

Environmental Product Declaration



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

AICA AIBON 11G057 from
AICA-NZ Ltd





Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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General EPD 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).

Programme information	
Programme:  INTERNATIONAL EPD SYSTEM	International EPD System EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden W: www.environdec.com E: support@environdec.com
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Product Category Rules (PCR)	
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR): PCR review was conducted by: c-PCR Product Group Classification	PCR 2019.14 Construction Products, version 2.0.1 Rob Rouwette start2see (chair), Noa Meron thinkstep-anz (co-chair). The review panel may be contacted via the Secretariat: www.environdec.com/contact . c-PCR-017 Technical-chemical products (for construction sector) (adopted from EPD Norway 2022-07-08). UN CPC 354, under chemical products, according to version 2.1, 2015.
Third-party verification	
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:	
<input checked="" type="checkbox"/> Individual EPD verification without a pre-verified LCA/EPD tool	
Third Party Verifier	Claudia A. Peña, PINDA LCT SpA Email: claudia@epd-americalatina.com
Verifier approved by:	International EPD System
More information can be found in the General Programme Instructions on www.envrondec.com .	
Procedure for follow-up of data during EPD validity involved third-party verifier	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025.

Information about EPD owner

Owner of the EPD	
	<p>AICA NZ Limited 35 Sandeman Road, Richmond, NZ Sharon Adlam T: +64 6 968 1800 W: https://www.aicanz.co.nz/</p>
EPD Produced by	
	<p>Lilia Caballero, Ray Mohan, Szal Kundu Edge Environment Pty Limited Greenhouse, Level 3, 180 George Street, Sydney NSW 2000 W: www.edgeimpact.global E: info@edgeimpact.global</p>

AICA Asia Pacific Holding (AAPH) is a diversified regional manufacturer of adhesives and surfacing solutions. AAPH have manufactured high-quality multipurpose adhesives since 1974, and they specialise in industrial adhesives, composite board resins, and overlay films.

AAPH now operates more than 17 factories across China, Southeast Asia, and New Zealand – operating as AICA-NZ Limited in New Zealand. Edge Impact was commissioned by AICA-NZ Limited (hereby referred to as AICA in this report) to produce a Life Cycle Assessment (LCA) for their select AICA-AIBON Adhesives products manufactured in Richmond. This report presents the methodology, data, results, and interpretation of the LCA, which are intended to be published as an EPD. For more information about AICA NZ limited refer to: <https://www.aicanz.co.nz/>

Product Information

AICA-AIBON adhesives, including AICA AIBON 11G057, are commonly used for a range of engineered wood products including particleboard, medium density fibreboard, plywood, laminated veneer lumber, finger-jointed and glue laminated timber, delivering seamless and long-lasting adhesion. AICA-AIBON 11G057 adhesives are produced from urea, formaldehyde (supplied as a 50% formalin solution produced on site from methanol), and water. In addition to offering consistent quality and performance, the production of this adhesive also contributes to the local economy by supporting regional businesses across the supply chain—from raw material sourcing to final manufacturing. This reinforces Aica’s commitment not only to product excellence but also to sustainable, community-oriented industrial practices.



AICA AIBON 11G057

AICA AIBON 11G057 is a liquid Melamine Urea Formaldehyde (MUF), thermosetting adhesive resin specifically formulated for the manufacture of medium-density fibreboard (MDF). Designed to meet stringent MDF product standards such as AS/NZS and JIS, this resin is produced at AICA’s Richmond plant in New Zealand.

Table 1 | AICA products covered in this LCA study

Product Type	Description	Main components	UN CPC code
AICA AIBON 11G057	High melamine formaldehyde resin	Formaldehyde (as 50% formalin solution), urea, water and melamine	354, under chemical products, according to version 2.1, 2015.

Content Declaration

The product composition per declared unit (1 kg of AICA AIBON 11G057) is presented in Table 2. For reasons of confidentiality, a range is provided.

Table 2: Content declaration for 1kg of AICA AIBON 11G057.

Product components	Weight, kg	Post-consumer recycled material (%)	Biogenic material, weight-% of product	Biogenic material, kg C/ declared unit
UF resin	2.8E-01 – 6.0E-01	0	0	0
Water	2.8E-01 – 6.0E-01	0	0	0
Melamine urea formaldehyde resin	1.0E-04 – 2.4E-01	0	0	0
Methanol	1.0E-03 – 2.0E-02	0	0	0
Formaldehyde	1.0E-03 – 1.0E-02	0	0	0
Other materials*	balance	0	0	0

*Inorganic chemicals and organic polymers.

