Environmental Product Declaration for Barro Group Pre-mix Concrete

In accordance with ISO 14025 and EN 15804+A2:2019
Programme: The International EPD® System, www.environdec.com
Programme operator: EPD Australasia Limited
EPD Registration Number: S-P-08449
Publication date: 10 May 2023
Issued: 10 May 2023
Valid until: 10 May 2028
Version 1.0

EPD Australasia is fully aligned with the International EPD® System. 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 www.epd-australasia.com.

Contents

Programme Information

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+A2:2019. Barro Group, as the EPD owner, has the sole ownership, liability, and responsibility for the EPD.

Declaration Owner		
BARRO GROUP	Barro Group Pty Ltd	191 Drummond Street, Carlton VIC 3053, Australia https://www.barro.com.au/ Phone: (03) 8656 3900 Email: barro@barro.com.au
EPD Programme Operator		
AUSTRALASIA EPD® ENVIRONMENTAL PRODUCT DECLARATION	EPD Australasia Limited	315a Hardy Street, Nelson 7010, New Zealand www.epd-australasia.com Phone: (02) 8005 8206 Emaill: info@epd-australasia.com
EPD Developer		
lifecycles.	Cathy Jiang and Timothy F. Grant, Life Cycle Strategies Pty Ltd (Lifecycles)	2/398 Smith Street, Collingwood VIC 3066, Australia https://www.lifecycles.com.au/ Phone: (03) 9417 1190 Email: info@lifecycles.com.au
Third Party Verifier		
	Claudia A. Peña, ADDERE Research and Technology	Alonso de Ercilla 2996, Ñuñoa, Santiago, Chile Phone: +56 9 9359 9210 Email: claudia@epd-americalatina.com
Product category rules (PCR)	PCR 2019:14 Construction Products, Version 1.11 2021-02-05 (valid until 2024-12-20) c-PCR-003: Product Category Rules (PCR) for Concrete and concrete elements (EN 16757) Version 2019-12-20 (valid until 2024-12-20)	
PCR review conducted by	The Technical Committee of the International EPD® System. Chair: Claudia A. Peña Contact: info@environdec.com	
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification		
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No		

About Barro Group

BARRO GROUP is the leading independent supplier and distributor of high-quality construction materials.

Since commencing business in 1946, the family-owned Barro Group, operated by an experienced management team and skilled workforce, has established and secured an interest in a range of associated operations.

Barro Group is an integrated resources, manufacturing and distribution group, well-equipped to provide continued supplies of quality construction materials, genuine customer service and reliable delivery to any project - residential, commercial, civil, industrial.

Barro Group produces and delivers concrete in accordance with "Australian Standard 1379 – Specification and supply of concrete". The Barro Group Pty Ltd operates a Quality Management System which complies with the requirements of AS/NZS ISO 9001:2015 for the manufacture, sale and distribution of premixed concrete (Client Number 1035).

Barro Group products

PREMIXED CONCRETE

standard mixes, and decorative and high-performance concrete mixes

QUARRY MATERIALS

aggregates, crushed rock, sands, gravels

BUILDERS' SUPPLIES

steel reinforcing and accessories, bagged cement products, building materials, oxides, tools of trade, landscape supplies

CONCRETE PRECAST PANELS

concrete precast panels

To support its core activities, Barro operates:

- well maintained delivery **fleet**;
- quality control **laboratories** for product testing and product development;
- fully equipped **workshops** for the servicing of plant and equipment;
- and supplies and services **tyres** for trucks and earthmoving equipment.

Barro Group is committed to continually improving performance to maintain high standards in occupational health and safety and environmental management, including its recycling and energy-saving strategies.

By maintaining high standards and competitive prices, Barro Group has been the selected supplier of construction materials to many landmark construction projects, and has a proven record of excellence in the supply of premixed concrete, quarry products and other construction materials.

The depth and experience and competence of the management of Barro Group are evidenced by its growth and diversification over the years.

The Group is clearly well suited both technically and through its production facilities to successfully meet the needs of major construction projects.

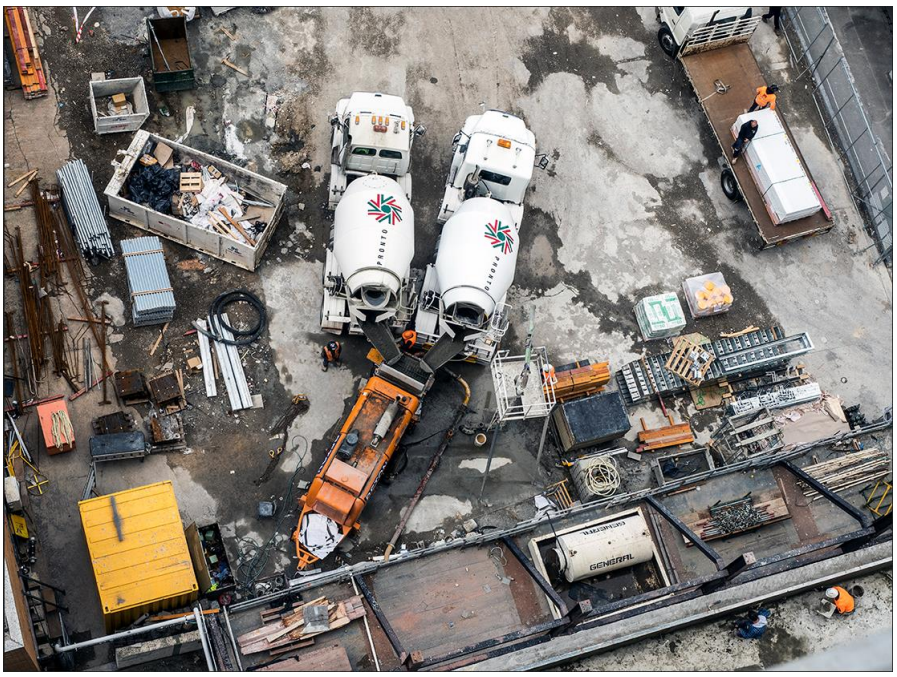
Product information

Concrete is a composite material that is made up of cement, water, and aggregates such as sand, gravel, or crushed rock. Other materials, such as fly ash or slag, may also be added to the mixture to enhance its properties and reduce cement use. When the cement and water are mixed, a chemical reaction occurs, creating a paste that binds the aggregates together. Once the mixture has hardened, it forms a strong and durable material that can be used in a variety of construction applications, including foundations, pavements, buildings, and decorative features. Concrete is prized for its strength, durability, and versatility, and it has become an essential material in modern construction.

Concrete is a versatile construction material that is used in a wide range of applications due to its strength, durability, and cost value. The technical purpose of concrete is to provide a strong and stable foundation or structure for buildings, roads, bridges, dams, and other projects.

Concrete is intended to be used as a construction material for a wide range of structures and infrastructure projects, including:

Commercial, residential and industrial buildings: Concrete is a popular choice for commercial, residential and industrial buildings due to its fire resistance, sound insulation, and ability to withstand harsh weather conditions.



Building foundations: Concrete is commonly used to create solid foundations for buildings, as it provides a strong and stable base that can support the weight of the structure.

Roads and bridges: Concrete is often used in the construction of roads and bridges due to its durability and ability to withstand heavy traffic loads.

Dams and water reservoirs: Concrete is a preferred material for building dams and water reservoirs, as it can withstand the weight of large bodies of water and resist erosion and other forms of damage.

Sidewalks and curbs: Concrete is commonly used to create sidewalks and curbs in urban areas, as it is durable, slip-resistant, and requires minimal maintenance.

Retaining walls: Concrete is often used to build retaining walls to hold back soil and prevent erosion, especially on steep slopes or hillsides.

Overall, concrete's intended use is to provide a strong, durable, and long-lasting construction material that can be used in a variety of applications.

Production site

This EPD covers concrete from Pronto batching plant in Port Melbourne, Victoria.

Industry classification

UN CPC 375 - Articles of concrete, cement and plaster

LCA information

This EPD is for multiple specific products (concrete mixes). Each mix and its results are declared separately for one production site; there is no averaging of products.

Declared unit

One cubic metre (1 m^3) of Barro Group concrete.

Background data

Primary data for the LCA was collected and provided by Barro Group for the year 1 July 2021 – 30 June 2022.

SimaPro® LCA software v9.4 was used for the LCA modelling. All global background data are taken from Ecoinvent v3.8 allocation recycling cut-off model (Weidema, Bauer et al. 2021). Background data for Australian material inputs, energy use, waste treatment and trucks are all sourced from the AusLCI database v1.41 (ALCAS 2022) which are then updated to Ecoinvent 3.8 for consistency with other data. Additional EN 15804:2012+A4:2019+AC:2021 indicators for resource use, waste categories, and output flows were manually added in relevant processes using data from the allocation recycling cut-off, EN 15804 Ecoinvent database. Background data is less than 10 years old or have been updated within this timeframe.

Cut-off criteria

The cut-off threshold for the LCA study was flows contributing less than 1% for any impact category included in the LCA. No flows were deliberately excluded due to this threshold, however particularly minor inputs expected to be well below this threshold were not considered. Packaging for chemical admixtures is expected to be well below this threshold and therefore not included in the study. Infrastructure, production equipment, and personnel related activities are non-attributable and excluded from the system boundary.

Allocation

Some of the key processes requiring allocation in the LCA were the products and co-products from the quarries. As EN 15804 postulates, the allocation of these products was based on economic values, as the difference in revenue from the co-products relevant to this LCA (coarse aggregate, dust, and other quarry products) is high.

Fly ash – an input of some of the concrete mixes – is considered a by-product from coal-powered electricity generation, hence only the impacts from the transport of fly ash from the supplier to the batching plant were considered.

Similarly, slag is a by-product of steel production; hence the proportion of impacts from pig iron production allocated to blast furnace slag production were included.

Content declaration

The mass composition of the 42 concrete mixes included in this EPD are summarised in Table 1. The weight of one m^3 of the product varies depending on the mix.

Table 1 Declared Barro Group concrete mix composition by mass

Component	Quantity
Coarse Aggregate	32 - 49%
Sand	25 - 44%
Manufactured Sand	0 - 13%
Portland Cement (GP)	6 - 27%
Fly Ash	0 - 6%
Ground Granulated Blast Furnace Slag (GGBFS)	0 – 17%
Chemical Admixtures	<0.5%
Activator	0 - 0.5%

As Barro Group premixed concrete is delivered in bulk there is no packaging for the products included in this EPD. There is no biogenic carbon or recycled material in the declared concrete mixes.

The mixes included in this EPD do not contain substances in the Candidate List of Substances of Very High Concern in the European Chemicals Agency in concentrations >0.1% of the weight of the product. For further information, the safety data sheet for Barro Group concrete can be found here.

Product composition

Lower carbon concrete

Pronto e-Mix Green

Product name/description	Strength (MPa)	Classification code
Pronto Green 20MPa 40% SCM 25% man. sand	20	EPG20
Pronto Green 20MPa 50% SCM 25% man. sand	20	EPG20F
Pronto Green 25MPa 40% SCM 25% man. sand	25	EPG25
Pronto Green 32MPa – 40% SCM 25% man. sand	32	EPG32
Pronto Green 40MPa 40% SCM 25% man. sand	40	EPG40
Pronto Green 40MPa 50% SCM 25% man. sand	40	EPG40F

Pronto e-Mix – High Early Strength- Lower Carbon Concrete Products

Product name/description	Strength (MPa)	Classification code
S40PT 14/20mm aggregate with 35% slag	40	EPT4035
S40PT 14/20mm aggregate with 50% slag	40	EPT4050
S40PT 14/20mm aggregate with 65% slag	40	EPT4065
S40PT 7mm aggregate with 35% slag	40	EPT4735

Normal class concrete

Product name/description	Strength (MPa)	Classification code
Normal Class 20 MPa	20	EN20
Normal Class 25 MPa	25	EN25
Normal Class 32 MPa	32	EN32
Normal Class 40 MPa	40	EN40
Normal Class 50 MPa	50	EN50

Concrete for Department of Transport & Planning projects

Product name/description	Strength (MPa)	Classification code
VR330 32MPa 20mm and 14mm agg. mixes	32	EVR330
VR400 40MPa 20mm and 14mm agg. mixes	40	EVR400
VR450 50MPa 20mm and 14mm agg. mixes	50	EVR450

Concrete for special applications

Product name/description	Strength (MPa)	Classification code
High Slump 40MPa Superplasticised	40	E40SP
High Slump 50MPa Superplasticised	50	E50SP
Medium Slump S50MPa @56 LOW SHRINK 600ms nominal	50	E50SPLS
High Slump S65MPa	65	E65SP
High Slump S80MPa	80	E80SP
High Slump S80MPa HIGH EARLY STRENGTH	80	E80SPHE
High Slump S100MPa @ 91 days	100	E100SP
Grano S40MPa 7mm agg.	40	EGRA47
Post Tensioned S40MPa 22@3 – 700ms nominal – MED SLUMP	40	E40PT22N3M
Post Tensioned S40MPa 22@3 – 700ms nominal	40	E40PT22N3
Post Tensioned S50MPa 22@3 – 700ms nominal	50	E50PT22N3
Kerb Machine 280kg/m3	Kerb 280kg	EKB280
Kerb Machine 320kg/m3	Kerb 320kg	EKB320

Other

Product name/description	Strength (MPa)	Classification code
S40 low shrink, 600ms nominal	40	E40SPLS
S50 col 15c24 by maturity – 700ms nominal	50	E50SPHE
S65 col 15c24 700ms by maturity	65	E65SPHE
S65c56 Puddling 700ms	65	E65N56PUD
S32 700ms 20% SCM	32	E32700
S32 600ms 10% SCM	32	E32600
S40 700ms 20% SCM	40	E40700
S50 700ms 20% SCM	50	E50700
S50 600ms 10% SCM	50	E50600
N32 foundation mix – 50% SCM	32	EFM32
N50 foundation mix – 50% SCM	50	EFM50

System boundary

The system boundary describes the process steps included in the LCA. This LCA will cover the cradle-to-gate with options plus end-of-life life cycle stages (modules A1-A4, C1-C4, and D). Due to the multifunctional use of concrete, modules A5-B7 are not declared as these modules are best modelled at the construction/building project level.

Table 2 System boundary table according to EN 15804+A2 life cycle stages

	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	X	X	X	X		X
Geography	AU, JP	AU	AU	AU	-	-	-	-	-	-	-	-	AU	AU	AU	AU		AU
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-		-

X = module declared in this study. ND = module not declared in this study.

