Building a Better Future

Delivering innovation to help reduce the impact on the built environment in New Zealand

Golden Bay®

EcoFast®

Environmental Product Declaration

EcoFast® HE cement

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

Programme:	**The International EPD® System www.environdec.com**
Programme operator:	**EPD International AB**
Regional programme:	**EPD Australasia Ltd.**

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EPD Registration Number:	**EPD-IES-0012938:001**

AUSTRALASIA EPD® ENVIRONMENTAL PRODUCT DECLARATION

EPD® THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at epd-australasia.com

Golden Bay

Golden Bay's Portland Manufacturing Plant is the only fully integrated cement manufacturing plant remaining in New Zealand. The Plant, located on the southern shore of the Whangarei Harbour in Northland, is a contemporary world class cement production facility, with a very long successful innovative history. The Portland Plant recently celebrated a century of cement production at the present site.

Sustainability underpins everything we do at Golden Bay, as we lead the industry in pioneering sustainable and ethical practices with minimal impact on the environment. We are proud to already offer the lowest carbon GP cement at scale in New Zealand. Making it easy for our customers to reduce their carbon emissions without having to make changes to their operations. We are committed to reducing our carbon footprint by 30% by 2030[1] which we are well on the path to exceed.

Our manufacturing processes are driving our reduction in carbon by reducing our reliance on fossil fuels and investing in a circular strategy to replace fossil fuels such as coal with recycled materials. This includes a partnership with the government to recycle end-of-life tyres. As at June 2022[2], we have disposed of 3,000,000 tyres, or 30,000 tonnes of tyres per year. One tonne of tyres displaces 1.12 tonnes of coal. Over the 15 months since introduction of the tyres we have reduced CO_2 emissions by 24,000 tonnes. This combined with our construction wood waste and other alternative fuels has allowed us to displace 50% of our coal for circular fuel sources, diverting 80,000 tonnes of waste from landfill in 2022. We will be adding in waste plastic to our fuel substitution to reach an 80% substitution of fossil fuels over the next 2 years. We continue to assess the use of further alternative fuel sources as part of our overall strategy to reduce our reliance on fossil fuels and to reduce our CO_2 emissions.

Our decarbonisation strategy also includes the circular use of waste, not only in our fuels, but also our product materials, including waste streams like Pond Ash from Genesis, helping us reach our 30% carbon reduction by 2030.

1 Find out more at https://fletcherbuilding.com/sustainability/sustainability-reports-publications-and-policies/
2 https://fletcherbuilding.com/sustainability/our-journey-so-far/

Golden Bay also benefit from New Zealand's unique renewable electricity generation position contributing to lower emissions than if thermal generation sources were used.

Golden Bay are members of the New Zealand Green Building Council, and, as a business unit of Fletcher Building Ltd, we are a member of the Sustainable Business Council and the Sustainable Business Network.

Golden Bay prides itself on manufacturing a cement that is tailored for New Zealand conditions and our ability to maintain a high level of quality and product consistency that our market requires. We operate a fully TELARC certified ISO 9001 Quality Management System and all testing is monitored by our IANZ accredited laboratory.

This EPD document refers to the Type HE (High Early) cement product that is produced at this facility.

From the facility the cement is distributed in road tankers, bags, ISO containers and by coastal shipping. The majority of the cement is distributed by coastal shipping and is stored at a number of key locations around New Zealand and then road tankers deliver to our customer silos.

Under the New Zealand Green Building Council's Green Star rating system, points can be awarded under MAT-7 Concrete and Aggregate, Criteria A, where it can be demonstrated that all concrete used has a reduced environmental impact.

Environmental Product Declarations are a recognised initiative to demonstrate these criteria.

For more information, see: www.goldenbay.co.nz/sustainability

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Golden Bay®

Initial EPD was published 12 May 2019 to EN 15804+A1 (S-P-01170 Version 1). A revised version with updated product composition and fuel split for clinker production was published 12 June 2023 (S-P-01170 Version 1.1). This included renamed products EverSure™ GP cement and EverFast™ HE cement to EcoSure® GP cement and Eco-Fast® HE cement, respectively. The EPDs have since been updated to align with EN15804+A2 and PCR 2019:14 version 1.3.3.

Products covered by this Environmental Product Declaration (EPD)

This product-specific EPD covers EcoFast cement manufactured at Golden Bay facilities in New Zealand.