Note: AICA AIBON 11G057 adhesive doesn't include any type packaging as it is transported in pipes from the manufacturing point to Nelson Pine.

Additional information on release of dangerous substances to indoor air, soil and water

The products are highly inert and are used predominantly in outdoor applications. They do not release any dangerous substances to indoor air, soil, or water.

None of the products contain one or more substances that are listed in the "Candidate List of Substances of Very High Concern for authorisation". Based on available information and safety data sheet, AICA AIBON Adhesive products are not classified as hazardous according to WorkSafe New Zealand criteria.

LCA Information

This EPD has been produced in conformance with the requirements of PCR 2019:14, v2.0.1, General Programme Instructions (GPI) (v5.0.1) and EN 15804+A2:2019.

Table 3 | LCA information

Product Characteristics	
Declared Unit	1 kg of AICA AIBON 11G057
Manufactured in:	Richmond, New Zealand.
Time representativeness	CY2022 (2022-01-01 – 2022-12-31).
Geographical scope	New Zealand
Database(s) and LCA software used:	ecoinvent v3.10 database and EF v3.1 Simapro v9.6 LCA software Programme
Characterisation factors	The characterisation factors are based on version 3.1 of the EN 15804+A2 package for the Product Environmental Footprint (PEF) framework (EF 3.1).
Description of system boundaries:	The scope of the LCA is cradle to gate with options, including modules A1-A3 and module A4, in alignment with PCR2019:14 v2.0.1, section 2.2.2.1. *

* Modules A5 and B are excluded because this adhesive is used solely as a raw material in the production of MDF fibreboards and other wood-based construction materials rather than being installed or used independently. Modules C1–C4 are excluded as the adhesives are integrated into wood-based products at end of life, cannot be physically separated, and do not contain biogenic carbon.

Table 4: Life Cycle of building products: stages and modules included in this EPD

	Product stage			Construction 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	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	NZ	NZ	NZ	NZ	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation of products	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND = not declared (such a declaration shall not be regarded as an indicator of zero result).

System Diagram:

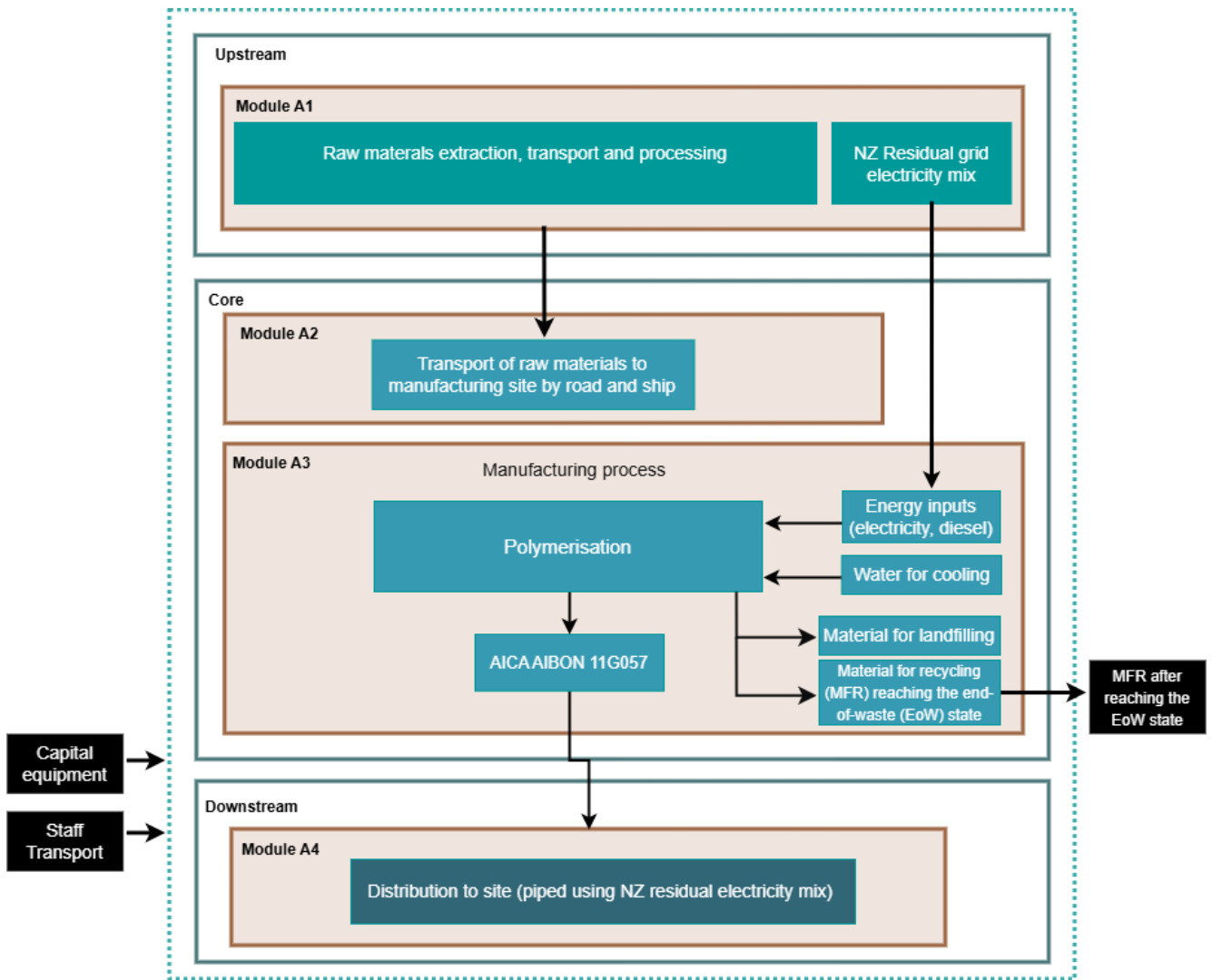


Figure 1 | System diagram of AICA AIBON 11G057.

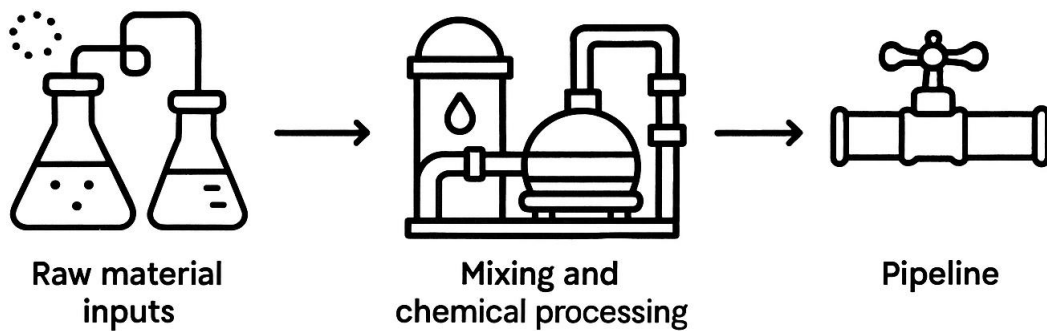


Figure 2 | Simplified manufacturing and distribution process of AICA AIBON 11G057.

Boundary to Nature and Other Product Systems

In accordance with PCR 2.0.1, Section 4.3.8, the boundary to nature is defined as the interface where inputs are taken from natural resources (e.g., water, minerals, and energy carriers) and outputs are released to the environment as emissions to air, water, or soil, or as solid waste deposited in landfill. The inputs from natural resources and the outputs released to the environment are illustrated in Figure 1 and described in the accompanying text below.

Materials leaving the product system are also shown in Figure 1. These include products sent to landfill and products for recycling, which first reach the end-of-waste state before leaving the product system. The following outputs are considered recovered materials entering other product systems:

Cardboard, steel, aluminium, and plastic (HDPE/PP) collected from the manufacturing process and packaging components are assumed to be sent to municipal recycling. These materials are considered to have reached the end-of-waste state, enabling their substitution of equivalent primary materials in subsequent product systems.

Wastewater, non-hazardous waste, and hazardous waste routed to municipal landfill or sewer systems are considered final emissions to nature. They are accounted for as elementary flows leaving the product system boundary.

