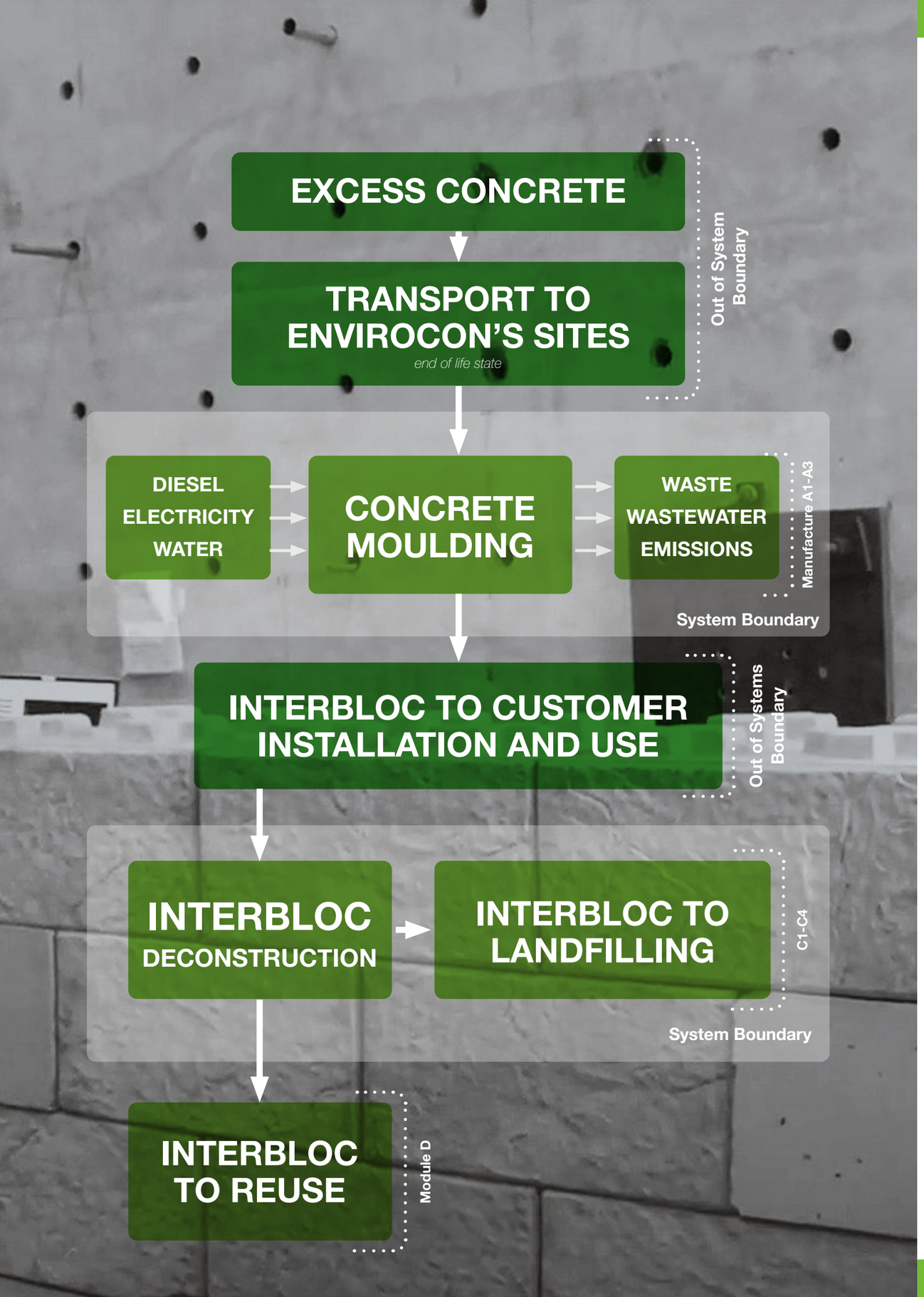
all excess concrete processed through the Envirocon scheme is tracked from source to structure ensuring the right block is supplied every time.

3

QUALITY CONTROL

every individual block is hand checked to ensure five key physical and aesthetic attributes are correct before the block is barcoded and entered into stock.

Envirocon accepts concrete of different strengths but at a minimum 20MPa. The strength of the blocks match the concrete they are manufactured from. The actual composition and strength are not relevant to the EPD.



SYSTEM BOUNDARIES

As shown in the table below, this EPD is for cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). Other life cycle stages (Modules A4-A5, B1-B7) are dependent on particular scenarios and best modelled at the project level.