1. Bulk type cement EcoFast® High Early Strength (HE) Cement

Applications

EcoFast® cement is used in commercial, industrial and residential construction, including structural concrete, mortars, renders, grouts and cement-based products. It can also be used as a general binder for applications such as soil stabilisation. EcoFast® cement has a finer grain size and is specifically designed for precast concrete products.

Declared unit

The declared unit is one tonne of cement, ready for distribution at the outbound gate of the respective manufacturing site. The gate for bulk cement is Portland, Whangarei. EcoFast® is supplied in bulk tanker, so there is no packaging.

Content Declaration

Golden Bay products have a typical composition as follows:

Product components	Weight (kg)	Post-consumer recycled material, % mass	Biogenic material, weight. % of product	Biogenic material, kg C/product or declared unit
Clinker	860	0	0	0
Limestone mineral addition	100	0	0	0
Gypsum	40	0	0	0
Sum	**1,000**	0	0	0

Dangerous substances from the candidate list of SVHC for Authorisation

None of the materials in this EPD 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.

Other Environmental Information

EcoFast® HE has a Declare label and is certified Red List Free by the International Living Future Institute. For more information, visit: https://declare.living-future.org/products/golden-bay-cement-eversure-gp-and-everfast-he-cement

Industry classifications

The product in this EPD falls under the UN CPC classification ‘3744 Cement’ and ANZSIC classification ‘2031 Cement and Lime Manufacturing’, ‘3744 Portland Cement’. Relevant standard is NZ3122-2009 ‘Specification for Portland and blended cements (general and special purpose)’.

*Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals.

Manufacturing of Golden Bay cement

The scope of the study includes all processes from the mining of natural resources (‘cradle’) to the production of cement that is ready for transport to customers at Golden Bay’s factory gate.

Module A1: Raw Material Supply. Includes the production of material inputs such as explosives, fly-ash, coal, and gypsum.

Module A2: Transportation. Transport of inputs to production site.

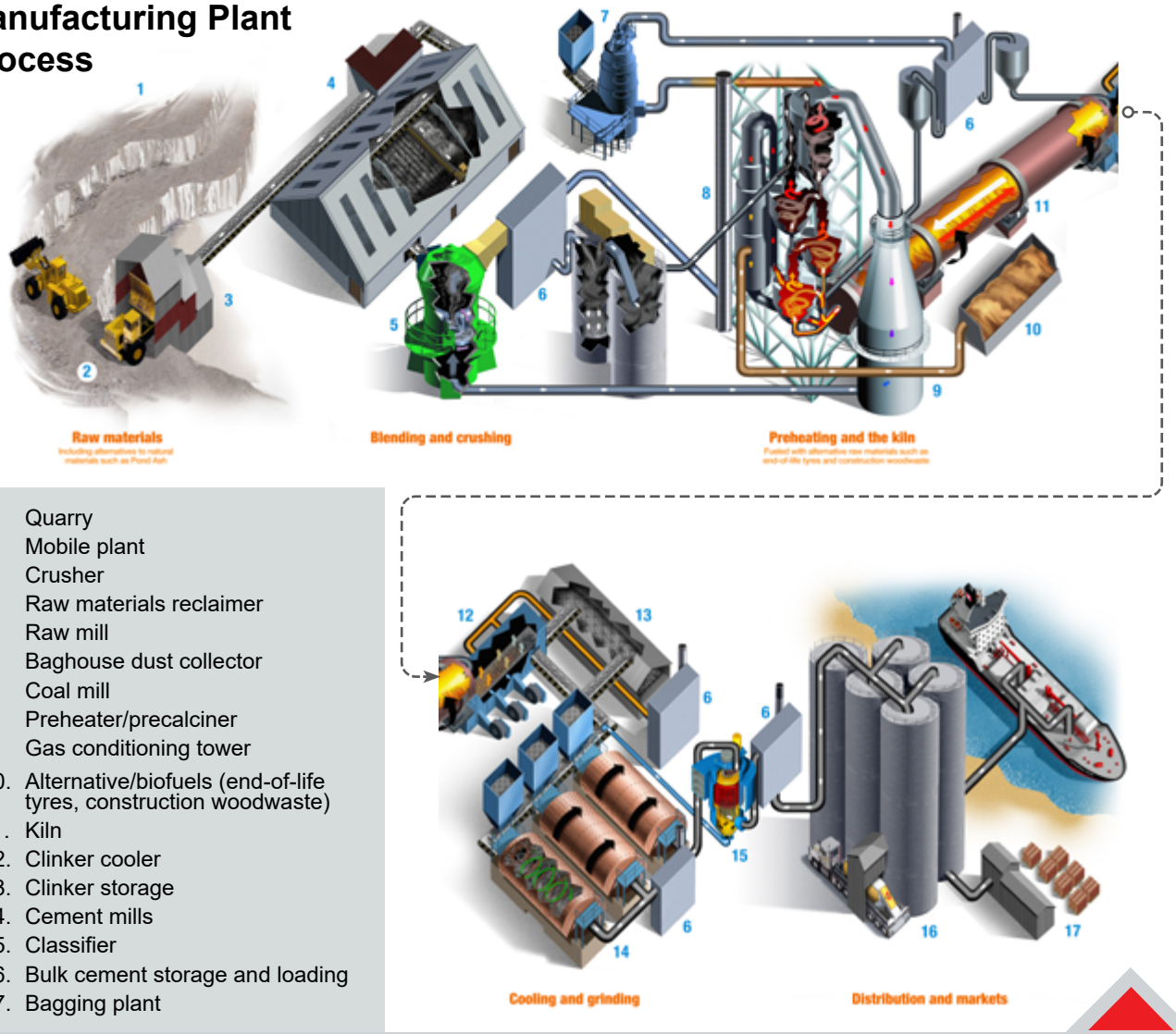
Module A3: Manufacturing. Cement rock and limestone are quarried at the Portland and Wilsonville quarries respectively. Explosives are used to blast the rock apart, then mobile plant (loaders and dump trucks) transfers the rock. Road trucks are used to transport the limestone to Portland quarry. Rock is loaded into a crusher and onto a conveyor belt leading to the manufacturing plant. A portion of high-quality limestone is processed by a mobile crusher for use as an extender. The crushed cement rock and limestone are fed into the raw mill along with iron sand and alternative raw materials such as Pond Ash. The raw meal produced is then blended and fed into the precalciner and kiln where clinker is produced at high temperatures by firing coal and alternative fuels, followed by cooling in the clinker cooler.