Product Stage (Modules A1 – A3)

Modules A1–A3 cover the extraction and transport of raw materials, and the production stage of AICA-AIBON 11G057 adhesives. Inputs for each product were allocated based on the weight of product produced at the site.

Upstream processes

This stage includes:

- Extraction, transport, and processing of raw materials.
- Generation of electricity.

AICA-AIBON 11G057 adhesives are produced from urea, formaldehyde (supplied as a 50% formalin solution produced on site from methanol), melamine, and water as main components. The raw materials are transported to AICA's Richmond facility in New Zealand for manufacture.

Core Processes

Core processes include:

- Transport of raw materials to the manufacturing site.
- Use of manufacturing inputs such as electricity, diesel, and water.
- Manufacturing waste management.

The manufacturing of AICA AIBON 11G057 is conducted at AICA's Richmond facility in New Zealand, using electricity from the national grid. In alignment with PCR2019:14 v2.0.1, the residual electricity mix was applied for the electricity modelling. The formulation primarily relies on urea, with water and other additives. Production is undertaken in a chemical reactor (kettle), with raw materials introduced in stages to achieve controlled reactions. Heating or cooling is applied as needed to ensure stable process conditions and consistent product quality. pH adjustments are made throughout the process depending on the reaction stage, and laboratory testing verifies compliance with quality requirements.

Energy consumption data was provided per kilogram by the AICA team. The product is transferred via pipelines to Nelson Pine, without packaging. Since the adhesive and its transfer system contain no biological materials, no biogenic carbon is present.

Electricity modelling follows New Zealand's regional grid mix (BraveTrace, 2023–2024), comprising hydro (60.6%), geothermal (19.6%), natural gas (9.3%), wind (6.9%), co-generation (2%), coal (1.5%), and solar/diesel (<0.1%), with a GWP-GHG impact of 0.091 kg CO₂ eq/kWh.

AICA-AIBON strives to recycle manufacturing waste wherever possible. All manufacturing waste is collected by licensed third-party contractors, with an assumed transport distance of 25 km to local recycling or landfill facilities. In CY2022, AICA-AIBON recycled 32% of solid waste, which included cardboard, plastics, and metals. The remaining solid waste was sent to landfill.

Downstream Processes

The downstream boundary covers Modules A4 to C4. For AICA AIBON 11G057, the scope ends with Module A4 (Distribution).

The adhesive is distributed via pipeline from AICA's Richmond site to Nelson Pine Industries, approximately 1 km away. Pumping requires about 5% of the manufacturing site's electricity consumption.

Cut-off rules and Exclusion of Small Amounts

It is common practice in LCA/LCI protocols to propose exclusion limits for inputs and outputs that fall below a threshold % of the total, but with the exception that where the input/output has a "significant" impact it should be included. According to the PCR 2019:14 v2.0.1, LCI data shall according to EN 15804 include a minimum of 99% of total inflows (mass and energy) per unit process and 95% of total inflows (mass and energy) per life-cycle stages A1-A3, and A4. In accordance with the PCR 2019:14 v2.0.1, the following system boundaries are applied to manufacturing equipment and employees:

- Environmental impact from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are not accounted for. Capital equipment and buildings typically account for less than a few percent of nearly all life cycle inventories and this is usually smaller than the error in the inventory data itself. For this project, it is assumed that capital equipment makes a negligible contribution to the impacts as per Frischknecht et al. (Frischknecht, 2007) with no further investigation.
- Personnel-related impacts, such as transportation to and from work, are also not accounted for in the LCI, following to PCR v2.0.1 section 4.3.5. The impacts of employees are also excluded from inventory impacts on the basis that if they were not employed for this production or service function, they would be employed for another. It is very hard to decide what proportion of the impacts from their whole lives should count towards their employment. For this project, the impacts of employees are excluded.
- The manufacturing waste intended for recycling requires additional reprocessing after reaching the end-of-waste state. The impacts associated with this reprocessing were considered; however, transport related to this reprocessing was excluded, as the quantity of waste is minimal and the transport distance is expected to be short.

Allocation

AICA-AIBON EPD products are manufactured in Richmond, Nelson, New Zealand. Mass and energy data have been sourced from the manufacturing plant by AICA. Mass data was collected for individual AICA-AIBON products in CY2022. Energy, water use, and waste generated during the production of AICA-AIBON EPD products are allocated using mass allocation method based on the annual production volumes.