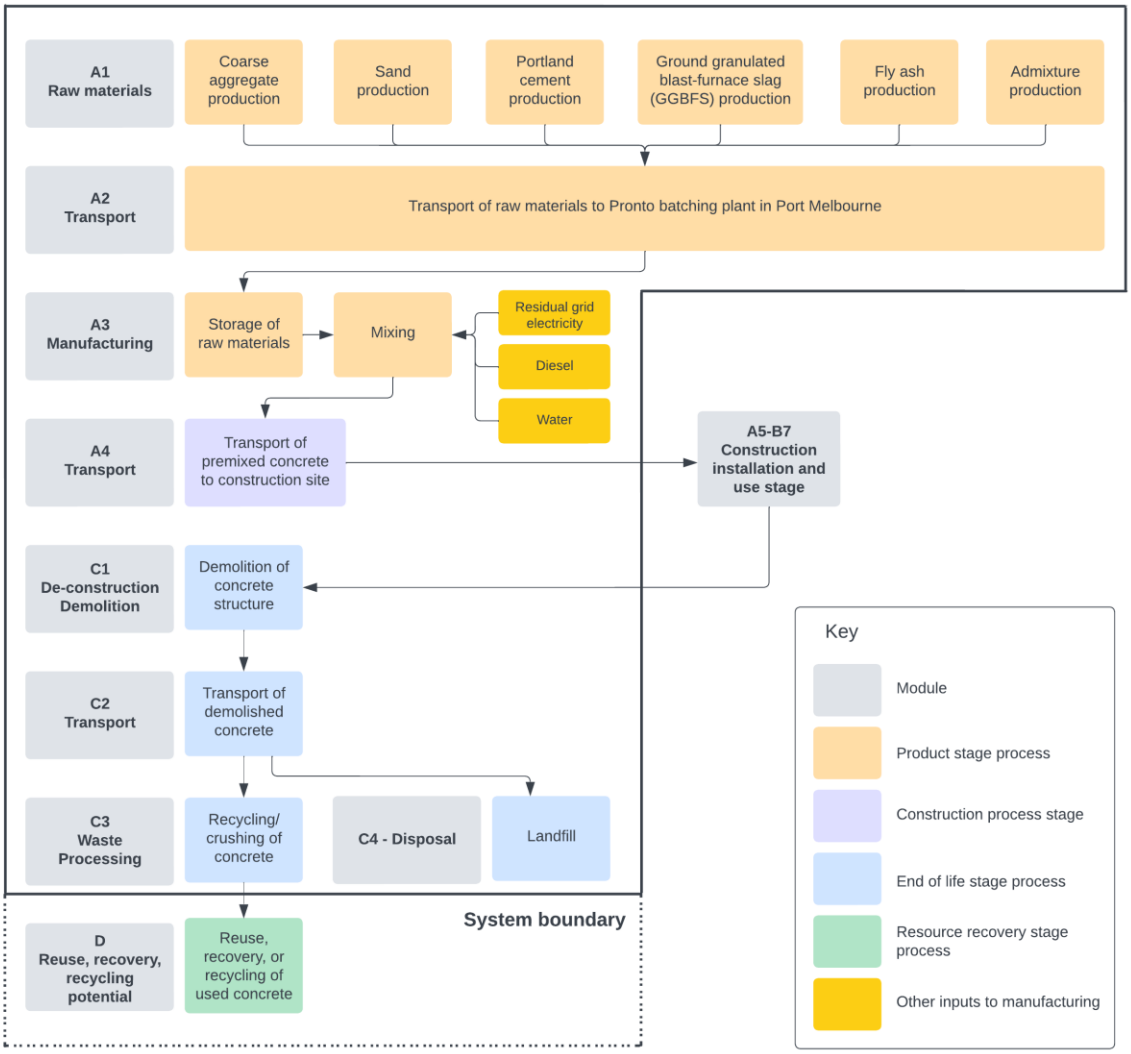


Figure 1 System boundary diagram for Barro Group concrete mixes

Product stage (A1-A3)

Barro Group concrete mixes involve coarse aggregates and sand from various self-owned quarries. Other raw materials are supplied from third parties. All raw materials are typically transported to the batching plant by truck.

Transport to construction site (A4)

The concrete agitator truck was modelled using the customisable 28t truck from the AusLCI database (ALCAS 2022). A large concrete mixer truck was assumed, with capacity 7.4m^3 and loaded weight 28t. The average fuel use and load assumptions were obtained from the Survey of Motor Vehicle Use, Australia 2020 (Australian Bureau of Statistics 2020) using data from the articulated truck. The average cartage distance for Barro Group premix concrete from the Pronto plant to the construction site is 10km.

End-of-Life (C1-C4, D)

The end-of-life scenarios in this EPD are based on generic scenarios, as specific scenarios are best modelled at the construction/building project level. Module D is modelled as avoided quarrying as recycled aggregate is assumed to displace virgin coarse aggregate production. Modelling parameters for the end-of-life modules are shown in Table 3. This is a scenario currently in use and representative of one of the most likely scenario alternatives for concrete products.

Table 3 End-of-Life scenario parameters for modules C1-C4, D

Processes	Quantity per m^3 of concrete	Unit	Notes
Collection	2384	kg	Based on 25MPa with 30% GGBFS concrete from AusLCI database (ALCAS 2022).
Deconstruction demolition diesel usage	145	MJ	Assumption for a generic scenario.
Transport distance to recycling	25	km	Distance from Melbourne CBD to concrete aggregate recycling centre.
Transport distance to landfill	55	km	Distance from Melbourne CBD to landfill for concrete waste.
Concrete recovered for recycling	82	% by mass	Based on masonry recycling rate from Pickin, Wardle et al. (2020).
Concrete disposed to landfill	18	% by mass	Concrete not recycled is sent to landfill. Based on masonry recycling rate from Pickin, Wardle et al. (2020).

Environmental impact indicators

The environmental indicators for the impact categories described in this EPD are summarised in the tables below. Abbreviations of each indicator will be used in the results tables for simplicity.

Table 4 Mandatory potential environmental impact indicators according to EN 15804:2012+A2:2019

Indicator	Abbreviation	Units
Global warming potential – fossil	GWPF	kg CO_2 eq.
Global warming potential – biogenic	GWPB	kg CO_2 eq.
Global warming potential - land use/land use change	GWPL	kg CO_2 eq.
Global warming potential - total	GWPT	kg CO_2 eq.
Ozone depletion potential	ODP	kg CFC 11 eq.
Acidification potential	AP	mol H+ eq.
Eutrophication potential - freshwater	EPF	kg P eq.
Eutrophication potential – marine	EPM	kg N eq.
Eutrophication potential - terrestrial	EPT	mol N eq.
Photochemical ozone creation potential	POCP	kg MNVOC eq.
Abiotic depletion potential – minerals & metals*	ADPE	kg Sb eq.
Abiotic depletion potential – fossil fuels*	ADPF	MJ
Water deprivation potential*	WDP	m^3 H2O eq.

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

Table 5 Additional potential environmental impact indicators according to EN 15804:2012+A2:2019

Indicator	Abbreviation	Units
Particulate Matter emissions	PM	Disease incidence
Ionising Radiation – human health**	IRP	kBq U-235-eq.
Eco-toxicity – freshwater*	ETPF	CTUe
Human toxicity – cancer*	HTPC	CTUh
Human toxicity – non-cancer*	HTPNC	CTUh
Land use related impacts / soil quality*	SQP	Dimensionless
Global warming potential - excluding biogenic uptake, emissions, and storage	GWP-GHG	kg CO_2 eq.

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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 6 Use of resources, waste production, and output flows

Indicator		Abbreviation	Units
Primary energy resources - Renewable	Use as energy carrier	PERE	MJ, net calorific value
	Used as raw materials	PERM	
	Total	PERT	
Primary energy resources – Non-renewable	Use as energy carrier	PENRE	
	Used as raw materials	PENRM	
	Total	PENRT	
Use of secondary materials		SM	kg
Use of renewable secondary fuels		RSF	MJ, net calorific value
Use of non-renewable secondary fuels		NRSF	MJ, net calorific value
Net use of fresh water		FW	m^3
Hazardous waste disposed		HWD	kg
Non-hazardous waste disposed		NHWD	kg
Radioactive waste disposed		RWD	kg
Components for reuse		CRU	kg
Material for recycling		MFR	kg
Materials for energy recovery		MER	kg
Exported energy – electrical and thermal		EE	MJ per energy carrier

Environmental performance indicator results (A1-A3)

The results produced by this study are relative expressions and therefore do not predict impacts on category endpoints, nor the exceeding of thresholds and safety margins or risks.

Mandatory potential environmental impact indicator results

Table 7 Mandatory potential environmental impact indicator results per m³ of concrete for A1-A3 according to EN 15804:2012+A2:2019

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
Pronto Green – e-Mix - Lower Carbon Concrete Products														
20	EPG20F	146	146	2.69E-02	3.60E-02	1.31E-05	1.57E+00	7.92E-03	4.99E-01	5.56E+00	1.46E+00	9.15E-04	1.71E+03	6.97E+02
20	EPG20	159	159	1.35E-02	3.31E-02	1.39E-05	1.66E+00	8.11E-03	5.45E-01	6.08E+00	1.59E+00	9.59E-04	1.85E+03	8.29E+02
25	EPG25	171	171	2.25E-02	3.46E-02	1.48E-05	1.80E+00	8.49E-03	5.92E-01	6.60E+00	1.73E+00	9.96E-04	1.99E+03	9.08E+02
32	EPG32	195	195	3.66E-02	3.78E-02	1.65E-05	2.06E+00	9.27E-03	6.79E-01	7.57E+00	1.98E+00	1.07E-03	2.26E+03	1.05E+03
40	EPG40F	211	211	8.35E-02	4.75E-02	1.80E-05	2.31E+00	1.03E-02	7.41E-01	8.26E+00	2.16E+00	1.13E-03	2.46E+03	1.07E+03
40	EPG40	233	233	6.24E-02	4.26E-02	1.93E-05	2.48E+00	1.05E-02	8.21E-01	9.16E+00	2.39E+00	1.19E-03	2.69E+03	1.29E+03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products														
40	EPT4035	245	244	8.30E-02	5.09E-02	2.34E-05	2.55E+00	1.34E-02	8.49E-01	9.46E+00	2.46E+00	1.29E-03	2.83E+03	1.37E+03
40	EPT4050	215	214	1.14E-01	5.82E-02	2.15E-05	2.31E+00	1.32E-02	7.37E-01	8.21E+00	2.15E+00	1.21E-03	2.50E+03	1.06E+03
40	EPT4065	185	185	1.46E-01	6.57E-02	1.97E-05	2.09E+00	1.30E-02	6.28E-01	6.99E+00	1.84E+00	1.13E-03	2.19E+03	7.53E+02
40	EPT4735	265	265	1.38E-01	5.38E-02	2.54E-05	2.80E+00	1.45E-02	9.38E-01	1.05E+01	2.72E+00	1.38E-03	3.06E+03	1.53E+03
Normal Class														
20	EN20	167	167	-3.42E-03	2.91E-02	1.44E-05	1.71E+00	7.95E-03	5.74E-01	6.41E+00	1.67E+00	9.69E-04	1.92E+03	9.29E+02
25	EN25	180	180	3.67E-03	3.02E-02	1.53E-05	1.85E+00	8.33E-03	6.24E-01	6.97E+00	1.82E+00	1.01E-03	2.07E+03	1.02E+03
32	EN32	198	198	1.20E-02	3.26E-02	1.67E-05	2.04E+00	9.00E-03	6.90E-01	7.70E+00	2.01E+00	1.07E-03	2.28E+03	1.13E+03
40	EN40	226	226	2.69E-02	3.52E-02	1.87E-05	2.35E+00	9.85E-03	7.95E-01	8.87E+00	2.31E+00	1.16E-03	2.60E+03	1.31E+03
50	EN50	286	286	5.97E-02	4.06E-02	2.30E-05	3.00E+00	1.16E-02	1.02E+00	1.14E+01	2.96E+00	1.34E-03	3.29E+03	1.72E+03
Vic Dept of Transport & Planning Projects														
32	EVR330	260	260	-2.02E-03	2.71E-02	2.26E-05	2.55E+00	1.05E-02	9.18E-01	1.02E+01	2.67E+00	1.27E-03	3.03E+03	1.70E+03
40	EVR400	299	299	6.92E-03	2.86E-02	2.54E-05	2.94E+00	1.15E-02	1.06E+00	1.18E+01	3.07E+00	1.39E-03	3.47E+03	1.98E+03
50	EVR450	363	363	2.43E-02	3.19E-02	3.01E-05	3.58E+00	1.35E-02	1.29E+00	1.44E+01	3.75E+00	1.60E-03	4.21E+03	2.44E+03
Special Applications														
40	E40SP	247	247	1.85E-02	3.59E-02	2.10E-05	2.47E+00	1.12E-02	8.55E-01	9.53E+00	2.49E+00	1.29E-03	2.88E+03	1.49E+03
50	E50SP	270	270	2.88E-02	3.78E-02	2.27E-05	2.70E+00	1.19E-02	9.39E-01	1.05E+01	2.73E+00	1.36E-03	3.15E+03	1.65E+03
50	E50SPLS	243	243	2.53E-01	7.39E-02	2.14E-05	2.85E+00	1.40E-02	8.66E-01	9.65E+00	2.53E+00	1.34E-03	2.85E+03	1.07E+03
65	E65SP	316	316	4.92E-02	4.15E-02	2.60E-05	3.18E+00	1.34E-02	1.11E+00	1.24E+01	3.21E+00	1.51E-03	3.67E+03	1.97E+03
80	E80SP	379	379	7.88E-02	4.74E-02	3.07E-05	3.83E+00	1.57E-02	1.34E+00	1.49E+01	3.88E+00	1.74E-03	4.41E+03	2.40E+03