Bulk type cement comprises of clinker, gypsum and extender rock (limestone with a higher purity of calcium carbonate extracted at Wilsonville Quarry). These are milled in the cement mills by steel grinding media.

Packaging of cement is excluded since bulk type products are loaded directly onto the distribution vessel.

The system boundary also includes manufacture of other required input materials, transport between processing operations, the production of external services such as electricity, natural gas and water, and the production of co-product materials within the cement manufacturing process. Waste and emissions to air, land and water are also included where appropriate.

Manufacturing Plant Process



1. Quarry
2. Mobile plant
3. Crusher
4. Raw materials reclaimer
5. Raw mill
6. Baghouse dust collector
7. Coal mill
8. Preheater/precalciner
9. Gas conditioning tower
10. Alternative/biofuels (end-of-life tyres, construction woodwaste)
11. Kiln
12. Clinker cooler
13. Clinker storage
14. Cement mills
15. Classifier
16. Bulk cement storage and loading
17. Bagging plant

Scope of EPD

This is a ‘cradle-to-gate’ EPD covering modules A1 to A3 from European Standard EN 15804:2012 +A2:2019 (see Table 1). Modules A4-A5, B1-B7, C1-C4 and D are excluded from this EPD as they are dependent on how the product is used and should be developed as part of holistic assessment of specific construction works. EcoSure fulfils the conditions for cradle-to-gate EPD: it is physically integrated into concrete and cannot be easily separated from concrete at end-of-life; it is no longer identifiable once mixed to form concrete; it does not contain biogenic carbon.

Table 1 - Scope of EPD

	Product stage			Construction process stage		Use stage							End of life stage				Resource Recovery Stage
	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
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	NZ	NZ	NZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific data	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = module declared; NND = module not declared (such a declaration shall not be regarded as an indicator result of zero)

LCA methodology and data

The EPD has been produced according to ISO 14040 (ISO, 2006a), ISO 14044 (ISO, 2006b), ISO 14025 (ISO, 2006c), EN 15804:2012+A2:2019/AC:2021 (CEN, 2019), and PCR 2019:14 Construction products v1.3.3, published 2024-04-30 by the International EPD System® (EPD International, 2024).

Data

Primary data was used for all manufacturing operations up to the factory gate. Data for manufacturing of the cement types was provided by Golden Bay. All relevant and available data was collected. All raw materials inputs and flows have been captured to produce cement. Product composition and fuel split for clinker production reflect period from 1st July 2021 to 30th June 2022. Upstream processes such as mining remain as per base year (1st July 2013 to 30th June 2014).