For water use and waste, although mass allocation is applied, the allocated values reflect the actual physical flows of the processes, in accordance with Section 6.4.3.2 of EN 15804+A2, which states:

“Material flows carrying specific inherent properties, e.g. energy content, elementary composition (e.g. biogenic carbon content), shall always be allocated reflecting the physical flows, irrespective of the allocation chosen for the process.”

The revenue differences between AICA-AIBON products are minimal; therefore, the use of mass allocation for energy is considered appropriate.

Wastes generated in Module A3 are modelled using the waste allocation procedure described in PCR 2.0.1, Annex 4. Module A3 includes waste sorting and transport processes up to the end-of-waste state. Recycling credits/burdens for materials leaving the system boundary are reported in Module D.

Assumptions, Choices, and Limitations

Table 5: Key assumptions, choices and limitation for this EPD

Assumption or limitation	Impact on LCA results	Discussion
Raw material data for AICA's products production.	Minor	The AICA team provided the composition of the products and other manufacturing inputs. Data sets were used to model the manufacture of raw materials used. The energy and water used, as well as the waste generated during product manufacturing, were allocated to the different products using the mass allocation method.
Exclusion of employees, capital good and infrastructure	Minor	Personnel-related impacts, including employee commuting and general life-cycle impacts, are excluded from the LCI. These are omitted because it is not possible to reasonably allocate a share of employees' personal impacts to the specific production or service activities assessed.
Average distance for transport from manufacturing site to waste plant.	Minor	Using information and averages from similar EPDs to determine the average distance travelled from deconstruction to waste plant.
Recycling of cardboard and metal	Minor	Based on AICA team's estimations it's assumed that from the total mass of recycling waste (cardboard and metal) 1/3 is cardboard and 2/3 are metal by weight.
Recycling of aluminium and plastic containers	Minor	Based on AICA team's estimations it's assumed that from the total mass of recycling waste (aluminium cans and plastic containers), 50% is aluminium and 50% are plastic containers by weight.

Data Quality and Validation

The primary data used for the study (core module) is based on direct utility bills and feedstock quantities from AICA's procurement records. This data was thoroughly reviewed to ensure its completeness, accuracy, and representativeness. Contribution analysis was applied to focus on the key data points that contribute to the environmental impact categories. Additionally, the data was benchmarked against relevant data from ecoinvent.

Background data were sourced primarily from the ecoinvent v3.10 database (2023 release) and adapted for New Zealand conditions where applicable (e.g., electricity, transport, water).

The data quality assessment was conducted in accordance with the EN 15804:2012 + A2:2019 Annex E evaluation criteria. All data used were classified as "good quality," meeting the requirements of EN 15941:2024 for representativeness, completeness, and transparency.

Declaration of share of primary data

As all background data, including transport and electricity, are derived from secondary sources, the share of primary data contributing to the GWP-GHG results for any process within Modules A1–A3 is less than 10%.

Table 6 presents all processes that contribute more than 10% to the GWP-GHG results, indicating the type of data source, the specific source, the reference year, and the data category.

Table 6: Declaration of data sources, reference years, data categories, and share of primary data.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
On site production of formaldehyde from methanol	Database	Ecoinvent v3.10	2025	Representative secondary	0%
Production of urea	Database	Ecoinvent v3.10	2024	Representative secondary	0%
Production of other raw materials	Database	Ecoinvent v3.10	2024-2025	Representative secondary	0%
Upstream transport	Database	Ecoinvent v3.10	2024	Primary data, secondary data	3%
Manufacturing of product ¹	Collected data	EPD owner	2024	Primary data, secondary data	<1%
Generation of electricity used in manufacturing of product	Database	Ecoinvent v3.10	2024	Primary data	<1%
Production of packaging materials	Database	Ecoinvent v3.10	2024	Primary data, secondary data	0%
Waste processing	Databases	Ecoinvent v3.10, EF 3.1 Databases	2023-2024	Primary data, secondary data	0%
Total share of primary data, of GWP-GHG results for A1-A3					4%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

¹ Processes at the manufacturing site and the corresponding on-site emissions and use of resources.

Environmental Performance

The following tables show the results for one declared unit of AICA AIBON 11G057. Note that the use of results of modules A1-A3 or A1-A5, without considering the results of module C may mislead the communication and decision-making. 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.