Table 3: Modules included in the scope of the EPD

	Product Stage			Construction process stage		Use stage							End of life stage				Resource Recovery
	Raw material supply	Transport of raw materials	Manufacturing	Transport to customer	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	NZ	NZ	NZ										NZ	NZ	NZ	NZ	NZ
Specific Data	>90%																
Variation: Products	Not relevant																
Variation: Sites	44%																

X = included in the EPD; ND = Module not declared (such a declaration shall not be regarded as an indicator result of zero)

PRODUCTION (MODULE A)

The production stage looks at the environmental impacts associated with manufacturing the Interbloc block from waste concrete supplied by the clients to Envirocon.

Wet Concrete waste is sourced from a variety of projects in Auckland and Christchurch regions and collected at three locations of Envirocon in Auckland and one in Christchurch. The extra concrete that is left after use by various construction users is transported to Envirocon collection centres and poured into moulds to form Interbloc blocks.

The concrete is transported to collection centre using trucks and the fuels consumption for the same is included in A2. In A3, the diesel, water and electricity consumption at site are included. The electricity and water data includes the usage in office, as separate data is not available.

END OF LIFE (MODULE C)

At end of life the Interbloc concrete blocks are non-destructively dismantled and can be repurposed into other structures. If the customer does not require the blocks, then the blocks can be resold to Envirocon using the Interbloc Buyback Guarantee. Blocks sold back to Envirocon are then repurposed to build appropriate structures for other customers. The end of life stage was modeled based on assumptions, as there was insufficient data on Interbloc's end of life.

Table 4: End of life scenarios for products

Process	**Unit** *(expressed per declared unit of components products or materials by type of material)*
Excavator	$1m^3$ collected separately
Recovery system specified by type	$0.99m^3$ for re-use
	$0.01m^3$ for landfill
Disposal specified by type	$0.01m^3$ Interbloc going to landfill
Assumptions for scenario development	Diesel consumtion for dismantling Interbloc after use with an Excavator (100kW): $0.417kg/m^3$. The distance for transporting Interbloc blocks from customers back to Envirocon site is assumed to be 50km.

RECOVERY AND RECYCLING POTENTIAL (MODULE D)

Module D looks at the net flow of recycled material leaving the product system. For Interbloc, the recycled material leaving the product system (99%) and entering the product system (100%) mostly cancel each other out. The net effect of these two points is that 1% of the volume of the Interbloc in module A1-A3 must be satisfied from Module D with virgin concrete, creating a small burden at Module D. 20MPa represents the minimum standard of concrete Envirocon accepts, and the majority of the concrete received (i.e. 20MPa is the majority of concrete produced in NZ).

LIFE CYCLE INVENTORY (LCI) DATA AND ASSUMPTIONS

Primary data were used for all operational sites of Envirocon up to the factory gate, including upstream data for 2021. Primary data for Interbloc production operations was sourced from the period 1 January 2021 to 31 December 2021. Background data was used for input materials sourced from other suppliers. Currently there is a lack of data on what happens with the blocks after the customers have finished using the blocks. We have assumed 99% of the blocks are being reused. The assumption has a significant impact on module C and module D results.

All data in the background system were from the GaBi Life Cycle Inventory Database 2020 (Sphera 2021). Most datasets have a reference year between 2016 and 2019 and all fall within the 10 year limit allowable for generic data under EN 15804.

Production of virgin wet concrete in the manufacture of future Interbloc blocks.

EN 15804 requires the use of a 'net scrap' approach for Module D. Scrap from end-of-life (module C3) must be looped back as an input into the manufacture of future Interbloc products (modules A1-A3). Virgin concrete is needed to fulfil the wet concrete waste input using this method because (a) Interbloc is manufactured from 100% wet concrete waste, and (b) scrap concrete cannot currently be recycled back into wet concrete.

This net effect of these two points is that 1% of the mass of the Interbloc in module A1-A3 must be satisfied from Module D with virgin concrete, creating a small burden at Module D. 20MPa represents the minimum standard of concrete Envirocon accepts, and the majority of the concrete received (i.e. 20MPa is the majority of concrete produced in NZ).

ELECTRICITY

Electricity consumption was modelled using New Zealand specific electricity. The nation specific electricity data was based on background data from the GaBi Life Cycle Inventory Database 2021 (Sphera, 2021). The consumption mix, resulting in GWP of 0.149 kg CO_2 eq. per MJ, is composed of 57.02% hydroelectricity, 17.90% geothermal, 15.97% natural gas, 4.85% wind energy, and the remainder from Lignite, hard coal, coal gases, biomass, and Photovoltaics.