Background data or literature was used when no site-specific data was available for upstream (A1) inputs. Most upstream datasets are representative of Europe, particularly Germany. The use of such proxies is due to the lack of New Zealand-specific datasets.

LCA software and database

The LCA model was created using the Life Cycle for Experts (LCA FE) v10.7.1.28 (formerly known as GaBi Software) for life cycle engineering, developed by Sphera Solutions, Inc. All data in the background system (energy inputs, transport processes, packaging and raw materials) are from Sphera's Managed LCA Content (MLC) Database 2023.2 (Sphera, 2024). The reference year for the data ranges from 2018-2023 and therefore all datasets are within the 10-year limit allowable for generic data under EN 15804 and the PCR. The EN 15804 reference package based on EF 3.1 is used. Indicators are from the EF 3.1 package.

Electricity

The composition of the residual electricity grid mix for New Zealand is modelled in LCA FE based on published data for the year 1 April 2021 – 31 March 2022 (BraveTrace, 2023). The New Zealand residual electricity mix is made up of hydro (56.6%), geothermal (19.7%), natural gas (12.5%), wind (6.55%), coal (4.25%), biomass (0.266%) and biogas (0.16%).

The emission factor for the New Zealand low voltage residual grid mix for the GWP-GHG indicator is 0.151 kg CO_2e/kWh (based on EF3.1).

Cut-off criteria

Cut-off criteria according to EN 15804 has been used:

- <1% of total mass or energy inputs to any unit process are excluded.
- <5% of the total energy or mass flows are excluded.

Environmental impacts relating to personnel, infrastructure, and production equipment not directly consumed in the process are excluded from the system boundary. thinkstep-anz consistently excludes environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process ('capital 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, capital goods data are applied to LCA studies inconsistently. This is expected to lead to reduced consistency and comparability of EPDs.

Infrastructure used in electricity generation is included as standard in the LCA FE datasets, as this is important for renewable generation. All other reported data was incorporated and modelled using the best available life cycle inventory data.

Allocation

Allocation was carried out in accordance with EN 15804 section 6.4.3.2. Co-product allocation was carried out based on physical relationships in any cases except for wood waste, where economic allocation was applied due to a large difference in economic value between co-products.

Environmental impact indicators

An introduction to each environmental impact indicator is provided below. The best-known effect of each indicator is listed to the right of its name. The abbreviation corresponds to the labels in the following tables.

Climate change (global warming potential) (GWP-total, GWP-fossil, GWP-biogenic, GWP-luluc)

A measure of greenhouse gas emissions, such as CO_2 and methane. These emissions are causing an increase in the absorption of radiation emitted by the sun, increasing the natural greenhouse effect. This may in turn have adverse impacts on ecosystem health, human health and material welfare. The Global Warming Potential (GWP) includes four sub indicators: total (GWP-total), fossil (GWP-fossil), biogenic (GWP-biogenic), and land-use and land-use change (GWP-luluc).

Ozone depletion potential (ODP)

Depletion of the ozone leads to higher levels of UVB ultraviolet rays reaching the earth's surface with detrimental effects on humans and plants. The Ozone Depletion Potential is a measure of air emissions that contribute to the depletion of the stratospheric ozone layer.

Acidification potential (AP)

Acidification Potential is a measure of emissions that cause acidifying effects to the environment. A molecule's acidification potential indicates its capacity to increase the hydrogen ion (H+) concentration in the presence of water, thus decreasing the pH value. Potential effects include fish mortality, forest decline, and the deterioration of building materials.

Eutrophication potential (EP-fw, EP-m, EP-t)

Eutrophication covers all potential impacts of excessively high levels of macronutrients, the most important of which are nitrogen (N) and phosphorus (P). In aquatic ecosystems where this term is mostly applied, this typically describes a degradation in water quality. Eutrophication can result in an undesirable change in the type of species that flourish and an increase in the production of biomass. As the decomposition of biomass consumes oxygen, eutrophication may decrease the available oxygen level in the water column and threaten fish in their ability to respire.

Photochemical ozone formation potential (POFP)

Photochemical Ozone Formation Potential gives an indication of the emissions from precursors that contribute to ground level smog formation, mainly ozone (O_3). Ground level ozone may be harmful to human health and ecosystems and may also damage crops. These emissions are produced by the reaction of volatile organic compounds (VOCs) and carbon monoxide in the presence of nitrogen oxides and UV light.