Table 7 | Mandatory impact category indicators according to EN 15804

Indicator	Abbreviation	Unit	A1-A3	A4
Global warming potential - total	GWP - Total	kg CO ₂ eq.	2.2E+00	2.8E-04
Global warming potential - fossil	GWP - Fossil	kg CO ₂ eq.	2.2E+00	2.8E-04
Global warming potential - biogenic	GWP - Biogenic	kg CO ₂ eq.	3.5E-04	1.7E-08
Global warming potential - land use/ land transformation	GWP - Luluc	kg CO ₂ eq.	3.4E-04	6.7E-09
Ozone depletion potential	ODP	kg CFC 11 eq.	4.8E-08	5.1E-12
Acidification potential	AP	mol H+ eq.	1.2E-02	1.2E-06
Eutrophication – freshwater	EP - F	kg P eq.	4.6E-04	2.4E-08
Eutrophication – marine	EP - M	kg N eq.	1.9E-03	1.8E-07
Eutrophication – terrestrial	EP - T	mol N eq.	3.0E-02	1.9E-06
Photochemical ozone creation potential	POCP	kg NMVOC eq.	7.0E-03	8.3E-07
Abiotic depletion potential - minerals and metals*	ADP	kg Sb eq.	7.6E-07	4.1E-12
Abiotic depletion potential - fossil fuels*	ADPF	MJ	3.8E+01	3.7E-03
Water Depletion Potential*	WDP	m ³ eq. deprived	3.6E+00	1.7E-04

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

Table 8 | Resource use indicators ²

Indicator	Abbreviation	Unit	A1-A3	A4
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	1.3E+00	2.5E-02
Use of renewable primary energy resources used as raw materials	PERM	MJ	0.0E+00	0.0E+00
Primary renewable energy - total	PERT	MJ	1.3E+00	2.5E-02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	2.6E+01	3.7E-03
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	1.2E+01	0.0E+00
Primary nonrenewable energy - total	PENRT	MJ	3.8E+01	3.7E-03
Use of secondary material	SM	kg	0.0E+00	0.0E+00
Use of renewable secondary fuels	RSF	MJ	0.0E+00	0.0E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.0E+00	0.0E+00
Use of net fresh water	FW	m ³	8.5E-02	4.1E-06

² Option A from PCR v2.0.1 annex 3 was selected for calculating primary energy use indicators.

Table 9 | Waste indicators

Indicator	Abbreviation	Unit	A1-A3	A4
Hazardous waste disposed	HWD	kg	3.5E-11	0.0E+00
Non-hazardous waste disposed	NHWD	kg	1.5E-10	0.0E+00
Radioactive waste disposed/stored	RWD	kg	2.6E-13	0.0E+00

Table 10 | Output flow indicators

Indicator	Abbreviation	Unit	A1-A3	A4
Components for reuse	CRU	kg	0.0E+00	0.0E+00
Materials for recycling	MFR	kg	3.0E-04	0.0E+00
Materials for energy recovery	MFRE	kg	0.0E+00	0.0E+00
Exported energy - electricity	EE - e	MJ	0.0E+00	0.0E+00
Exported energy - thermal	EE - t	MJ	0.0E+00	0.0E+00

Table 11 | Additional mandatory and voluntary impact category indicators

Indicator	Abbreviation	Unit	A1-A3	A4
GWP-GHG	GWP-GHG	kg CO ₂ eq	2.2E+00	2.8E-04
GWP-GHG (IPCC AR5)	GWP-GHG (AR5)	kg CO ₂ eq	2.2E+00	2.8E-04
Particulate matter	PM	disease incidence	1.6E-07	5.1E-12
Ionising radiation - human health**	IRP	kBq U-235 eq	2.1E-02	2.7E-07
Ecotoxicity – freshwater*	ETP - fw	CTUe	4.5E+00	2.0E-04
Human toxicity potential - cancer effects*	HTP - c	CTUh	7.7E-10	2.8E-14
Human toxicity potential - non cancer effects*	HTP - nc	CTUh	7.1E-09	5.2E-13
Soil quality*	SQP	Pt	2.3E+00	2.4E-05
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage			