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
80	E80SPHE	457	457	1.28E-01	4.81E-02	3.66E-05	4.68E+00	1.67E-02	1.65E+00	1.84E+01	4.78E+00	1.85E-03	5.28E+03	3.00E+03
100	E100SP	444	444	1.03E-01	5.11E-02	3.53E-05	4.51E+00	1.74E-02	1.58E+00	1.76E+01	4.57E+00	1.93E-03	5.13E+03	2.86E+03
40	EGRA47	257	257	7.03E-02	3.70E-02	2.15E-05	2.71E+00	1.06E-02	9.30E-01	1.04E+01	2.70E+00	1.22E-03	2.99E+03	1.56E+03
40	E40PT22N3M	291	291	-2.00E-02	2.66E-02	2.35E-05	2.86E+00	1.13E-02	1.03E+00	1.14E+01	2.97E+00	1.38E-03	3.34E+03	1.92E+03
40	E40PT22N3	277	277	-2.88E-02	2.44E-02	2.24E-05	2.72E+00	1.05E-02	9.76E-01	1.09E+01	2.83E+00	1.31E-03	3.16E+03	1.83E+03
50	E50PT22N3	310	310	8.48E-03	3.17E-02	2.49E-05	3.12E+00	1.18E-02	1.10E+00	1.23E+01	3.19E+00	1.42E-03	3.55E+03	2.01E+03
Kerb 280kg	EKB280	186	186	1.02E-02	3.13E-02	1.60E-05	1.92E+00	8.62E-03	6.48E-01	7.22E+00	1.89E+00	1.03E-03	2.15E+03	1.06E+03
Kerb 320kg	EKB320	208	208	2.24E-02	3.33E-02	1.75E-05	2.16E+00	9.26E-03	7.31E-01	8.15E+00	2.12E+00	1.10E-03	2.40E+03	1.20E+03
	Other													
40	E40SPLS	303	303	1.70E-03	2.44E-02	2.49E-05	3.01E+00	1.10E-02	1.09E+00	1.21E+01	3.15E+00	1.36E-03	3.49E+03	2.05E+03
50	E50SPHE	300	300	6.45E-02	3.89E-02	2.54E-05	3.04E+00	1.26E-02	1.06E+00	1.19E+01	3.09E+00	1.43E-03	3.51E+03	1.89E+03
65	E65SPHE	356	356	8.42E-02	4.10E-02	2.93E-05	3.62E+00	1.37E-02	1.28E+00	1.42E+01	3.69E+00	1.54E-03	4.12E+03	2.28E+03
65	E65N56PUD	352	352	6.75E-02	4.13E-02	2.80E-05	3.59E+00	1.45E-02	1.25E+00	1.40E+01	3.61E+00	1.66E-03	4.00E+03	2.24E+03
32	E32700	234	234	-1.61E-02	2.79E-02	1.94E-05	2.33E+00	9.69E-03	8.16E-01	9.11E+00	2.37E+00	1.19E-03	2.69E+03	1.46E+03
32	E32600	248	248	-1.01E-02	2.28E-02	2.10E-05	2.45E+00	9.56E-03	8.82E-01	9.84E+00	2.56E+00	1.20E-03	2.86E+03	1.64E+03
40	E40700	258	258	-8.44E-03	2.92E-02	2.12E-05	2.57E+00	1.04E-02	9.05E-01	1.01E+01	2.62E+00	1.26E-03	2.96E+03	1.63E+03
50	E50700	310	310	8.48E-03	3.17E-02	2.49E-05	3.12E+00	1.18E-02	1.10E+00	1.23E+01	3.19E+00	1.42E-03	3.55E+03	2.01E+03
50	E50600	388	388	1.95E-02	2.64E-02	3.09E-05	3.87E+00	1.32E-02	1.41E+00	1.57E+01	4.06E+00	1.62E-03	4.44E+03	2.68E+03
32	EFM32	179	179	5.49E-02	4.21E-02	1.57E-05	1.94E+00	9.19E-03	6.21E-01	6.92E+00	1.81E+00	1.03E-03	2.09E+03	8.82E+02
50	EFM50	289	288	1.58E-01	6.14E-02	2.37E-05	3.19E+00	1.33E-02	1.03E+00	1.15E+01	2.99E+00	1.38E-03	3.35E+03	1.52E+03

* Disclaimer for ADPE, ADPF, and WDP: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

Additional mandatory impact categories results

Table 8 Additional potential environmental impact indicator results per m³ of concrete for A1-A3 according to EN 15804:2012+A2:2019

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Pronto Green - e-Mix - Lower Carbon Concrete Products								
20	EPG20F	142	8.75E-06	2.31E+00	1.37E+03	6.91E-08	1.93E-06	1.09E+03
20	EPG20	154	9.22E-06	2.20E+00	1.46E+03	6.93E-08	2.15E-06	1.13E+03
25	EPG25	167	9.69E-06	2.26E+00	1.55E+03	7.38E-08	2.31E-06	1.16E+03
32	EPG32	189	1.07E-05	2.40E+00	1.73E+03	8.23E-08	2.61E-06	1.26E+03
40	EPG40F	206	1.14E-05	2.83E+00	1.87E+03	9.56E-08	2.74E-06	1.31E+03
40	EPG40	226	1.21E-05	2.59E+00	2.02E+03	9.61E-08	3.10E-06	1.37E+03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products								
40	EPT4035	238	1.27E-05	3.35E+00	2.22E+03	9.86E-08	3.34E-06	1.44E+03
40	EPT4050	209	1.15E-05	3.62E+00	2.01E+03	9.83E-08	2.84E-06	1.32E+03
40	EPT4065	181	1.04E-05	3.89E+00	1.80E+03	9.83E-08	2.34E-06	1.21E+03
40	EPT4735	258	1.36E-05	3.62E+00	2.44E+03	1.08E-07	3.69E-06	1.20E+03
Normal Class								
20	EN20	162	9.56E-06	2.06E+00	1.51E+03	6.74E-08	2.30E-06	1.17E+03
25	EN25	175	1.00E-05	2.10E+00	1.60E+03	7.17E-08	2.47E-06	1.21E+03
32	EN32	192	1.09E-05	2.24E+00	1.75E+03	7.80E-08	2.71E-06	1.30E+03
40	EN40	220	1.20E-05	2.36E+00	1.96E+03	8.73E-08	3.08E-06	1.40E+03

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
50	EN50	278	1.43E-05	2.55E+00	2.41E+03	1.07E-07	3.88E-06	1.56E+03
	Vic Dept of Transport & Planning Projects							
32	EVR330	253	1.39E-05	2.56E+00	2.26E+03	8.58E-08	3.70E-06	1.36E+03
40	EVR400	291	1.54E-05	2.67E+00	2.55E+03	9.62E-08	4.24E-06	1.48E+03
50	EVR450	353	1.80E-05	2.89E+00	3.05E+03	1.14E-07	5.14E-06	1.69E+03
	Special Applications							
40	E40SP	240	1.32E-05	2.69E+00	2.18E+03	9.02E-08	3.43E-06	1.52E+03
50	E50SP	263	1.40E-05	2.79E+00	2.36E+03	9.73E-08	3.75E-06	1.59E+03
50	E50SPLS	238	1.27E-05	4.06E+00	2.28E+03	1.31E-07	3.08E-06	1.05E+03
65	E65SP	307	1.58E-05	2.97E+00	2.72E+03	1.11E-07	4.37E-06	1.72E+03
80	E80SP	369	1.82E-05	3.27E+00	3.22E+03	1.32E-07	5.25E-06	1.91E+03
80	E80SPHE	445	2.12E-05	3.39E+00	3.75E+03	1.52E-07	6.29E-06	1.88E+03
100	E100SP	432	2.08E-05	3.46E+00	3.70E+03	1.51E-07	6.12E-06	2.11E+03
40	EGRA47	251	1.31E-05	2.53E+00	2.19E+03	9.77E-08	3.52E-06	1.17E+03
40	E40PT22N3M	283	1.48E-05	2.24E+00	2.47E+03	9.30E-08	4.14E-06	1.70E+03
40	E40PT22N3	268	1.42E-05	2.10E+00	2.34E+03	8.82E-08	3.93E-06	1.65E+03
50	E50PT22N3	301	1.55E-05	2.41E+00	2.60E+03	1.03E-07	4.34E-06	1.73E+03
Kerb 280kg	EKB280	181	1.04E-05	2.21E+00	1.66E+03	7.41E-08	2.56E-06	1.21E+03
Kerb 320kg	EKB320	202	1.12E-05	2.28E+00	1.82E+03	8.13E-08	2.85E-06	1.27E+03

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Other								
40	E40SPLS	295	1.53E-05	2.29E+00	2.54E+03	9.51E-08	4.32E-06	1.44E+03
50	E50SPHE	292	1.52E-05	2.96E+00	2.58E+03	1.06E-07	4.17E-06	1.41E+03
65	E65SPHE	346	1.74E-05	3.07E+00	2.97E+03	1.22E-07	4.90E-06	1.59E+03
65	E65N56PUD	342	1.72E-05	2.86E+00	3.05E+03	1.24E-07	4.96E-06	1.86E+03
32	E32700	227	1.25E-05	2.21E+00	2.03E+03	8.13E-08	3.28E-06	1.50E+03
32	E32600	241	1.32E-05	2.19E+00	2.12E+03	8.04E-08	3.54E-06	1.26E+03
40	E40700	250	1.35E-05	2.28E+00	2.21E+03	8.81E-08	3.61E-06	1.57E+03
50	E50700	301	1.55E-05	2.41E+00	2.60E+03	1.03E-07	4.34E-06	1.73E+03
50	E50600	377	1.86E-05	2.40E+00	3.17E+03	1.18E-07	5.51E-06	1.69E+03
32	EFM32	175	1.01E-05	2.60E+00	1.62E+03	8.26E-08	2.34E-06	1.21E+03
50	EFM50	281	1.43E-05	3.35E+00	2.47E+03	1.27E-07	3.71E-06	1.49E+03

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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.

Resource use indicators

Table 9 Resource use indicator results per m³ of concrete for A1-A3

Indicator		PERE	PERM	PERT	PENRE	PENRM	PENRT	SM	RSF	NRSF	FW
Strength (MPa)	Classification Code	MJ NCV	MJ NCV	MJ NCV	MJ NCV	MJ NCV	MJ NCV	kg	MJ NCV	MJ NCV	m3
Pronto Green – e-Mix - Lower Carbon Concrete Products											
20	EPG20F	3.45E+01	0.00E+00	3.45E+01	6.04E+02	7.10E+00	6.11E+02	1.28E+02	3.44E-03	0.00E+00	9.02E-02
20	EPG20	3.43E+01	0.00E+00	3.43E+01	5.88E+02	8.15E+00	5.96E+02	1.02E+02	3.44E-03	0.00E+00	9.76E-02
25	EPG25	3.49E+01	0.00E+00	3.49E+01	6.23E+02	8.89E+00	6.32E+02	1.12E+02	3.45E-03	0.00E+00	1.03E-01
32	EPG32	3.77E+01	0.00E+00	3.77E+01	6.95E+02	1.03E+01	7.05E+02	1.30E+02	3.65E-03	0.00E+00	1.12E-01
40	EPG40F	4.03E+01	0.00E+00	4.03E+01	8.34E+02	1.34E+01	8.48E+02	1.98E+02	3.70E-03	0.00E+00	1.25E-01
40	EPG40	4.07E+01	0.00E+00	4.07E+01	8.06E+02	1.27E+01	8.19E+02	1.60E+02	3.80E-03	0.00E+00	1.29E-01
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products											
40	EPT4035	4.87E+01	0.00E+00	4.87E+01	8.61E+02	1.20E+01	8.73E+02	1.37E+02	4.03E-03	0.00E+00	2.79E-01
40	EPT4050	5.04E+01	0.00E+00	5.04E+01	9.05E+02	1.31E+01	9.18E+02	1.95E+02	4.10E-03	0.00E+00	2.75E-01
40	EPT4065	5.21E+01	0.00E+00	5.21E+01	9.51E+02	1.43E+01	9.65E+02	2.54E+02	4.17E-03	0.00E+00	2.71E-01
40	EPT4735	3.47E+01	0.00E+00	3.47E+01	8.67E+02	2.97E+00	8.70E+02	1.52E+02	2.89E-03	0.00E+00	3.15E-01
Normal Class											
20	EN20	3.29E+01	0.00E+00	3.29E+01	5.51E+02	5.86E+00	5.57E+02	7.42E+01	3.38E-03	0.00E+00	9.15E-02
25	EN25	3.34E+01	0.00E+00	3.34E+01	5.83E+02	6.43E+00	5.89E+02	8.12E+01	3.39E-03	0.00E+00	9.61E-02
32	EN32	3.55E+01	0.00E+00	3.55E+01	6.39E+02	8.94E+00	6.48E+02	9.03E+01	3.53E-03	0.00E+00	1.09E-01
40	EN40	3.69E+01	0.00E+00	3.69E+01	7.10E+02	1.04E+01	7.21E+02	1.05E+02	3.58E-03	0.00E+00	1.20E-01
50	EN50	4.01E+01	0.00E+00	4.01E+01	8.60E+02	1.37E+01	8.74E+02	1.38E+02	3.70E-03	0.00E+00	1.44E-01

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Vic Department of Transport & Planning Projects											
32	EVR330	1.85E+01	0.00E+00	1.85E+01	5.61E+02	1.31E+01	5.74E+02	7.92E+01	1.90E-03	0.00E+00	1.20E-01
40	EVR400	1.95E+01	0.00E+00	1.95E+01	6.22E+02	1.53E+01	6.38E+02	9.22E+01	1.92E-03	0.00E+00	1.35E-01
50	EVR450	2.16E+01	0.00E+00	2.16E+01	7.36E+02	2.15E+01	7.57E+02	1.14E+02	1.98E-03	0.00E+00	1.67E-01
Special Applications											
40	E40SP	3.63E+01	0.00E+00	3.63E+01	7.22E+02	2.51E+01	7.48E+02	9.33E+01	3.50E-03	0.00E+00	1.63E-01
50	E50SP	3.73E+01	0.00E+00	3.73E+01	7.75E+02	2.79E+01	8.03E+02	1.03E+02	3.54E-03	0.00E+00	1.75E-01
50	E50SPLS	3.58E+01	0.00E+00	3.58E+01	1.12E+03	7.10E+00	1.12E+03	3.64E+02	3.33E-03	0.00E+00	2.36E-01
65	E65SP	3.94E+01	0.00E+00	3.94E+01	8.78E+02	3.33E+01	9.12E+02	1.23E+02	3.61E-03	0.00E+00	2.01E-01
80	E80SP	4.29E+01	0.00E+00	4.29E+01	1.03E+03	4.42E+01	1.08E+03	1.50E+02	3.72E-03	0.00E+00	2.50E-01
80	E80SPHE	2.65E+01	0.00E+00	2.65E+01	1.09E+03	3.29E+01	1.13E+03	1.88E+02	2.07E-03	0.00E+00	2.03E-01
100	E100SP	4.50E+01	0.00E+00	4.50E+01	1.16E+03	4.52E+01	1.20E+03	1.79E+02	3.80E-03	0.00E+00	2.65E-01
40	EGRA47	2.20E+01	0.00E+00	2.20E+01	7.44E+02	1.24E+01	7.56E+02	1.25E+02	1.95E-03	0.00E+00	1.18E-01
40	E40PT22N3M	3.62E+01	0.00E+00	3.62E+01	6.72E+02	1.59E+01	6.88E+02	4.02E+01	3.62E-03	0.00E+00	1.50E-01
40	E40PT22N3	3.45E+01	0.00E+00	3.45E+01	6.23E+02	9.10E+00	6.32E+02	3.82E+01	3.52E-03	0.00E+00	1.28E-01
50	E50PT22N3	3.71E+01	0.00E+00	3.71E+01	7.49E+02	1.22E+01	7.61E+02	9.42E+01	3.59E-03	0.00E+00	1.45E-01
Kerb 280kg	EKB280	3.19E+01	0.00E+00	3.19E+01	6.00E+02	8.35E+00	6.09E+02	8.42E+01	3.20E-03	0.00E+00	1.01E-01
Kerb 320kg	EKB320	3.28E+01	0.00E+00	3.28E+01	6.54E+02	9.54E+00	6.64E+02	9.63E+01	3.22E-03	0.00E+00	1.10E-01