TRANSPORT

Primary transport data was used for transport of production inputs (A2). Any wastes from the production process (A3) are assumed to be transported over a 50 km distance to a treatment or disposal site.

CUT OFF CRITERIA

Personnel is excluded as per section 4.3.1 in the PCR (EPD International, 2021). thinkstep-anz consistently excludes environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process, ('captial goods') regardless of potential significance.

High-quality infrastructure-related data isn't always available and there is no clear cut-off for what to include. For this reason, captial goods data are applied to LCA studies inconsistently. This is expected to lead to reduced consistency and comparability of EPDs. Captial goods were previously excluded from EPDs, thus including capital goods in current EPDs would further reduce their comparability.

ALLOCATION

Since Envirocon's site produce concrete products solely, subdivision of processes and allocation of inputs based on rules listed in PCR chapter 4.5.1 was not required.

Data was provided at national level, covering the production of Interbloc blocks across four sites in New Zealand. All inputs and outputs have been allocated to production at the individual sites based on production percentage (by mass). The raw material input for Interbloc blocks is wet waste concrete.

The point at which the concrete is poured into the moulds is considered the end-of-waste point for the wet concrete. The wet concrete is modelled as burden-free as it is obtained as a waste material and impacts of concrete production are allocated to the concrete and impacts of concrete production and transport to Envirocon are allocated to the previous life cycle.

Allocation of background data (i.e. energy and materials) taken from the GaBi LCI Database 2021.2 (Sphera, 2021) is documented online.

ASSESSMENT INDICATORS

The results describe the different potential environmental impacts of the product per declared unit, for each declared module. Tables 5-9 present the covered environmental indicators, including optional additional indicators, and indicators used in the previous standard; and life cycle inventory indicators, describing resource use and waste and other outputs.

Table 5: Indicators for life cycle impact assessment

Impact category	Abbreviation
Climate change – total	GWP-total
Climate change – fossil	GWP-fossil
Climate change – biogenicl	GWP-biogenic
Climate change – land use and land use change	GWP-luluc
Ozone depletion	ODP
Acidification	AP
Eutrophication aquatic freshwater	EP-fw
Eutrophication aquatic marine	EP-m
Eutrophication terrestrial	EP-t
Photochemical ozone formation	POFP
Depletion of abiotic resources – minerals and metals*	ADP-m&m
Depletion of abiotic resources – fossil fuels*	ADP-f
Water Depletion Potential*	WDP

*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 experience with the indicator.

Table 6: Life cycle inventory on use of resources

	Abbreviation
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE
Use of renewable primary energy resources used as raw materials	PERM
Total use of renewable primary energy resources	PERT
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE
Use of non-renewable primary energy resources used as raw materials	PENRM
Total use of non-renewable primary energy resources	PENRT
Use of secondary material	SM
Use of renewable secondary fuels	RSF
Use of non-renewable secondary fuels	NRSF
Total use of net fresh water	FW

Table 7: Life cycle inventory on waste categories and output flows

	Abbreviation
Hazardous waste disposed	HWD
Non-hazardous waste disposed	NHWD
Radioactive waste disposed	RWD
Components for reuse	CRU
Materials for energy recovery	MER
Materials for recycling	MFR
Exported electrical energy	EEE
Exported thermal energy	EET

Table 8: Additional Environmental Impact Indicators

	Abbreviation
Climate Change**	GWP-GHG
Particulate Matter emissions	PM
Ionising Radiation – human health***	IR
Eco-toxicity (freshwater)	ETP-fw
Human Toxicity, cancer*	HTP-c
Human Toxicity, non-cancer*	HTP-nc
Lan use related impacts / soil quality	SQP

*The results of this environmental impact indicator should be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.
**This indicator is calculated using the characterisation factors from the IPCC AR5 report (IPCC 2013) and has been included in the EPD following the PCR.
***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 some construction materials, is not measured by this indicator.