Abiotic resource depletion (ADP-mm, ADP-f)

The consumption of non-renewable resources decreases the availability of these resources and their associated functions in the future. Depletion of mineral resources and nonrenewable energy resources are reported separately. Depletion of mineral resources is assessed based on total reserves.

Water depletion potential (WDP)

Water scarcity is a measure of the stress on a region due to water consumption.

The results tables describe the different environmental indicators for each product per declared unit, for each declared module.

- Table 2 outlines the core environmental impact indicators in accordance with EN 15804:2012+A2:2019/AC:2021, describing the potential environmental impacts of the product.
- Table 3 provides additional environmental impact indicators in accordance with EN 15804:2012+A2:2019/AC:2021.
- Table 4 gives the life cycle inventory indicators for resource use.
- Table 5 displays the life cycle inventory indicators for waste and other outputs.
- Table 6 displays biogenic indicators.
- Table 7 gives environmental impact indicators in accordance with EN 15804:2012+A1:2013 to aid backward comparability.

For the cement product, the following indicators are not relevant, hence they result in zero values:

- Renewable primary energy resources as material utilization
- Non-renewable primary energy as material utilization
- Use of renewable secondary fuels
- Use of non-renewable secondary fuels
- Components for re-use
- Materials for recycling
- Materials for energy recovery
- Exported electrical energy
- Exported thermal energy
- Use of renewable secondary fuels
- Biogenic carbon content - product
- Biogenic carbon content - packaging

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Energy indicators (MJ) are always given as net calorific value.

Table 2 - EN15804+A2 Core environmental impact indicators

Impact Category	Abbreviation
Climate Change - total	GWP-total
Climate Change - fossil	GWP-fossil
Climate Change - biogenic	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	POCF
Depletion of abiotic resources - minerals and metals*	ADP-mm
Depletion of abiotic resources - fossil fuels*	ADP-f
Water Depletion Potential*	WDP

Table 3 - EN15804+A2 additional environmental impact indicators

Impact Category	Abbreviation
Climate Change**	GWP-GHG
Climate Change***	GWP-GHG (IPCC AR5)
Particulate Matter emissions	PM
Ionising Radiation - human health+	IRP
Eco-toxicity (freshwater)*	ETP-fw
Human Toxicity, cancer*	HTP-c
Human Toxicity, non-cancer*	HTP-nc
Land use related impacts / soil quality*	LU

Environmental impacts

*The results of this environmental impact indicator should be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

Additional environmental impact indicators

* 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.

** This indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero. It has been included in the EPD following the PCR.

*** GWP-GHG (IPCC AR5) is an additional GWP100 indicator that is aligned with the Intergovernmental Panel on Climate Change (IPCC) 2013 Fifth Assessment Report (AR5) (IPCC 2013), national greenhouse gas reporting frameworks in Australia and New Zealand and previous versions of the Construction Products PCR (PCR2019:14v1.11). It excludes biogenic carbon and indirect radiative forcing.

+ 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 also not measured by this indicator.

Table 4 - Life cycle inventory indicators on use of resources

Indicator	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 freshwater	FW

Resource use indicators

The resource use indicators describe the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water.

Table 5 - Life cycle inventory indicators on waste categories and output flows

Indicator	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

Waste and Output Flows

Waste indicators describe waste generated within the life cycle of the product. Waste is categorised by hazard class, End-of-Life fate and exported energy content.

Table 6 - Biogenic Indicators

Indicators	Abbreviation
Biogenic Carbon Content - Product	BCC-prod
Biogenic Carbon Content - Packaging	BCC-pack

Biogenic Carbon Content

EN 15804+A2 requires the declaration of biogenic carbon content of the product and packaging.

Table 7 - Environmental impact indicators in accordance with EN15804+A1

Indicator	Abbreviation
Global warming potential	GWP (EN15804+A1)
Ozone depletion potential	ODP (EN15804+A1)
Acidification potential	AP (EN15804+A1)
Eutrophication potential	EP (EN15804+A1)
Photochemical ozone creation potential	POCP (EN15804+A1)
Abiotic depletion potential for non-fossil resources	ADPE (EN15804+A1)
Abiotic depletion potential for fossil resources	ADPF (EN15804+A1)

EN15804+A1 environmental impact indicators

Results using the indicators and characterisation factors of EN15804+A1 are included to aid comparison and backwards compatibility with rating tools. While the indicators and characterisation methods are from EN 15804:2012+A1:2013, other LCA rules for the study (system boundaries, allocation, etc.) are according to EN 15804:2012+A2:2019; i.e., this study does not claim that the results of the “A1 indicators” are compliant with EN 15804:2012+A1:2013.