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Other											
40	E40SPLS	1.88E+01	0.00E+00	1.88E+01	6.18E+02	1.03E+01	6.29E+02	4.32E+01	1.88E-03	0.00E+00	1.23E-01
50	E50SPHE	2.25E+01	0.00E+00	2.25E+01	7.97E+02	3.08E+01	8.27E+02	1.18E+02	1.95E-03	0.00E+00	1.76E-01
65	E65SPHE	2.27E+01	0.00E+00	2.27E+01	8.81E+02	2.50E+01	9.06E+02	1.43E+02	1.95E-03	0.00E+00	1.61E-01
65	E65N56PUD	4.31E+01	0.00E+00	4.31E+01	8.81E+02	1.64E+00	8.82E+02	1.40E+02	4.55E-03	0.00E+00	2.40E-01
32	E32700	3.50E+01	0.00E+00	3.50E+01	6.08E+02	8.81E+00	6.16E+02	6.82E+01	3.55E-03	0.00E+00	1.17E-01
32	E32600	1.75E+01	0.00E+00	1.75E+01	5.30E+02	8.15E+00	5.38E+02	3.42E+01	1.85E-03	0.00E+00	1.03E-01
40	E40700	3.56E+01	0.00E+00	3.56E+01	6.52E+02	9.85E+00	6.62E+02	7.62E+01	3.56E-03	0.00E+00	1.26E-01
50	E50700	3.71E+01	0.00E+00	3.71E+01	7.49E+02	1.22E+01	7.61E+02	9.42E+01	3.59E-03	0.00E+00	1.45E-01
50	E50600	2.06E+01	0.00E+00	2.06E+01	7.51E+02	1.34E+01	7.65E+02	5.62E+01	1.90E-03	0.00E+00	1.51E-01
32	EFM32	3.80E+01	0.00E+00	3.80E+01	7.25E+02	1.10E+01	7.36E+02	1.63E+02	3.62E-03	0.00E+00	1.10E-01
50	EFM50	4.67E+01	0.00E+00	4.67E+01	1.11E+03	2.42E+01	1.14E+03	2.83E+02	3.95E-03	0.00E+00	1.74E-01

Waste flows

Table 10 Waste flow results per m³ of concrete for A1-A3

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
Pronto Green e-Mix - Lower Carbon Concrete Products				
20	EPG20F	2.87E-01	1.49E+01	8.11E-05
20	EPG20	2.84E-01	1.53E+01	8.32E-05
25	EPG25	2.95E-01	1.57E+01	8.69E-05
32	EPG32	3.22E-01	1.67E+01	9.39E-05
40	EPG40F	3.79E-01	1.83E+01	1.10E-04
40	EPG40	3.62E-01	1.83E+01	1.06E-04
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products				
40	EPT4035	7.03E-01	3.09E+01	3.16E-04
40	EPT4050	7.38E-01	3.11E+01	3.23E-04
40	EPT4065	7.73E-01	3.14E+01	3.31E-04
40	EPT4735	7.74E-01	3.45E+01	3.37E-04
Normal Class				
20	EN20	2.53E-01	1.45E+01	7.32E-05
25	EN25	2.61E-01	1.49E+01	7.59E-05
32	EN32	2.90E-01	1.60E+01	8.61E-05
40	EN40	3.13E-01	1.70E+01	9.35E-05
50	EN50	3.59E-01	1.92E+01	1.09E-04
Vic Department of Transport & Planning Projects				
32	EVR330	2.04E-01	1.60E+01	8.71E-05
40	EVR400	2.21E-01	1.72E+01	9.53E-05
50	EVR450	2.69E-01	1.99E+01	1.17E-04
Special Applications				
40	E40SP	3.85E-01	2.09E+01	1.37E-04
50	E50SP	4.08E-01	2.21E+01	1.47E-04
50	E50SPLS	7.23E-01	3.02E+01	2.01E-04
65	E65SP	4.56E-01	2.44E+01	1.67E-04
80	E80SP	5.47E-01	2.87E+01	2.07E-04
80	E80SPHE	3.94E-01	2.46E+01	1.59E-04
100	E100SP	5.68E-01	3.01E+01	2.13E-04
40	EGRA47	2.58E-01	1.66E+01	9.45E-05

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
40	E40PT22N3M	3.07E-01	1.89E+01	1.05E-04
40	E40PT22N3	2.56E-01	1.67E+01	8.20E-05
50	E50PT22N3	3.03E-01	1.84E+01	9.69E-05
Kerb 280kg	EKB280	2.66E-01	1.53E+01	8.16E-05
Kerb 320kg	EKB320	2.82E-01	1.61E+01	8.72E-05
	Other			
40	E40SPLS	1.88E-01	1.60E+01	7.94E-05
50	E50SPHE	3.57E-01	2.19E+01	1.51E-04
65	E65SPHE	3.21E-01	2.08E+01	1.30E-04
65	E65N56PUD	5.76E-01	2.80E+01	1.55E-04
32	E32700	2.67E-01	1.62E+01	8.25E-05
32	E32600	1.68E-01	1.45E+01	7.06E-05
40	E40700	2.79E-01	1.69E+01	8.71E-05
50	E50700	3.03E-01	1.84E+01	9.69E-05
50	E50600	2.16E-01	1.82E+01	9.19E-05
32	EFM32	3.40E-01	1.68E+01	9.84E-05
50	EFM50	5.06E-01	2.32E+01	1.55E-04

Output flows

Table 11 Output flow results per m³ of concrete for A1-A3

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
Pronto Green – e-Mix - Lower Carbon Concrete Products					
20	EPG20F	0.00E+00	2.19E-02	2.30E-05	6.04E-02
20	EPG20	0.00E+00	1.91E-02	2.30E-05	6.18E-02
25	EPG25	0.00E+00	2.06E-02	2.33E-05	6.41E-02
32	EPG32	0.00E+00	2.34E-02	2.41E-05	6.68E-02
40	EPG40F	0.00E+00	3.21E-02	2.59E-05	7.75E-02
40	EPG40	0.00E+00	2.79E-02	2.56E-05	7.47E-02
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products					
40	EPT4035	0.00E+00	2.82E-02	3.62E-05	2.06E-01
40	EPT4050	0.00E+00	3.47E-02	3.73E-05	2.11E-01
40	EPT4065	0.00E+00	4.14E-02	3.84E-05	2.17E-01
40	EPT4735	0.00E+00	2.94E-02	4.85E-05	3.30E-01
Normal Class					
20	EN20	0.00E+00	1.57E-02	2.19E-05	5.51E-02
25	EN25	0.00E+00	1.68E-02	2.22E-05	5.68E-02
32	EN32	0.00E+00	1.85E-02	2.31E-05	6.15E-02
40	EN40	0.00E+00	2.09E-02	2.38E-05	6.62E-02
50	EN50	0.00E+00	2.62E-02	2.54E-05	7.62E-02
Vic Department of Transport & Planning Projects					
32	EVR330	0.00E+00	7.38E-03	1.90E-05	5.96E-02
40	EVR400	0.00E+00	8.18E-03	1.96E-05	6.50E-02
50	EVR450	0.00E+00	9.68E-03	2.13E-05	8.02E-02
Special Applications					
40	E40SP	0.00E+00	1.60E-02	2.62E-05	9.95E-02
50	E50SP	0.00E+00	1.73E-02	2.70E-05	1.06E-01
50	E50SPLS	0.00E+00	5.28E-02	5.65E-05	3.39E-01
65	E65SP	0.00E+00	1.99E-02	2.87E-05	1.20E-01
80	E80SP	0.00E+00	2.36E-02	3.18E-05	1.48E-01
80	E80SPHE	0.00E+00	2.57E-02	2.51E-05	1.15E-01
100	E100SP	0.00E+00	2.69E-02	3.25E-05	1.52E-01
40	EGRA47	0.00E+00	2.25E-02	2.06E-05	6.33E-02

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
40	E40PT22N3M	0.00E+00	9.74E-03	2.39E-05	7.55E-02
40	E40PT22N3	0.00E+00	9.05E-03	2.21E-05	5.84E-02
50	E50PT22N3	0.00E+00	1.55E-02	2.37E-05	6.80E-02
Kerb 280kg	EKB280	0.00E+00	1.72E-02	2.20E-05	5.80E-02
Kerb 320kg	EKB320	0.00E+00	1.91E-02	2.25E-05	6.15E-02
	Other				
40	E40SPLS	0.00E+00	8.07E-03	1.85E-05	5.31E-02
50	E50SPHE	0.00E+00	1.76E-02	2.40E-05	1.06E-01
65	E65SPHE	0.00E+00	2.01E-02	2.26E-05	9.41E-02
65	E65N56PUD	0.00E+00	2.18E-02	5.04E-05	2.83E-01
32	E32700	0.00E+00	1.24E-02	2.24E-05	5.90E-02
32	E32600	0.00E+00	6.93E-03	1.78E-05	4.77E-02
40	E40700	0.00E+00	1.33E-02	2.28E-05	6.19E-02
50	E50700	0.00E+00	1.55E-02	2.37E-05	6.80E-02
50	E50600	0.00E+00	9.77E-03	1.94E-05	6.09E-02
32	EFM32	0.00E+00	2.71E-02	2.46E-05	6.97E-02
50	EFM50	0.00E+00	4.44E-02	3.02E-05	1.08E-01

Environmental performance indicator results (A4, C1-C4, D)

Mandatory potential environmental impact indicator results

Table 12 Mandatory potential environmental impact indicator results per m³ of concrete for A4, C1-C4, and D according to EN 15804:2012+A2:2019

Impact category	Unit	Module A4 - Transport to site	Module C1 - Deconstruction demolition	Module C2 - Transport	Module C3 - Waste processing	Module C4 - Disposal	Module D - Avoided quarrying
GWPT	kg CO2 eq.	2.56	13.34	7.14	7.86	2.26	-9.02
GWPF	kg CO2 eq.	2.56	13.33	7.13	7.85	2.26	-9.03
GWPB	kg CO2 eq.	7.80E-04	5.00E-03	3.98E-03	2.95E-03	2.45E-03	1.49E-02
GWPL	kg CO2 eq.	2.46E-04	1.33E-03	4.89E-03	7.84E-04	2.13E-03	-3.10E-03
ODP	kg CFC 11 eq.	5.99E-07	2.85E-06	1.58E-06	1.68E-06	9.14E-07	-9.99E-07
AP	mol H+ eq.	9.33E-03	1.39E-01	4.58E-02	8.16E-02	2.13E-02	-7.11E-02
EPF	kg P eq.	4.43E-05	4.13E-04	7.08E-04	2.43E-04	2.07E-04	-6.28E-04
EPM	kg N eq.	2.94E-03	6.14E-02	1.13E-02	3.62E-02	7.39E-03	-2.24E-02
EPT	mol N eq.	3.23E-02	6.72E-01	1.25E-01	3.96E-01	8.09E-02	-2.54E-01
POCP	kg MNVOC eq.	8.95E-03	1.85E-01	4.27E-02	1.09E-01	2.35E-02	-6.73E-02
ADPE*	kg Sb eq.	1.70E-06	6.86E-06	4.34E-05	4.04E-06	5.15E-06	-4.93E-05
ADPF*	MJ (NCV)	3.65E+01	1.83E+02	1.10E+02	1.08E+02	6.31E+01	-9.50E+01
WDP*	m^3	2.46E-02	2.86E-01	5.98E-01	1.69E-01	2.84E+00	-6.02E+00

Additional mandatory impact categories results

Table 13 Additional potential environmental impact indicator results per m³ of concrete according to EN 15804:2012+A2:2019 results (A4, C1-C4, D)

Impact category	Unit	Module A4 - Transport to site	Module C1 - Deconstruction demolition	Module C2 - Transport	Module C3 - Waste processing	Module C4 - Disposal	Module D - Avoided quarrying
GWP-GHG	kg CO2 eq.	2.55	13.31	7.09	7.84	2.24	-8.97
PM	Disease incidence	6.07E-08	3.71E-06	8.25E-07	1.67E-05	4.28E-07	-1.46E-06
IRP**	kBq U-235 eq.	1.62E-01	8.24E-01	5.22E-01	4.86E-01	2.80E-01	-3.12E-01
ETPF*	CTUe	2.07E+01	1.07E+02	9.78E+01	6.30E+01	3.99E+01	-9.78E+01
HTPC*	CTUh	3.89E-10	4.14E-09	4.18E-09	2.44E-09	1.01E-09	-3.63E-09
HTPNC*	CTUh	1.37E-08	7.76E-08	6.57E-08	4.57E-08	2.62E-08	-7.45E-08
SQP*	Dimensionless	8.04E+00	2.33E+01	1.30E+02	1.37E+01	1.32E+02	-2.93E+02

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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.

Resource use

Table 14 Resource use indicator results per m^3 of concrete for A4, C1-C4, and D

Impact category	Unit	Module A4 - Transport to site	Module C1 - Deconstruction demolition	Module C2 - Transport	Module C3 - Waste processing	Module C4 - Disposal	Module D - Avoided quarrying
PERE	MJ NCV	6.71E-01	1.07E+00	6.67E-02	6.29E-01	5.49E-01	-1.88E+01
PERM	MJ NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ NCV	6.71E-01	1.07E+00	6.67E-02	6.29E-01	5.49E-01	-1.88E+01
PENRE	MJ NCV	5.34E+01	1.90E+02	4.58E+00	1.12E+02	6.55E+01	-9.67E+01
PENRM	MJ NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ NCV	5.34E+01	1.90E+02	4.58E+00	1.12E+02	6.55E+01	-9.67E+01
SM	kg	2.24E-02	7.78E-02	1.92E-03	4.59E-02	1.58E-02	-3.57E-02
RSF	MJ NCV	2.88E-04	2.04E-04	2.47E-05	1.21E-04	3.38E-04	-1.93E-03
NRSF	MJ NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	7.22E-03	1.02E-02	6.19E-04	5.98E-03	6.76E-02	-2.14E-02

Waste flows

Table 15 Waste flows per m^3 of concrete for A4, C1-C4, and D

Impact category	Unit	Module A4 - Transport to site	Module C1 - Deconstruction demolition	Module C2 - Transport	Module C3 - Waste processing	Module C4 - Disposal	Module D - Avoided quarrying
HWD	kg	3.92E-02	8.73E-02	3.36E-03	5.14E-02	3.14E-02	-1.19E-01
NHWD	kg	1.26E+00	1.74E+00	1.08E-01	1.02E+00	9.40E-01	-2.38E+00
RWD	kg	1.16E-05	2.06E-05	9.94E-07	1.21E-05	9.60E-06	-1.57E-05

Output flows

Table 16 Output flows per m^3 of concrete for A4, C1-C4, and D

Impact category	Unit	Module A4 - Transport to site	Module C1 - Deconstruction demolition	Module C2 - Transport	Module C3 - Waste processing	Module C4 - Disposal	Module D - Avoided quarrying
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	4.18E-04	5.99E-04	3.58E-05	3.52E-04	2.93E-04	-1.99E-03
MER	kg	2.26E-06	2.35E-06	1.93E-07	1.38E-06	1.05E-06	-5.38E-06
EE	MJ	9.54E-03	1.23E-02	8.17E-04	7.27E-03	5.83E-03	-1.38E-02

References

ALCAS (2022). Australian Life Cycle Inventory Database (AusLCI) Version 1.41. A. L. C. A. Society. Melbourne.

Australian Bureau of Statistics (2020). 9208.0 Survey of motor vehicle use, Australia, 12 months ended 30 June 2019. Canberra, Australia, Australian Bureau of Statistics.