Table 9: Environmental Impact Indicators in accordance with EN15804+A1

Indicator	Abbreviation
Global warming potential	GWP
Ozone depletion potential	ODP
Acidification potential	AP
Eutrophication potential	EP
Photochemical ozone creation potential	POCP
Abiotic depletion potential for non-fossil resources	ADPE
Abiotic depletion potential for fossil resources	ADPE

For Interbloc, the following indicators are not relevant, hence result in zero values:

- Materials for energy recovery (MER) is zero since no waste is going to incineration.
- Exported electrical energy (EEE) is zero since there is none produced.
- Exported thermal energy (EET) is zero since there is none produced.
- Renewable energy as materials (PERM)
- Non-renewable energy as materials (PENRM)
- Use of renewable secondary fuels (RSF)
- Use of non-renewable secondary fuels (NRSF)
- Materials for energy recovery (MER)
- Exported electrical energy (EEE)
- Exported thermal energy (EET)
- Biogenic Carbon - product (BCC-prod)
- Biogenic Carbon - packaging (BCC-pack)

ENVIRONMENTAL PERFORMANCE

Concrete density has an upper limit of 2,430 kg/m^3. To establish environmental impacts per tonne (and therefore arrive at a per block value), values should be divided by 2.43.

TABLE 10: POTENTIAL ENVIRONMENTAL IMPACT: MANDATORY INDICATORS ACCORDING TO EN15804+A2:2019 - DECLARED UNIT IS 1M^3.

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP-t	kg CO_2 eq.	15.7	1.56	8.06	0	0.369	2.45
GWP-Fossil	kg CO_2 eq.	15.6	1.56	8.06	0	0.367	2.45
GWP-Biogenic	kg CO_2 eq.	0.153	0	0	0	0	0
GWP-Land Use	kg CO_2 eq.	0.00893	3.15E-05	1.70E-04	0	0.00108	0.00148
ODP	kg CFC 11 eq.	2.04E-14	2.30E-16	1.24E-15	0	1.43E-15	8.40E-15
AP	mol H+ eq.	0.0530	0.00786	0.0477	0	0.00262	0.00271
EP-Freshwater	kg P eq.	9.53E-05	2.57E-07	1.39E-06	0	6.17E-07	1.37E-06
EP-Marine	kg N eq.	0.0210	0.00372	0.0234	0	6.79E-04	9.63E-04
EP-Terrestrial	mol N eq.	0.236	0.0408	0.257	0	0.00746	0.0105
POCP	kg NMVOC eq.	0.0457	0.0104	0.0461	0	0.00206	0.00284
ADP (M&M)*	kg Sb eq.	1.54E-06	2.42E-08	1.31E-07	0	3.47E-08	1.18E-07
ADP (Fossil)*	MJ, net calorific value	189	20.8	112	0	4.88	8.23
WDP	m^3 eq.	1.75	0.0102	0.0554	0	0.0394	0.118

**Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties are high or as there is limited experience with the indicator.*

TABLE 11: USE OF RESOURCES

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
PERE	MJ, net calorific value	62.7	0.101	0.547	0	0.657	2.14
PERM	MJ, net calorific value	0	0	0	0	0	0
PERT	MJ, net calorific value	62.7	0.101	0.547	0	0.657	2.14
PENRE	MJ, net calorific value	189	20.8	112	0	4.88	8.24
PENRM	MJ, net calorific value	0	0	0	0	0	0
PENRT	MJ, net calorific value	189	20.8	112	0	4.88	8.24
SM	kg	2,480	0	0	0	0	0
RSF	MJ, net calorific value	0	0	0	0	0	0
NRSF	MJ, net calorific value	0	0	0	0	0	0
FWT	m^3	0.152	2.01E-04	0.00109	0.00	0.00120	0.00394

WASTE PRODUCTION AND OUTPUT FLOWS

TABLE 12: WASTE PRODUCTION

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
HWD	kg	6.67E-09	7.49E-11	4.05E-10	0	5.18E-10	1.28E-09
NHWD	kg	0.292	4.97E-04	0.00268	0	24.3	0.811
RWD	kg	0.00132	2.86E-06	1.55E-05	0	5.12E-05	2.53E-04

TABLE 13: OUTPUT FLOWS

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
CRU	kg	0	0	0	2,410	0	0
MER	kg	0	0	0	0	0	0
MFR	kg	45.6	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0

TABLE 14: POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL INDICATORS ACCORDING TO EN15804+A2:2019

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2-eq	15.5	1.56	8.05	0	0.365	2.44
PM	Disease incidences	3.67E-07	9.03E-08	1.95E-07	0	3.25E-08	5.99E-08
IR[2]	kBq U235 eq.	0.201	3.36E-04	0.00181	0	0.00539	0.0234
ETP-fw	CTUe	186	7.93	42.9	0	2.78	3.30
HTP-c	CTUh	1.05E-08	1.35E-10	7.32E-10	0	4.10E-10	1.69E-10
HTP-nc	CTUh	6.38E-07	6.96E-09	2.95E-08	0	4.52E-08	1.66E-08
LU	Pt	183	0.0532	0.288	0	0.985	2.20