Results of assessment

Table 8: Environmental impact indicator results per 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
GWP-total	kg CO_2-eq.	709
GWP-fossil	kg CO_2-eq.	709
GWP - biogenic	kg CO_2-eq.	0.0451
GWP-luluc	kg CO_2-eq.	0.00443
ODP	kg CFC11-eq.	1.51E-11
AP	Mole of H+ eq.	1.09
EP-fw	kg P eq.	3.22E-05
EP-m	kg N eq.	0.444
EP-t	Mole of N eq.	5.17
POCP	kg NMVOC eq.	1.19
ADP-mm	kg Sb-eq.	2.76E-06
ADP-fossil	MJ	2,360
WDP	m^3 world equiv.	40

Table 9: Use of Resources per 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
PERE	MJ	1,280
PERM	MJ	0
PERT	MJ	1,280
PENRE	MJ	2,360
PENRM	MJ	0
PENRT	MJ	2,360
SM	kg	7.79
RSF	MJ	690
NRSF	MJ	0.621
FW	m^3	2.89

Table 10: Wastes and other output flows per 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
HWD	kg	1.05E-08
NHWD	kg	0.198
RWD	kg	3.12E-04
CRU	kg	0.0229
MFR	kg	0
MER	kg	0
EEE	MJ	0
EET	MJ	0

Table 11: Biogenic carbon content results per 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
BCC-prod	kg	0
BCC-pack	kg	0

Table 12: Additional environmental impact Indicator results per 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
GWP-GHG	kg CO_2-eq	709
GWP-GHG (IPCC AR5)	kg CO_2-eq	709
PM	Disease incidences	9.98E-06
IR	kBq U235 eq.	0.075
ETf	CTUe	2,450
HTc	CTUh	1.76E-08
HTnc	CTUh	3.04E-07
LU	Pt	510

Table 13: Environmental indicators in accordance with EN 15804:2012+A1:2013 for 1 tonne of cement

Parameter	Unit	HE, EcoFast (Portland gate) 2024
GWP (EN15804+A1)	kg CO_2-eq.	708
ODP (EN15804+A1)	kg CFC11-eq.	1.78E-11
AP (EN15804+A1)	kg SO_2-eq.	0.771
EP (EN15804+A1)	kg PO_4^{3-}- eq.	0.195
POCP (EN15804+A1)	kg C_2H_4-eq.	0.0593
ADPE (EN15804+A1)	kg Sb-eq.	2.76E-06
ADPF (EN15804+A1)	MJ	2,350

Care should be taken when comparing EPDs.

While this EPD meets all requirements for reporting in PCR2019:14 v1.3.3, it is important to recognise that Life Cycle Assessment is not a complete assessment of all environmental or sustainability issues of the product system under study.

The results for EN 15804+A1 compliant EPDs are not comparable with EN 15804+A2 compliant studies as they are different. Results that are EN15804+A1 compliant are given in this document to assist comparability across EPDs.

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Green Star compliance

This EPD meets the requirements of the New Zealand Green Building Council's Green Star rating tool as it:

- Follows ISO 14025 and EN 15804;
- Is independently verified;
- Has a cradle-to-gate scope; and
- Is product-specific.

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Building a
Better Future

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The International EPD® System

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CEN standard EN 15804 served as the core Product Category Rules (PCR)

PCR

PCR 2019:14 Construction Products and Construction Services, Version 1.3.3, 2024-03-01
c-PCR-001 Cement and Building Lime (EN 16908:2017+A1:2022) 2022-05-18 (EPD International, 2022)

PCR review was conducted by

The Technical Committee of the International EPD® System. See www.environdec.com for a list of members.
Review Chair: Claudia A. Peña, University of Concepción.
Contact via the Secretariat www.environdec.com/contact.

Independent verification of the declaration and data, according to ISO 14025

☐ EPD process certification (Internal)
☒ EPD verification (External)

Dr. Hüdai Kara, approved by EPD Australasia Ltd.

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Procedure for follow-up of data during EPD validity involved third-party verifier:
☐ Yes ☒ No

Golden Bay have the ownership, liability, and responsibility for this EPD. EPD's 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.