EN 15804:2012+A2:2019 + AC:2021, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EPD International (2019a). c-PCR-003 (to PCR 2019:14) Concrete and concrete elements, version 2019-12-20. www.environdec.com

EPD International (2019b). General Programme Instructions for the International EPD® System. Version 3.01. www.environdec.com.

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

International Organization for Standardization (2006). International Standard, ISO 14025, Environmental labels and declarations – Type III environmental declarations – Principles and procedures. Switzerland.

International Organization for Standardization (2006). International Standard, ISO 14040, Environmental Management Standard- Life Cycle Assessment, Principles and Framework. Switzerland.

International Organization for Standardization (2006). International Standard, ISO 14044, Environmental Management Standard- Life Cycle Assessment, Requirements and Guidelines. Switzerland.

Pickin, J., C. Wardle, K. O'Farrel, P. Nyunt and S. Donovan (2020). National waste report 2020. National Waste Report. Docklands, Australia, Department of Agriculture, Water and the Environment.

Weidema, B. P., C. Bauer, R. Hischier, C. Mutel, T. Nemecek, J. Reinhard, C. O. Vadenbo and G. Wernet (2021). Overview and methodology. Data quality guideline for the ecoinvent database version 3. Ecoinvent Report 1(v3.8). St. Gallen, The ecoinvent Centre.

Appendix A. Environmental performance indicator results (A1, A2, A3 disaggregated)

The results produced by this study are relative expressions and therefore do not predict impacts on category endpoints, nor the exceeding of thresholds and safety margins or risks.

Mandatory potential environmental impact indicator results for A1

Table 17 Mandatory potential environmental impact indicator results per m^3 of concrete for A1 according to EN 15804:2012+A2:2019

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
Pronto Green – e-Mix - Lower Carbon Concrete Products														
20	EPG20F	128	128	8.67E-02	2.28E-02	1.01E-05	1.41E+00	4.82E-03	4.65E-01	5.18E+00	1.35E+00	4.16E-04	1.47E+03	6.82E+02
20	EPG20	141	141	7.34E-02	1.98E-02	1.08E-05	1.50E+00	5.00E-03	5.10E-01	5.68E+00	1.47E+00	4.61E-04	1.61E+03	8.14E+02
25	EPG25	153	153	8.24E-02	2.13E-02	1.17E-05	1.64E+00	5.40E-03	5.56E-01	6.20E+00	1.60E+00	4.99E-04	1.75E+03	8.94E+02
32	EPG32	177	177	9.65E-02	2.43E-02	1.34E-05	1.88E+00	6.17E-03	6.41E-01	7.15E+00	1.85E+00	5.71E-04	2.01E+03	1.04E+03
40	EPG40F	193	193	1.43E-01	3.39E-02	1.49E-05	2.13E+00	7.20E-03	7.03E-01	7.83E+00	2.03E+00	6.27E-04	2.21E+03	1.05E+03
40	EPG40	215	214	1.23E-01	2.91E-02	1.62E-05	2.30E+00	7.42E-03	7.80E-01	8.70E+00	2.25E+00	6.90E-04	2.44E+03	1.28E+03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products														
40	EPT4035	226	226	1.43E-01	3.72E-02	2.02E-05	2.36E+00	1.03E-02	8.07E-01	8.99E+00	2.32E+00	7.90E-04	2.58E+03	1.35E+03
40	EPT4050	197	196	1.74E-01	4.49E-02	1.85E-05	2.14E+00	1.01E-02	6.99E-01	7.79E+00	2.02E+00	7.09E-04	2.26E+03	1.04E+03
40	EPT4065	168	168	2.06E-01	5.27E-02	1.68E-05	1.93E+00	9.90E-03	5.95E-01	6.62E+00	1.73E+00	6.30E-04	1.96E+03	7.39E+02
40	EPT4735	245	245	1.98E-01	3.89E-02	2.19E-05	2.59E+00	1.13E-02	8.92E-01	9.94E+00	2.57E+00	8.69E-04	2.79E+03	1.51E+03
Normal Class														
20	EN20	148	148	5.63E-02	1.56E-02	1.12E-05	1.54E+00	4.82E-03	5.37E-01	5.99E+00	1.55E+00	4.70E-04	1.68E+03	9.14E+02
25	EN25	162	161	6.35E-02	1.67E-02	1.21E-05	1.68E+00	5.21E-03	5.86E-01	6.54E+00	1.69E+00	5.09E-04	1.83E+03	1.00E+03
32	EN32	179	179	7.17E-02	1.87E-02	1.35E-05	1.86E+00	5.85E-03	6.50E-01	7.25E+00	1.87E+00	5.72E-04	2.03E+03	1.11E+03
40	EN40	207	207	8.67E-02	2.11E-02	1.54E-05	2.15E+00	6.69E-03	7.52E-01	8.39E+00	2.17E+00	6.58E-04	2.35E+03	1.30E+03
50	EN50	268	267	1.20E-01	2.66E-02	1.97E-05	2.79E+00	8.54E-03	9.76E-01	1.09E+01	2.81E+00	8.45E-04	3.03E+03	1.71E+03
Vic Dept of Transport & Planning Projects														
32	EVR330	239	239	5.69E-02	1.14E-02	1.88E-05	2.33E+00	7.12E-03	8.68E-01	9.67E+00	2.50E+00	7.54E-04	2.74E+03	1.68E+03
40	EVR400	278	277	6.62E-02	1.30E-02	2.16E-05	2.70E+00	8.24E-03	1.01E+00	1.12E+01	2.90E+00	8.78E-04	3.18E+03	1.96E+03
50	EVR450	342	342	8.42E-02	1.64E-02	2.64E-05	3.33E+00	1.03E-02	1.24E+00	1.38E+01	3.56E+00	1.10E-03	3.92E+03	2.43E+03
Special Applications														
40	E40SP	228	228	7.81E-02	2.14E-02	1.76E-05	2.26E+00	7.96E-03	8.09E-01	9.03E+00	2.33E+00	7.82E-04	2.62E+03	1.48E+03
50	E50SP	251	251	8.86E-02	2.33E-02	1.93E-05	2.49E+00	8.73E-03	8.92E-01	9.95E+00	2.57E+00	8.60E-04	2.88E+03	1.63E+03
50	E50SPLS	224	223	3.12E-01	5.98E-02	1.81E-05	2.67E+00	1.08E-02	8.26E-01	9.21E+00	2.39E+00	8.38E-04	2.59E+03	1.05E+03
65	E65SP	297	297	1.09E-01	2.71E-02	2.27E-05	2.95E+00	1.03E-02	1.06E+00	1.18E+01	3.05E+00	1.01E-03	3.41E+03	1.95E+03
80	E80SP	360	360	1.40E-01	3.31E-02	2.74E-05	3.59E+00	1.26E-02	1.28E+00	1.43E+01	3.70E+00	1.25E-03	4.15E+03	2.39E+03

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
80	E80SPHE	437	436	1.88E-01	3.26E-02	3.30E-05	4.40E+00	1.35E-02	1.59E+00	1.77E+01	4.57E+00	1.35E-03	5.00E+03	2.98E+03
100	E100SP	425	425	1.64E-01	3.67E-02	3.21E-05	4.24E+00	1.44E-02	1.52E+00	1.70E+01	4.38E+00	1.44E-03	4.88E+03	2.84E+03
40	EGRA47	237	237	1.30E-01	2.20E-02	1.79E-05	2.50E+00	7.30E-03	8.83E-01	9.84E+00	2.54E+00	7.15E-04	2.71E+03	1.55E+03
40	E40PT22N3M	272	272	4.02E-02	1.22E-02	2.01E-05	2.64E+00	8.11E-03	9.76E-01	1.09E+01	2.81E+00	8.83E-04	3.08E+03	1.91E+03
40	E40PT22N3	257	257	3.12E-02	9.93E-03	1.90E-05	2.50E+00	7.34E-03	9.28E-01	1.04E+01	2.67E+00	8.14E-04	2.90E+03	1.81E+03
50	E50PT22N3	291	291	6.90E-02	1.76E-02	2.16E-05	2.90E+00	8.71E-03	1.05E+00	1.17E+01	3.03E+00	9.27E-04	3.30E+03	1.99E+03
Kerb 280kg	EKB280	167	167	6.96E-02	1.72E-02	1.26E-05	1.74E+00	5.42E-03	6.08E-01	6.78E+00	1.75E+00	5.28E-04	1.89E+03	1.04E+03
Kerb 320kg	EKB320	189	189	8.20E-02	1.92E-02	1.42E-05	1.97E+00	6.08E-03	6.89E-01	7.69E+00	1.99E+00	5.96E-04	2.14E+03	1.19E+03
	Other													
40	E40SPLS	281	281	6.07E-02	8.34E-03	2.11E-05	2.77E+00	7.66E-03	1.03E+00	1.15E+01	2.97E+00	8.52E-04	3.19E+03	2.04E+03
50	E50SPHE	279	279	1.24E-01	2.35E-02	2.17E-05	2.80E+00	9.34E-03	1.01E+00	1.13E+01	2.92E+00	9.20E-04	3.23E+03	1.87E+03
65	E65SPHE	334	334	1.44E-01	2.52E-02	2.55E-05	3.37E+00	1.04E-02	1.22E+00	1.36E+01	3.51E+00	1.03E-03	3.83E+03	2.27E+03
65	E65N56PUD	334	334	1.29E-01	2.74E-02	2.48E-05	3.36E+00	1.15E-02	1.20E+00	1.34E+01	3.45E+00	1.17E-03	3.75E+03	2.23E+03
32	E32700	215	215	4.38E-02	1.38E-02	1.61E-05	2.13E+00	6.55E-03	7.72E-01	8.62E+00	2.22E+00	6.90E-04	2.43E+03	1.44E+03
32	E32600	226	226	4.86E-02	6.95E-03	1.71E-05	2.22E+00	6.18E-03	8.32E-01	9.28E+00	2.39E+00	6.81E-04	2.57E+03	1.62E+03
40	E40700	238	238	5.16E-02	1.50E-02	1.79E-05	2.37E+00	7.21E-03	8.59E-01	9.58E+00	2.47E+00	7.62E-04	2.70E+03	1.61E+03
50	E50700	291	291	6.90E-02	1.76E-02	2.16E-05	2.90E+00	8.71E-03	1.05E+00	1.17E+01	3.03E+00	9.27E-04	3.30E+03	1.99E+03
50	E50600	366	366	7.93E-02	1.03E-02	2.71E-05	3.60E+00	9.92E-03	1.35E+00	1.50E+01	3.86E+00	1.11E-03	4.15E+03	2.67E+03
32	EFM32	161	161	1.15E-01	2.86E-02	1.25E-05	1.77E+00	6.06E-03	5.84E-01	6.51E+00	1.69E+00	5.27E-04	1.85E+03	8.68E+02
50	EFM50	271	271	2.19E-01	4.84E-02	2.07E-05	3.00E+00	1.03E-02	9.87E-01	1.10E+01	2.85E+00	8.92E-04	3.12E+03	1.50E+03

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

Additional mandatory impact categories results A1

Table 18 Additional potential environmental impact indicators per m³ of concrete according to EN 15804:2012+A2:2019 results (A1)

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Pronto Green - e-Mix - Lower Carbon Concrete Products								
20	EPG20F	126	6.85E-06	1.26E+00	1.02E+03	5.14E-08	1.55E-06	7.98E+02
20	EPG20	138	7.32E-06	1.15E+00	1.11E+03	5.15E-08	1.76E-06	8.43E+02
25	EPG25	150	7.81E-06	1.21E+00	1.20E+03	5.60E-08	1.93E-06	8.77E+02
32	EPG32	173	8.77E-06	1.33E+00	1.38E+03	6.44E-08	2.22E-06	9.70E+02
40	EPG40F	189	9.51E-06	1.75E+00	1.52E+03	7.76E-08	2.35E-06	1.02E+03
40	EPG40	209	1.03E-05	1.53E+00	1.67E+03	7.82E-08	2.71E-06	1.09E+03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products								
40	EPT4035	221	1.08E-05	2.26E+00	1.86E+03	8.04E-08	2.95E-06	1.15E+03
40	EPT4050	192	9.67E-06	2.56E+00	1.66E+03	8.05E-08	2.45E-06	1.04E+03
40	EPT4065	165	8.55E-06	2.87E+00	1.46E+03	8.09E-08	1.96E-06	9.24E+02
40	EPT4735	239	1.15E-05	2.41E+00	2.06E+03	8.91E-08	3.28E-06	8.85E+02
Normal Class								
20	EN20	145	7.63E-06	9.75E-01	1.15E+03	4.94E-08	1.90E-06	8.82E+02
25	EN25	158	8.14E-06	1.02E+00	1.25E+03	5.38E-08	2.08E-06	9.19E+02
32	EN32	175	8.93E-06	1.13E+00	1.39E+03	5.98E-08	2.31E-06	1.01E+03
40	EN40	202	1.00E-05	1.24E+00	1.60E+03	6.89E-08	2.68E-06	1.10E+03

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
50	EN50	261	1.24E-05	1.45E+00	2.06E+03	8.90E-08	3.49E-06	1.28E+03
	Vic Dept of Transport & Planning Projects							
32	EVR330	233	1.18E-05	1.28E+00	1.87E+03	6.60E-08	3.29E-06	1.03E+03
40	EVR400	270	1.33E-05	1.40E+00	2.16E+03	7.65E-08	3.83E-06	1.17E+03
50	EVR450	333	1.60E-05	1.65E+00	2.67E+03	9.45E-08	4.73E-06	1.39E+03
	Special Applications							
40	E40SP	222	1.11E-05	1.52E+00	1.81E+03	7.14E-08	3.03E-06	1.22E+03
50	E50SP	244	1.21E-05	1.62E+00	1.99E+03	7.85E-08	3.35E-06	1.29E+03
50	E50SPLS	219	1.07E-05	2.92E+00	1.92E+03	1.12E-07	2.68E-06	7.42E+02
65	E65SP	289	1.39E-05	1.83E+00	2.35E+03	9.28E-08	3.98E-06	1.43E+03
80	E80SP	351	1.64E-05	2.16E+00	2.86E+03	1.13E-07	4.86E-06	1.64E+03
80	E80SPHE	425	1.93E-05	2.17E+00	3.38E+03	1.33E-07	5.88E-06	1.60E+03
100	E100SP	414	1.90E-05	2.35E+00	3.35E+03	1.32E-07	5.73E-06	1.85E+03
40	EGRA47	231	1.11E-05	1.31E+00	1.81E+03	7.85E-08	3.11E-06	8.58E+02
40	E40PT22N3M	265	1.29E-05	1.09E+00	2.11E+03	7.43E-08	3.74E-06	1.41E+03
40	E40PT22N3	250	1.23E-05	9.55E-01	1.98E+03	6.95E-08	3.53E-06	1.36E+03
50	E50PT22N3	284	1.36E-05	1.30E+00	2.25E+03	8.48E-08	3.95E-06	1.45E+03
Kerb 280kg	EKB280	163	8.40E-06	1.07E+00	1.29E+03	5.56E-08	2.16E-06	9.10E+02
Kerb 320kg	EKB320	184	9.25E-06	1.15E+00	1.46E+03	6.29E-08	2.45E-06	9.72E+02

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Other								
40	E40SPLS	273	1.32E-05	9.80E-01	2.15E+03	7.51E-08	3.90E-06	1.11E+03
50	E50SPHE	272	1.31E-05	1.71E+00	2.20E+03	8.67E-08	3.76E-06	1.09E+03
65	E65SPHE	325	1.53E-05	1.79E+00	2.59E+03	1.02E-07	4.49E-06	1.28E+03
65	E65N56PUD	325	1.54E-05	1.79E+00	2.70E+03	1.05E-07	4.58E-06	1.60E+03
32	E32700	209	1.06E-05	1.09E+00	1.67E+03	6.28E-08	2.89E-06	1.20E+03
32	E32600	220	1.09E-05	8.81E-01	1.73E+03	6.04E-08	3.12E-06	9.28E+02
40	E40700	232	1.15E-05	1.16E+00	1.85E+03	6.96E-08	3.21E-06	1.28E+03
50	E50700	284	1.36E-05	1.30E+00	2.25E+03	8.48E-08	3.95E-06	1.45E+03
50	E50600	356	1.65E-05	1.11E+00	2.79E+03	9.75E-08	5.10E-06	1.39E+03
32	EFM32	158	8.22E-06	1.52E+00	1.27E+03	6.47E-08	1.95E-06	9.21E+02
50	EFM50	265	1.25E-05	2.34E+00	2.13E+03	1.10E-07	3.33E-06	1.23E+03

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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.