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

***Disclaimer – 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.*

Table 12 | Environmental impacts in accordance with EN15804+A1:2013

Indicator	Abbreviation	Unit	A1-A3	A4
Global warming potential (GWP100)	GWP	kg CO ₂ eq	2.2E+00	2.8E-04
Ozone layer depletion	ODP	kg CFC-11 eq	3.8E-08	4.0E-12
Acidification potential	AP	kg SO ₂ eq	9.4E-03	1.0E-06
Eutrophication potential	EP	kg PO ₄ ³⁻ eq	2.4E-03	1.4E-07
Photochemical ozone creation potential	POCP	kg C ₂ H ₄ eq	4.7E-04	4.7E-08
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb eq	7.6E-07	4.1E-12
Abiotic depletion potential for fossil resources	ADPF	MJ	6.0E-08	0.0E+00

Table 13 | Environmental impacts in accordance with Green Star v1.3

Indicator	Abbreviation	Unit	A1-A3	A4
Human Toxicity cancer	HTc	CTUh	2.3E-10	1.7E-14
Human Toxicity non-cancer	HTnc	CTUh	3.6E-12	2.4E-16
Land use	LU	kg C deficit eq.	6.3E-01	2.4E-05
Ionising radiation	IR	kBq U235 eq	2.1E-02	2.7E-07
Particulate Matter	PM	kg PM _{2,5} -Equiv.	2.0E-03	1.5E-07
Resource depletion - water	WSI	m ³	1.2E-01	5.6E-06

Version History

Original Version of the EPD, 2025-12-18

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CPC	Central Product Classification
Environmental Impact Indicators (EN 15804)	
GWP	Global Warming Potential
GWP-luluc	Global Warming Potential – land use and land use change
ODP	Ozone Depletion Potential
AP	Acidification Potential
EP	Eutrophication Potential (freshwater, marine, terrestrial compartments)
POCP	Photochemical Ozone Creation Potential
ADP	Abiotic Depletion Potential
WDP	Water Deprivation Potential
GWP-GHG	Global Warming Potential – accounts for all greenhouse gases except biogenic CO ₂ uptake and emissions
PM	Particulate Matter
IRP	Ionizing Radiation Potential
ETP-FW	Ecotoxicity Potential – freshwater
HTP-C	Human Toxicity Potential – Cancer
HTP-NC	Human Toxicity Potential – Non-Cancer
SQP	Index of soil quality potential
PERE	Use of 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 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	Use of fresh water (net)
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
ETE	Exported Energy, Thermal (MJ)
Other relevant Terms	
SVHC	Substances of Very High Concern
MJ	Megajoule
kg	Kilogram
m ³	Cubic Meter
NMVOG	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO ₂ eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO ₂ eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

References

BraveTrace. (n.d.). Residual supply mix (2023–2024). Retrieved from <https://bravetrace.co.nz/residual-supply-mix/>

ECO Platform standards including LCA calculation rules v2.0 and digital data requirements v1.1. ECO Platform AISBL.

EN 15804:2012 + A1:2013 — Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels, Belgium: CEN.

EN 15804:2012 + A2:2019 — Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels, Belgium: CEN.

EN 15941:2024 — Sustainability of construction works — Data quality for environmental assessment of products and construction work — Selection and use of data. Brussels, Belgium: CEN.

Complementary Product Category Rules (c-PCR-017) to PCR 2019:14 — Technical-chemical products (Version 1.0.3). The International EPD® System. <https://epd-global.com/pcr-library/pcr-2019-14-technical-chemical-products/>

General Programme Instructions (GPI) for the International EPD System (Version 5.0.1). The International EPD® System.

Instructions of EPD Australasia (Version 4.2) — Regional Annex to the General Programme Instructions of the International EPD System. The International EPD® System.

(ISO). (2006). ISO 14025:2006 — Environmental labels and declarations — Type III environmental declarations — Principles and procedures. Geneva, Switzerland: ISO.

(ISO). (2006). ISO 14040:2006 — Environmental management — Life cycle assessment — Principles and framework. Geneva, Switzerland: ISO.

(ISO). (2006). ISO 14044:2006 — Environmental management — Life cycle assessment — Requirements and guidelines. Geneva, Switzerland: ISO.

PCR 2019:14 - Product category rules for Construction products (EN 15804:2012+A2:2019), registration number 2019:14, version 2.0.1, published on 5 June 2025.

Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., & Weidema, B. (2023). The ecoinvent database (Version 3.10). <https://ecoinvent.org/ecoinvent-v3-10/>