TABLE 15: POTENTIAL ENVIRONMENTAL IMPACT – INDICATORS ACCORDING TO EN15804+A1:2013

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP	kg CO_2 eq.	15.5	1.54	7.95	0	0.360	2.43
ODP	kg R11 eq.	2.72E-14	3.07E-16	1.66E-15	0	1.90E-15	1.12E-14
AP	kg SO_2 eq.	0.0375	0.00550	0.0327	0	0.00208	0.00203
EP	kg PO_4^{3-} eq.	0.00860	0.00125	0.00788	0	2.36E-04	3.51E-04
POCP	kg C_2H_4 eq.	-0.00372	5.16E-04	-0.0118	0	1.60E-04	2.22E-04
ADPE	kg Sb eq.	1.55E-06	2.42E-08	1.31E-07	0	3.50E-08	1.20E-07
ADPF	MJ (net calorific value)	185	20.7	112	0	4.73	7.55

The result tables shall only contain values or the letters “ND” (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

1 This indicator is calculated using the characterisation factors from the IPCC AR5 report (IPCC 2013) and has been included in the EPD following the PCR. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.

2 This impact category deals mainly with the eventual impact of low dose ionizing raditiation 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 faciliaties. Potential ionizing radtion from the soil, from radon and from some construction materials is also not measured by this indicator.

TABLE 16: BIOGENIC CARBON CONTENT

BIOGENIC CARBON CONTENT	UNIT	QUANTITY
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

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

GLOSSARY

Life Cycle Assessment (LCA)

“Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle” (ISO 14040:2006, section 3.2)

Life Cycle Inventory (LCI)

“Phase of life cycle assessment involving the compilation and quantification of inputs and outputs for a product throughout its life cycle” (ISO 14040:2006, section 3.3)

Allocation

“Partitioning the input or output flows of a process or a product system between the product system under study and one or more other product systems” (ISO 14040:2006, section 3.17)

REFERENCES

EPD International (2019). General Programme Instructions for the International EPD System version 3.01, dated 2019-09-18. www.environdec.com.

EPD International. (2021). PCR 2019:14, version 1.11 Construction Products. www.environdec.com

EN 15804:2012+A1:2013; Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels: European Committee for Standardization.

EN 15804:2012+A2:2019; Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels: European Committee for Standardization.

ISO 14040:2006; Environmental management – Life cycle assessment – Principles and framework. Geneva: International Organization for Standardization.

ISO 14044:2006; Environmental management – Life cycle assessment – Requirements and guidelines. Geneva: International Organization for Standardization.

ISO 14025:2006; Environmental labels and declarations — Type III environmental declarations — Principles and procedures. Geneva: International Organization for Standardization.

Sphera (2021). GaBi Life Cycle Inventory Database 2021 Documentation. Retrieved from Sphera: https://gabi.sphera.com/international/ support/gabi/gabi-database-2021-lcidocumentation/

GENERAL INFORMATION

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. Results that are A1 compliant are given in this document to assist comparability across EPDs.

Declaration owner: ENVIROCON CAPTURING CONCRETE EXCESS	Envirocon envirocon.co.nz 0800 468 375 667b Great South Road, Penrose, Auckland
Geographical Scope	New Zealand
Reference Year for Data	2021
EPD produced by: thinkstep anz	**thinkstep Ltd** **WEB:** www.thinkstep-anz.com **EMAIL:** anz@thinkstep-anz.com **POST:** 11 Rawhiti Road, Pukerua Bay, Wellington 5026, New Zealand
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CEN standard EN 15804+A2 served as the core PCR	
PCR:	PCR 2019:14, version 1.11 Construction Products. EPD International., 2021-02-05
PCR review was conducted by:	The Technical Committee of the International EPD® System
Chair:	Martin Erlandsson. Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO 14025:	☐ EPD process certification (Internal) ☒ EPD verification (External)
Third party verifier: START2SEE LIFE CYCLE ASSESSMENTS	**ROB ROUWETTE, START2SEE** **WEB:** www.start2see.com.au **EMAIL:** rob.rouwette@start2see.com.au Approved by: EPD Australasia
Procedure for follow-up of data during EPD validity involved third-party verifier	☐ YES ☒ NO
Version	Date and Description
1	December 2022 - original EPD released.
1.1	This version (1.1) includes a clarification that this EPD is an average EPD (for multiple sites) and corrections have been made for LU, IR (both EN15804+A2) and ODP, AP, and POCP (all EN15804+A1) indicators.

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