Resource use indicators A1

Table 19 Resource use indicator results per m³ of concrete for A1

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Pronto Green – e-Mix - Lower Carbon Concrete Products											
20	EPG20F	2.88E+01	0.00E+00	2.88E+01	5.20E+02	7.10E+00	5.27E+02	1.28E+02	2.43E-03	0.00E+00	7.34E-02
20	EPG20	2.86E+01	0.00E+00	2.86E+01	5.02E+02	8.15E+00	5.10E+02	1.02E+02	2.43E-03	0.00E+00	8.06E-02
25	EPG25	2.92E+01	0.00E+00	2.92E+01	5.35E+02	8.89E+00	5.44E+02	1.12E+02	2.45E-03	0.00E+00	8.55E-02
32	EPG32	3.20E+01	0.00E+00	3.20E+01	6.03E+02	1.03E+01	6.14E+02	1.30E+02	2.64E-03	0.00E+00	9.51E-02
40	EPG40F	3.45E+01	0.00E+00	3.45E+01	7.43E+02	1.34E+01	7.56E+02	1.98E+02	2.69E-03	0.00E+00	1.07E-01
40	EPG40	3.49E+01	0.00E+00	3.49E+01	7.10E+02	1.27E+01	7.22E+02	1.60E+02	2.79E-03	0.00E+00	1.12E-01
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products											
40	EPT4035	4.29E+01	0.00E+00	4.29E+01	7.63E+02	1.20E+01	7.75E+02	1.37E+02	3.02E-03	0.00E+00	2.61E-01
40	EPT4050	4.46E+01	0.00E+00	4.46E+01	8.14E+02	1.31E+01	8.27E+02	1.95E+02	3.09E-03	0.00E+00	2.58E-01
40	EPT4065	4.64E+01	0.00E+00	4.64E+01	8.67E+02	1.43E+01	8.81E+02	2.54E+02	3.16E-03	0.00E+00	2.54E-01
40	EPT4735	2.89E+01	0.00E+00	2.89E+01	7.65E+02	2.97E+00	7.68E+02	1.52E+02	1.87E-03	0.00E+00	2.97E-01
Normal Class											
20	EN20	2.71E+01	0.00E+00	2.71E+01	4.62E+02	5.86E+00	4.68E+02	7.41E+01	2.37E-03	0.00E+00	7.44E-02
25	EN25	2.76E+01	0.00E+00	2.76E+01	4.92E+02	6.43E+00	4.98E+02	8.11E+01	2.38E-03	0.00E+00	7.89E-02
32	EN32	2.97E+01	0.00E+00	2.97E+01	5.46E+02	8.94E+00	5.55E+02	9.01E+01	2.51E-03	0.00E+00	9.11E-02
40	EN40	3.11E+01	0.00E+00	3.11E+01	6.13E+02	1.04E+01	6.24E+02	1.05E+02	2.57E-03	0.00E+00	1.02E-01
50	EN50	3.42E+01	0.00E+00	3.42E+01	7.54E+02	1.37E+01	7.68E+02	1.38E+02	2.68E-03	0.00E+00	1.26E-01

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Vic Department of Transport & Planning Projects											
32	EVR330	1.26E+01	0.00E+00	1.26E+01	4.54E+02	1.31E+01	4.67E+02	7.91E+01	8.67E-04	0.00E+00	1.01E-01
40	EVR400	1.36E+01	0.00E+00	1.36E+01	5.09E+02	1.53E+01	5.25E+02	9.21E+01	8.82E-04	0.00E+00	1.16E-01
50	EVR450	1.56E+01	0.00E+00	1.56E+01	6.13E+02	2.15E+01	6.35E+02	1.14E+02	9.36E-04	0.00E+00	1.48E-01
Special Applications											
40	E40SP	3.05E+01	0.00E+00	3.05E+01	6.21E+02	2.51E+01	6.46E+02	9.31E+01	2.48E-03	0.00E+00	1.45E-01
50	E50SP	3.15E+01	0.00E+00	3.15E+01	6.70E+02	2.79E+01	6.98E+02	1.03E+02	2.51E-03	0.00E+00	1.57E-01
50	E50SPLS	3.00E+01	0.00E+00	3.00E+01	1.03E+03	7.10E+00	1.03E+03	3.64E+02	2.31E-03	0.00E+00	2.19E-01
65	E65SP	3.35E+01	0.00E+00	3.35E+01	7.67E+02	3.33E+01	8.00E+02	1.23E+02	2.58E-03	0.00E+00	1.83E-01
80	E80SP	3.69E+01	0.00E+00	3.69E+01	9.13E+02	4.42E+01	9.57E+02	1.50E+02	2.69E-03	0.00E+00	2.31E-01
80	E80SPHE	2.05E+01	0.00E+00	2.05E+01	9.60E+02	3.29E+01	9.93E+02	1.88E+02	1.02E-03	0.00E+00	1.84E-01
100	E100SP	3.89E+01	0.00E+00	3.89E+01	1.03E+03	4.52E+01	1.07E+03	1.79E+02	2.76E-03	0.00E+00	2.46E-01
40	EGRA47	1.61E+01	0.00E+00	1.61E+01	6.40E+02	1.24E+01	6.53E+02	1.25E+02	9.24E-04	0.00E+00	9.95E-02
40	E40PT22N3M	3.03E+01	0.00E+00	3.03E+01	5.61E+02	1.59E+01	5.77E+02	4.01E+01	2.59E-03	0.00E+00	1.32E-01
40	E40PT22N3	2.86E+01	0.00E+00	2.86E+01	5.14E+02	9.10E+00	5.23E+02	3.81E+01	2.49E-03	0.00E+00	1.10E-01
50	E50PT22N3	3.12E+01	0.00E+00	3.12E+01	6.37E+02	1.22E+01	6.49E+02	9.41E+01	2.56E-03	0.00E+00	1.26E-01
Kerb 280kg	EKB280	2.61E+01	0.00E+00	2.61E+01	5.09E+02	8.35E+00	5.17E+02	8.41E+01	2.19E-03	0.00E+00	8.37E-02
Kerb 320kg	EKB320	2.70E+01	0.00E+00	2.70E+01	5.59E+02	9.54E+00	5.69E+02	9.61E+01	2.20E-03	0.00E+00	9.21E-02

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Other											
40	E40SPLS	1.29E+01	0.00E+00	1.29E+01	5.03E+02	1.03E+01	5.14E+02	4.31E+01	8.41E-04	0.00E+00	1.04E-01
50	E50SPHE	1.66E+01	0.00E+00	1.66E+01	6.86E+02	3.08E+01	7.17E+02	1.18E+02	9.15E-04	0.00E+00	1.57E-01
65	E65SPHE	1.68E+01	0.00E+00	1.68E+01	7.61E+02	2.50E+01	7.86E+02	1.43E+02	9.13E-04	0.00E+00	1.42E-01
65	E65N56PUD	3.72E+01	0.00E+00	3.72E+01	7.64E+02	1.64E+00	7.65E+02	1.40E+02	3.51E-03	0.00E+00	2.21E-01
32	E32700	2.91E+01	0.00E+00	2.91E+01	5.07E+02	8.81E+00	5.16E+02	6.81E+01	2.53E-03	0.00E+00	9.93E-02
32	E32600	1.16E+01	0.00E+00	1.16E+01	4.24E+02	8.15E+00	4.32E+02	3.41E+01	8.17E-04	0.00E+00	8.51E-02
40	E40700	2.98E+01	0.00E+00	2.98E+01	5.48E+02	9.85E+00	5.58E+02	7.61E+01	2.54E-03	0.00E+00	1.08E-01
50	E50700	3.12E+01	0.00E+00	3.12E+01	6.37E+02	1.22E+01	6.49E+02	9.41E+01	2.56E-03	0.00E+00	1.26E-01
50	E50600	1.46E+01	0.00E+00	1.46E+01	6.23E+02	1.34E+01	6.36E+02	5.60E+01	8.55E-04	0.00E+00	1.32E-01
32	EFM32	3.22E+01	0.00E+00	3.22E+01	6.37E+02	1.10E+01	6.48E+02	1.63E+02	2.61E-03	0.00E+00	9.30E-02
50	EFM50	4.09E+01	0.00E+00	4.09E+01	1.01E+03	2.42E+01	1.04E+03	2.83E+02	2.93E-03	0.00E+00	1.56E-01

Waste flows A1

Table 20 Waste flow results per m³ of concrete for A1

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
Pronto Green e-Mix - Lower Carbon Concrete Products				
20	EPG20F	2.70E-01	7.73E+00	5.82E-05
20	EPG20	2.66E-01	8.08E+00	6.01E-05
25	EPG25	2.76E-01	8.54E+00	6.35E-05
32	EPG32	3.01E-01	9.45E+00	7.02E-05
40	EPG40F	3.58E-01	1.10E+01	8.67E-05
40	EPG40	3.39E-01	1.10E+01	8.17E-05
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products				
40	EPT4035	6.79E-01	2.36E+01	2.91E-04
40	EPT4050	7.17E-01	2.39E+01	3.00E-04
40	EPT4065	7.56E-01	2.42E+01	3.08E-04
40	EPT4735	7.48E-01	2.72E+01	3.12E-04
Normal Class				
20	EN20	2.34E-01	7.27E+00	4.97E-05
25	EN25	2.41E-01	7.66E+00	5.23E-05
32	EN32	2.68E-01	8.76E+00	6.22E-05
40	EN40	2.89E-01	9.73E+00	6.91E-05
50	EN50	3.31E-01	1.18E+01	8.37E-05
Vic Department of Transport & Planning Projects				
32	EVR330	1.74E-01	8.58E+00	6.15E-05
40	EVR400	1.89E-01	9.73E+00	6.91E-05
50	EVR450	2.32E-01	1.24E+01	9.01E-05
Special Applications				
40	E40SP	3.59E-01	1.36E+01	1.12E-04
50	E50SP	3.81E-01	1.47E+01	1.22E-04
50	E50SPLS	7.02E-01	2.30E+01	1.78E-04
65	E65SP	4.24E-01	1.70E+01	1.41E-04
80	E80SP	5.11E-01	2.12E+01	1.81E-04
80	E80SPHE	3.50E-01	1.69E+01	1.31E-04
100	E100SP	5.26E-01	2.24E+01	1.85E-04

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
40	EGRA47	2.30E-01	9.27E+00	6.94E-05
40	E40PT22N3M	2.76E-01	1.15E+01	7.91E-05
40	E40PT22N3	2.26E-01	9.31E+00	5.64E-05
50	E50PT22N3	2.72E-01	1.10E+01	7.10E-05
Kerb 280kg	EKB280	2.45E-01	8.06E+00	5.78E-05
Kerb 320kg	EKB320	2.59E-01	8.79E+00	6.30E-05
	Other			
40	E40SPLS	1.55E-01	8.45E+00	5.30E-05
50	E50SPHE	3.25E-01	1.45E+01	1.25E-04
65	E65SPHE	2.85E-01	1.33E+01	1.03E-04
65	E65N56PUD	5.42E-01	2.05E+01	1.29E-04
32	E32700	2.42E-01	8.87E+00	5.78E-05
32	E32600	1.40E-01	7.04E+00	4.51E-05
40	E40700	2.52E-01	9.53E+00	6.20E-05
50	E50700	2.72E-01	1.10E+01	7.10E-05
50	E50600	1.75E-01	1.05E+01	6.41E-05
32	EFM32	3.21E-01	9.62E+00	7.51E-05
50	EFM50	4.81E-01	1.59E+01	1.31E-04

Output flows A1

Table 21 Output flow results per m³ of concrete for A1

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
Pronto Green – e-Mix - Lower Carbon Concrete Products					
20	EPG20F	0.00E+00	1.87E-02	1.07E-05	4.35E-02
20	EPG20	0.00E+00	1.56E-02	1.06E-05	4.46E-02
25	EPG25	0.00E+00	1.69E-02	1.10E-05	4.68E-02
32	EPG32	0.00E+00	1.93E-02	1.17E-05	4.93E-02
40	EPG40F	0.00E+00	2.80E-02	1.35E-05	6.00E-02
40	EPG40	0.00E+00	2.33E-02	1.31E-05	5.69E-02
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products					
40	EPT4035	0.00E+00	2.33E-02	2.36E-05	1.88E-01
40	EPT4050	0.00E+00	3.06E-02	2.49E-05	1.94E-01
40	EPT4065	0.00E+00	3.81E-02	2.61E-05	2.00E-01
40	EPT4735	0.00E+00	2.41E-02	3.58E-05	3.12E-01
Normal Class					
20	EN20	0.00E+00	1.19E-02	9.53E-06	3.78E-02
25	EN25	0.00E+00	1.28E-02	9.77E-06	3.94E-02
32	EN32	0.00E+00	1.42E-02	1.06E-05	4.38E-02
40	EN40	0.00E+00	1.62E-02	1.13E-05	4.83E-02
50	EN50	0.00E+00	2.05E-02	1.28E-05	5.76E-02
Vic Department of Transport & Planning Projects					
32	EVR330	0.00E+00	1.73E-03	6.25E-06	4.08E-02
40	EVR400	0.00E+00	1.84E-03	6.78E-06	4.58E-02
50	EVR450	0.00E+00	2.21E-03	8.28E-06	6.04E-02
Special Applications					
40	E40SP	0.00E+00	1.09E-02	1.36E-05	8.12E-02
50	E50SP	0.00E+00	1.18E-02	1.44E-05	8.79E-02
50	E50SPLS	0.00E+00	4.87E-02	4.40E-05	3.22E-01
65	E65SP	0.00E+00	1.36E-02	1.59E-05	1.01E-01
80	E80SP	0.00E+00	1.62E-02	1.89E-05	1.28E-01
80	E80SPHE	0.00E+00	1.69E-02	1.19E-05	9.45E-02
100	E100SP	0.00E+00	1.84E-02	1.94E-05	1.31E-01
40	EGRA47	0.00E+00	1.72E-02	7.91E-06	4.48E-02

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
40	E40PT22N3M	0.00E+00	3.54E-03	1.11E-05	5.66E-02
40	E40PT22N3	0.00E+00	3.08E-03	9.40E-06	3.97E-02
50	E50PT22N3	0.00E+00	9.10E-03	1.09E-05	4.91E-02
Kerb 280kg	EKB280	0.00E+00	1.31E-02	9.54E-06	4.04E-02
Kerb 320kg	EKB320	0.00E+00	1.47E-02	1.00E-05	4.37E-02
	Other				
40	E40SPLS	0.00E+00	1.54E-03	5.60E-06	3.38E-02
50	E50SPHE	0.00E+00	1.15E-02	1.12E-05	8.67E-02
65	E65SPHE	0.00E+00	1.30E-02	9.69E-06	7.44E-02
65	E65N56PUD	0.00E+00	1.49E-02	3.76E-05	2.63E-01
32	E32700	0.00E+00	7.30E-03	9.86E-06	4.09E-02
32	E32600	0.00E+00	1.42E-03	5.04E-06	2.89E-02
40	E40700	0.00E+00	7.86E-03	1.02E-05	4.34E-02
50	E50700	0.00E+00	9.10E-03	1.09E-05	4.91E-02
50	E50600	0.00E+00	1.70E-03	6.35E-06	4.06E-02
32	EFM32	0.00E+00	2.34E-02	1.23E-05	5.24E-02
50	EFM50	0.00E+00	3.92E-02	1.77E-05	9.03E-02

Mandatory potential environmental impact indicator results A2

Table 22 Mandatory potential environmental impact indicator results per m³ of concrete for A2 according to EN 15804:2012+A2:2019

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
Pronto Green – e-Mix - Lower Carbon Concrete Products														
20	EPG20F	13	13	6.49E-03	8.93E-03	2.84E-06	1.13E-01	1.21E-03	2.79E-02	3.09E-01	9.70E-02	7.34E-05	1.96E+02	1.01E+00
20	EPG20	13	13	6.42E-03	9.03E-03	2.86E-06	1.20E-01	1.21E-03	2.96E-02	3.27E-01	1.02E-01	7.31E-05	1.98E+02	1.01E+00
25	EPG25	13	13	6.30E-03	9.00E-03	2.85E-06	1.23E-01	1.19E-03	3.03E-02	3.36E-01	1.04E-01	7.21E-05	1.96E+02	9.99E-01
32	EPG32	13	13	6.30E-03	9.21E-03	2.90E-06	1.31E-01	1.20E-03	3.24E-02	3.58E-01	1.09E-01	7.27E-05	2.00E+02	1.01E+00
40	EPG40F	13	13	6.37E-03	9.31E-03	2.94E-06	1.33E-01	1.22E-03	3.28E-02	3.63E-01	1.11E-01	7.35E-05	2.02E+02	1.02E+00
40	EPG40	13	13	6.04E-03	9.23E-03	2.90E-06	1.42E-01	1.18E-03	3.49E-02	3.87E-01	1.16E-01	7.09E-05	1.99E+02	9.84E-01
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products														
40	EPT4035	14	14	6.18E-03	9.51E-03	2.98E-06	1.47E-01	1.21E-03	3.64E-02	4.03E-01	1.21E-01	7.27E-05	2.05E+02	1.01E+00
40	EPT4050	13	13	6.20E-03	9.09E-03	2.87E-06	1.30E-01	1.19E-03	3.21E-02	3.55E-01	1.08E-01	7.17E-05	1.97E+02	9.93E-01
40	EPT4065	13	13	6.22E-03	8.66E-03	2.75E-06	1.13E-01	1.16E-03	2.78E-02	3.08E-01	9.60E-02	7.06E-05	1.90E+02	9.77E-01
40	EPT4735	15	15	6.92E-03	1.06E-02	3.34E-06	1.65E-01	1.35E-03	4.06E-02	4.50E-01	1.35E-01	8.14E-05	2.29E+02	1.13E+00
Normal Class														
20	EN20	13	13	6.52E-03	9.30E-03	2.94E-06	1.27E-01	1.23E-03	3.13E-02	3.46E-01	1.07E-01	7.46E-05	2.03E+02	1.03E+00
25	EN25	13	13	6.40E-03	9.28E-03	2.93E-06	1.30E-01	1.22E-03	3.22E-02	3.56E-01	1.09E-01	7.36E-05	2.02E+02	1.02E+00
32	EN32	14	14	6.57E-03	9.65E-03	3.04E-06	1.39E-01	1.26E-03	3.42E-02	3.79E-01	1.16E-01	7.60E-05	2.10E+02	1.05E+00
40	EN40	14	14	6.48E-03	9.80E-03	3.08E-06	1.48E-01	1.26E-03	3.66E-02	4.05E-01	1.22E-01	7.57E-05	2.12E+02	1.05E+00
50	EN50	14	14	5.94E-03	9.72E-03	3.03E-06	1.65E-01	1.20E-03	4.07E-02	4.51E-01	1.33E-01	7.15E-05	2.08E+02	9.95E-01
Vic Dept of Transport & Planning Projects														
32	EVR330	16	16	7.36E-03	1.14E-02	3.58E-06	1.80E-01	1.45E-03	4.44E-02	4.92E-01	1.47E-01	8.68E-05	2.46E+02	1.21E+00
40	EVR400	16	16	7.00E-03	1.14E-02	3.55E-06	1.92E-01	1.41E-03	4.73E-02	5.24E-01	1.55E-01	8.41E-05	2.43E+02	1.17E+00
50	EVR450	16	16	6.35E-03	1.12E-02	3.48E-06	2.11E-01	1.33E-03	5.19E-02	5.76E-01	1.66E-01	7.88E-05	2.38E+02	1.10E+00
Special Applications														
40	E40SP	15	15	6.67E-03	1.03E-02	3.23E-06	1.60E-01	1.31E-03	3.96E-02	4.38E-01	1.31E-01	7.85E-05	2.22E+02	1.09E+00
50	E50SP	15	15	6.48E-03	1.03E-02	3.21E-06	1.67E-01	1.29E-03	4.12E-02	4.57E-01	1.36E-01	7.71E-05	2.21E+02	1.07E+00
50	E50SPLS	14	14	6.80E-03	9.82E-03	3.10E-06	1.37E-01	1.29E-03	3.38E-02	3.75E-01	1.15E-01	7.81E-05	2.14E+02	1.08E+00
65	E65SP	15	15	6.03E-03	1.02E-02	3.16E-06	1.80E-01	1.23E-03	4.44E-02	4.92E-01	1.44E-01	7.34E-05	2.16E+02	1.02E+00
80	E80SP	14	14	5.42E-03	1.00E-02	3.09E-06	1.97E-01	1.16E-03	4.87E-02	5.40E-01	1.55E-01	6.85E-05	2.11E+02	9.57E-01
80	E80SPHE	16	16	5.65E-03	1.12E-02	3.42E-06	2.34E-01	1.25E-03	5.77E-02	6.40E-01	1.82E-01	7.35E-05	2.33E+02	1.03E+00
100	E100SP	14	14	4.95E-03	1.01E-02	3.09E-06	2.18E-01	1.11E-03	5.37E-02	5.96E-01	1.68E-01	6.52E-05	2.10E+02	9.14E-01

Indicator Strength (MPa)	Classification Code	GWPT kg CO_2 eq.	GWPF kg CO_2 eq.	GWPB kg CO_2 eq.	GWPL kg CO_2 eq.	ODP kg CFC 11 eq.	AP mol H^+ eq.	EPF kg P eq.	EPM kg N eq.	EPT mol N eq.	POCP kg MNVOC eq.	ADPE* kg Sb eq.	ADPF* MJ (NCV)	WDP* m^3
40	EGRA47	16	16	6.98E-03	1.08E-02	3.38E-06	1.68E-01	1.37E-03	4.14E-02	4.58E-01	1.37E-01	8.22E-05	2.32E+02	1.14E+00
40	E40PT22N3M	15	15	6.10E-03	1.02E-02	3.17E-06	1.78E-01	1.24E-03	4.40E-02	4.87E-01	1.43E-01	7.40E-05	2.17E+02	1.03E+00
40	E40PT22N3	15	15	6.21E-03	1.02E-02	3.18E-06	1.74E-01	1.25E-03	4.30E-02	4.76E-01	1.40E-01	7.49E-05	2.18E+02	1.04E+00
50	E50PT22N3	14	14	5.77E-03	9.92E-03	3.08E-06	1.79E-01	1.19E-03	4.42E-02	4.90E-01	1.43E-01	7.08E-05	2.10E+02	9.87E-01
Kerb 280kg	EKB280	14	14	6.84E-03	9.87E-03	3.12E-06	1.37E-01	1.30E-03	3.39E-02	3.76E-01	1.15E-01	7.86E-05	2.15E+02	1.09E+00
Kerb 320kg	EKB320	14	14	6.64E-03	9.84E-03	3.10E-06	1.44E-01	1.28E-03	3.55E-02	3.93E-01	1.19E-01	7.70E-05	2.13E+02	1.07E+00
	Other													
40	E40SPLS	17	17	7.22E-03	1.18E-02	3.66E-06	1.98E-01	1.45E-03	4.89E-02	5.42E-01	1.60E-01	8.67E-05	2.51E+02	1.21E+00
50	E50SPHE	16	16	6.90E-03	1.11E-02	3.47E-06	1.85E-01	1.38E-03	4.58E-02	5.07E-01	1.50E-01	8.26E-05	2.38E+02	1.15E+00
65	E65SPHE	17	17	6.79E-03	1.16E-02	3.59E-06	2.07E-01	1.39E-03	5.10E-02	5.65E-01	1.65E-01	8.30E-05	2.46E+02	1.16E+00
65	E65N56PUD	14	14	5.27E-03	9.64E-03	2.97E-06	1.87E-01	1.12E-03	4.61E-02	5.11E-01	1.47E-01	6.63E-05	2.03E+02	9.25E-01
32	E32700	14	14	6.35E-03	9.85E-03	3.09E-06	1.55E-01	1.25E-03	3.82E-02	4.23E-01	1.26E-01	7.49E-05	2.12E+02	1.04E+00
32	E32600	17	17	7.59E-03	1.16E-02	3.65E-06	1.79E-01	1.48E-03	4.42E-02	4.90E-01	1.47E-01	8.91E-05	2.51E+02	1.24E+00
40	E40700	14	14	6.23E-03	9.95E-03	3.11E-06	1.63E-01	1.24E-03	4.02E-02	4.46E-01	1.32E-01	7.43E-05	2.13E+02	1.03E+00
50	E50700	14	14	5.77E-03	9.92E-03	3.08E-06	1.79E-01	1.19E-03	4.42E-02	4.90E-01	1.43E-01	7.08E-05	2.10E+02	9.87E-01
50	E50600	17	17	6.49E-03	1.18E-02	3.63E-06	2.26E-01	1.37E-03	5.58E-02	6.18E-01	1.78E-01	8.14E-05	2.48E+02	1.14E+00
32	EFM32	13	13	6.50E-03	9.21E-03	2.92E-06	1.24E-01	1.23E-03	3.05E-02	3.38E-01	1.05E-01	7.42E-05	2.01E+02	1.03E+00
50	EFM50	13	13	5.43E-03	8.80E-03	2.75E-06	1.47E-01	1.09E-03	3.64E-02	4.03E-01	1.19E-01	6.52E-05	1.88E+02	9.06E-01

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

Additional mandatory impact categories results A2

Table 23 Additional potential environmental impact indicator results per m³ of concrete according to EN 15804:2012+A2:2019 results (A2)

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Pronto Green - e-Mix - Lower Carbon Concrete Products								
20	EPG20F	13	1.40E-06	9.30E-01	1.71E+02	7.60E-09	1.15E-07	2.17E+02
20	EPG20	13	1.40E-06	9.36E-01	1.71E+02	7.69E-09	1.15E-07	2.16E+02
25	EPG25	13	1.38E-06	9.30E-01	1.70E+02	7.65E-09	1.14E-07	2.13E+02
32	EPG32	13	1.39E-06	9.47E-01	1.72E+02	7.82E-09	1.15E-07	2.14E+02
40	EPG40F	13	1.41E-06	9.58E-01	1.74E+02	7.91E-09	1.17E-07	2.16E+02
40	EPG40	13	1.36E-06	9.41E-01	1.70E+02	7.83E-09	1.14E-07	2.08E+02
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products								
40	EPT4035	14	1.39E-06	9.69E-01	1.75E+02	8.07E-09	1.17E-07	2.13E+02
40	EPT4050	13	1.37E-06	9.34E-01	1.70E+02	7.72E-09	1.14E-07	2.11E+02
40	EPT4065	12	1.35E-06	9.00E-01	1.65E+02	7.37E-09	1.11E-07	2.09E+02
40	EPT4735	15	1.56E-06	1.08E+00	1.95E+02	9.03E-09	1.31E-07	2.38E+02
Normal Class								
20	EN20	13	1.43E-06	9.61E-01	1.76E+02	7.91E-09	1.18E-07	2.20E+02
25	EN25	13	1.41E-06	9.56E-01	1.74E+02	7.89E-09	1.17E-07	2.17E+02
32	EN32	14	1.45E-06	9.92E-01	1.80E+02	8.20E-09	1.21E-07	2.24E+02
40	EN40	14	1.45E-06	1.00E+00	1.81E+02	8.32E-09	1.21E-07	2.22E+02

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
50	EN50	14	1.37E-06	9.79E-01	1.75E+02	8.24E-09	1.17E-07	2.08E+02
	Vic Dept of Transport & Planning Projects							
32	EVR330	16	1.66E-06	1.16E+00	2.09E+02	9.70E-09	1.40E-07	2.54E+02
40	EVR400	16	1.61E-06	1.15E+00	2.05E+02	9.65E-09	1.37E-07	2.44E+02
50	EVR450	16	1.52E-06	1.12E+00	1.97E+02	9.52E-09	1.32E-07	2.27E+02
	Special Applications							
40	E40SP	15	1.51E-06	1.05E+00	1.89E+02	8.73E-09	1.26E-07	2.30E+02
50	E50SP	15	1.48E-06	1.04E+00	1.87E+02	8.72E-09	1.25E-07	2.25E+02
50	E50SPLS	14	1.49E-06	1.01E+00	1.85E+02	8.35E-09	1.24E-07	2.30E+02
65	E65SP	15	1.41E-06	1.02E+00	1.81E+02	8.62E-09	1.21E-07	2.13E+02
80	E80SP	14	1.32E-06	9.90E-01	1.74E+02	8.49E-09	1.16E-07	1.96E+02
80	E80SPHE	16	1.42E-06	1.09E+00	1.90E+02	9.45E-09	1.26E-07	2.09E+02
100	E100SP	14	1.26E-06	9.83E-01	1.70E+02	8.54E-09	1.13E-07	1.84E+02
40	EGRA47	15	1.57E-06	1.10E+00	1.98E+02	9.14E-09	1.32E-07	2.40E+02
40	E40PT22N3M	15	1.42E-06	1.02E+00	1.82E+02	8.65E-09	1.22E-07	2.15E+02
40	E40PT22N3	15	1.44E-06	1.03E+00	1.83E+02	8.65E-09	1.23E-07	2.17E+02
50	E50PT22N3	14	1.36E-06	9.91E-01	1.76E+02	8.40E-09	1.17E-07	2.05E+02
Kerb 280kg	EKB280	14	1.50E-06	1.02E+00	1.86E+02	8.39E-09	1.24E-07	2.32E+02
Kerb 320kg	EKB320	14	1.47E-06	1.01E+00	1.83E+02	8.36E-09	1.23E-07	2.26E+02

Indicator Strength (MPa)	Classification Code	GWP-GHG kg CO_2 eq.	PM Disease incidence	IRP** kBq U-235 eq.	ETPF* CTUe	HTPC* CTUh	HTPNC* CTUh	SQP* Dimensionless
Other								
40	E40SPLS	17	1.67E-06	1.19E+00	2.12E+02	9.97E-09	1.42E-07	2.52E+02
50	E50SPHE	16	1.59E-06	1.12E+00	2.01E+02	9.44E-09	1.35E-07	2.41E+02
65	E65SPHE	17	1.60E-06	1.16E+00	2.05E+02	9.80E-09	1.37E-07	2.40E+02
65	E65N56PUD	14	1.28E-06	9.52E-01	1.67E+02	8.15E-09	1.12E-07	1.90E+02
32	E32700	14	1.44E-06	1.00E+00	1.80E+02	8.36E-09	1.21E-07	2.19E+02
32	E32600	17	1.71E-06	1.19E+00	2.14E+02	9.87E-09	1.43E-07	2.61E+02
40	E40700	14	1.43E-06	1.01E+00	1.81E+02	8.44E-09	1.21E-07	2.17E+02
50	E50700	14	1.36E-06	9.91E-01	1.76E+02	8.40E-09	1.17E-07	2.05E+02
50	E50600	17	1.57E-06	1.17E+00	2.05E+02	9.96E-09	1.37E-07	2.33E+02
32	EFM32	13	1.42E-06	9.53E-01	1.74E+02	7.83E-09	1.17E-07	2.19E+02
50	EFM50	13	1.25E-06	8.88E-01	1.59E+02	7.47E-09	1.06E-07	1.90E+02

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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.

Resource use indicators A2

Table 24 Resource use indicator results per m³ of concrete for A2

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Pronto Green – e-Mix - Lower Carbon Concrete Products											
20	EPG20F	2.17E-01	0.00E+00	2.17E-01	2.28E+01	0.00E+00	2.28E+01	1.04E-02	5.64E-05	0.00E+00	1.87E-03
20	EPG20	2.37E-01	0.00E+00	2.37E-01	2.58E+01	0.00E+00	2.58E+01	1.18E-02	5.92E-05	0.00E+00	2.02E-03
25	EPG25	2.48E-01	0.00E+00	2.48E-01	2.74E+01	0.00E+00	2.74E+01	1.25E-02	6.03E-05	0.00E+00	2.11E-03
32	EPG32	2.71E-01	0.00E+00	2.71E-01	3.07E+01	0.00E+00	3.07E+01	1.41E-02	6.38E-05	0.00E+00	2.29E-03
40	EPG40F	2.75E-01	0.00E+00	2.75E-01	3.11E+01	0.00E+00	3.11E+01	1.43E-02	6.46E-05	0.00E+00	2.32E-03
40	EPG40	3.05E-01	0.00E+00	3.05E-01	3.58E+01	0.00E+00	3.58E+01	1.65E-02	6.79E-05	0.00E+00	2.55E-03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products											
40	EPT4035	3.19E-01	0.00E+00	3.19E-01	3.76E+01	0.00E+00	3.76E+01	1.74E-02	7.06E-05	0.00E+00	2.67E-03
40	EPT4050	2.70E-01	0.00E+00	2.70E-01	3.06E+01	0.00E+00	3.06E+01	1.40E-02	6.32E-05	0.00E+00	2.27E-03
40	EPT4065	2.21E-01	0.00E+00	2.21E-01	2.36E+01	0.00E+00	2.36E+01	1.08E-02	5.59E-05	0.00E+00	1.88E-03
40	EPT4735	3.56E-01	0.00E+00	3.56E-01	4.20E+01	0.00E+00	4.20E+01	1.94E-02	7.88E-05	0.00E+00	2.97E-03
Normal Class											
20	EN20	2.55E-01	0.00E+00	2.55E-01	2.82E+01	0.00E+00	2.82E+01	1.29E-02	6.22E-05	0.00E+00	2.17E-03
25	EN25	2.68E-01	0.00E+00	2.68E-01	3.01E+01	0.00E+00	3.01E+01	1.38E-02	6.36E-05	0.00E+00	2.26E-03
32	EN32	2.88E-01	0.00E+00	2.88E-01	3.28E+01	0.00E+00	3.28E+01	1.51E-02	6.74E-05	0.00E+00	2.43E-03
40	EN40	3.17E-01	0.00E+00	3.17E-01	3.69E+01	0.00E+00	3.69E+01	1.70E-02	7.13E-05	0.00E+00	2.65E-03
50	EN50	3.73E-01	0.00E+00	3.73E-01	4.55E+01	0.00E+00	4.55E+01	2.11E-02	7.77E-05	0.00E+00	3.08E-03

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Vic Department of Transport & Planning Projects											
32	EVR330	3.93E-01	0.00E+00	3.93E-01	4.65E+01	0.00E+00	4.65E+01	2.15E-02	8.59E-05	0.00E+00	3.27E-03
40	EVR400	4.32E-01	0.00E+00	4.32E-01	5.25E+01	0.00E+00	5.25E+01	2.43E-02	9.04E-05	0.00E+00	3.57E-03
50	EVR450	4.95E-01	0.00E+00	4.95E-01	6.23E+01	0.00E+00	6.23E+01	2.90E-02	9.75E-05	0.00E+00	4.06E-03
Special Applications											
40	E40SP	3.48E-01	0.00E+00	3.48E-01	4.11E+01	0.00E+00	4.11E+01	1.90E-02	7.66E-05	0.00E+00	2.90E-03
50	E50SP	3.70E-01	0.00E+00	3.70E-01	4.45E+01	0.00E+00	4.45E+01	2.06E-02	7.93E-05	0.00E+00	3.07E-03
50	E50SPLS	2.80E-01	0.00E+00	2.80E-01	3.14E+01	0.00E+00	3.14E+01	1.44E-02	6.70E-05	0.00E+00	2.37E-03
65	E65SP	4.14E-01	0.00E+00	4.14E-01	5.11E+01	0.00E+00	5.11E+01	2.37E-02	8.41E-05	0.00E+00	3.41E-03
80	E80SP	4.73E-01	0.00E+00	4.73E-01	6.03E+01	0.00E+00	6.03E+01	2.81E-02	9.07E-05	0.00E+00	3.86E-03
80	E80SPHE	5.73E-01	0.00E+00	5.73E-01	7.41E+01	0.00E+00	7.41E+01	3.46E-02	1.07E-04	0.00E+00	4.66E-03
100	E100SP	5.38E-01	0.00E+00	5.38E-01	7.01E+01	0.00E+00	7.01E+01	3.27E-02	9.88E-05	0.00E+00	4.37E-03
40	EGRA47	3.64E-01	0.00E+00	3.64E-01	4.30E+01	0.00E+00	4.30E+01	1.98E-02	8.02E-05	0.00E+00	3.04E-03
40	E40PT22N3M	4.08E-01	0.00E+00	4.08E-01	5.03E+01	0.00E+00	5.03E+01	2.33E-02	8.35E-05	0.00E+00	3.36E-03
40	E40PT22N3	3.95E-01	0.00E+00	3.95E-01	4.82E+01	0.00E+00	4.82E+01	2.24E-02	8.19E-05	0.00E+00	3.26E-03
50	E50PT22N3	4.16E-01	0.00E+00	4.16E-01	5.18E+01	0.00E+00	5.18E+01	2.41E-02	8.35E-05	0.00E+00	3.42E-03
Kerb 280kg	EKB280	2.81E-01	0.00E+00	2.81E-01	3.14E+01	0.00E+00	3.14E+01	1.44E-02	6.72E-05	0.00E+00	2.38E-03
Kerb 320kg	EKB320	3.02E-01	0.00E+00	3.02E-01	3.45E+01	0.00E+00	3.45E+01	1.59E-02	6.96E-05	0.00E+00	2.53E-03

Indicator Strength (MPa)	Classification Code	PERE MJ NCV	PERM MJ NCV	PERT MJ NCV	PENRE MJ NCV	PENRM MJ NCV	PENRT MJ NCV	SM kg	RSF MJ NCV	NRSF MJ NCV	FW m3
Other											
40	E40SPLS	4.47E-01	0.00E+00	4.47E-01	5.44E+01	0.00E+00	5.44E+01	2.52E-02	9.35E-05	0.00E+00	3.70E-03
50	E50SPHE	4.16E-01	0.00E+00	4.16E-01	5.03E+01	0.00E+00	5.03E+01	2.33E-02	8.76E-05	0.00E+00	3.44E-03
65	E65SPHE	4.77E-01	0.00E+00	4.77E-01	5.92E+01	0.00E+00	5.92E+01	2.75E-02	9.65E-05	0.00E+00	3.93E-03
65	E65N56PUD	4.45E-01	0.00E+00	4.45E-01	5.65E+01	0.00E+00	5.65E+01	2.63E-02	8.60E-05	0.00E+00	3.64E-03
32	E32700	3.37E-01	0.00E+00	3.37E-01	4.00E+01	0.00E+00	4.00E+01	1.85E-02	7.39E-05	0.00E+00	2.81E-03
32	E32600	3.87E-01	0.00E+00	3.87E-01	4.55E+01	0.00E+00	4.55E+01	2.10E-02	8.59E-05	0.00E+00	3.23E-03
40	E40700	3.63E-01	0.00E+00	3.63E-01	4.37E+01	0.00E+00	4.37E+01	2.02E-02	7.72E-05	0.00E+00	3.01E-03
50	E50700	4.16E-01	0.00E+00	4.16E-01	5.18E+01	0.00E+00	5.18E+01	2.41E-02	8.35E-05	0.00E+00	3.42E-03
50	E50600	5.37E-01	0.00E+00	5.37E-01	6.80E+01	0.00E+00	6.80E+01	3.17E-02	1.04E-04	0.00E+00	4.39E-03
32	EFM32	2.47E-01	0.00E+00	2.47E-01	2.71E+01	0.00E+00	2.71E+01	1.24E-02	6.09E-05	0.00E+00	2.10E-03
50	EFM50	3.31E-01	0.00E+00	3.31E-01	4.02E+01	0.00E+00	4.02E+01	1.86E-02	6.96E-05	0.00E+00	2.74E-03

Waste flows A2

Table 25 Waste flow results per m³ of concrete for A2

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
Pronto Green e-Mix - Lower Carbon Concrete Products				
20	EPG20F	1.37E-02	3.44E-01	3.30E-06
20	EPG20	1.53E-02	3.75E-01	3.62E-06
25	EPG25	1.61E-02	3.92E-01	3.78E-06
32	EPG32	1.79E-02	4.28E-01	4.14E-06
40	EPG40F	1.81E-02	4.33E-01	4.20E-06
40	EPG40	2.06E-02	4.80E-01	4.67E-06
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products				
40	EPT4035	2.16E-02	5.02E-01	4.89E-06
40	EPT4050	1.78E-02	4.25E-01	4.11E-06
40	EPT4065	1.41E-02	3.49E-01	3.35E-06
40	EPT4735	2.41E-02	5.61E-01	5.45E-06
Normal Class				
20	EN20	1.66E-02	4.03E-01	3.89E-06
25	EN25	1.76E-02	4.22E-01	4.08E-06
32	EN32	1.91E-02	4.55E-01	4.40E-06
40	EN40	2.13E-02	4.98E-01	4.84E-06
50	EN50	2.58E-02	5.85E-01	5.72E-06
Vic Department of Transport & Planning Projects				
32	EVR330	2.67E-02	6.17E-01	6.01E-06
40	EVR400	2.98E-02	6.77E-01	6.62E-06
50	EVR450	3.49E-02	7.76E-01	7.61E-06
Special Applications				
40	E40SP	2.36E-02	5.47E-01	5.32E-06
50	E50SP	2.53E-02	5.82E-01	5.67E-06
50	E50SPLS	1.84E-02	4.42E-01	4.28E-06
65	E65SP	2.88E-02	6.48E-01	6.35E-06
80	E80SP	3.36E-02	7.40E-01	7.27E-06
80	E80SPHE	4.11E-02	8.96E-01	8.82E-06
100	E100SP	3.87E-02	8.41E-01	8.29E-06

Indicator Strength (MPa)	Classification Code	HWD kg	NHWD kg	RWD kg
40	EGRA47	2.47E-02	5.73E-01	5.57E-06
40	E40PT22N3M	2.84E-02	6.40E-01	6.26E-06
40	E40PT22N3	2.73E-02	6.19E-01	6.05E-06
50	E50PT22N3	2.91E-02	6.52E-01	6.39E-06
Kerb 280kg	EKB280	1.84E-02	4.43E-01	4.29E-06
Kerb 320kg	EKB320	2.00E-02	4.75E-01	4.61E-06
	Other			
40	E40SPLS	3.09E-02	7.02E-01	6.86E-06
50	E50SPHE	2.86E-02	6.52E-01	6.37E-06
65	E65SPHE	3.33E-02	7.48E-01	7.33E-06
65	E65N56PUD	3.15E-02	6.96E-01	6.84E-06
32	E32700	2.29E-02	5.31E-01	5.17E-06
32	E32600	2.61E-02	6.09E-01	5.92E-06
40	E40700	2.49E-02	5.70E-01	5.56E-06
50	E50700	2.91E-02	6.52E-01	6.39E-06
50	E50600	3.80E-02	8.40E-01	8.25E-06
32	EFM32	1.60E-02	3.91E-01	3.77E-06
50	EFM50	2.28E-02	5.20E-01	5.08E-06

Output flows A2

Table 26 Output flow results per m³ of concrete for A2

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
Pronto Green – e-Mix - Lower Carbon Concrete Products					
20	EPG20F	0.00E+00	1.72E-03	5.81E-07	2.47E-03
20	EPG20	0.00E+00	2.04E-03	6.30E-07	2.68E-03
25	EPG25	0.00E+00	2.24E-03	6.55E-07	2.79E-03
32	EPG32	0.00E+00	2.59E-03	7.12E-07	3.03E-03
40	EPG40F	0.00E+00	2.63E-03	7.21E-07	3.07E-03
40	EPG40	0.00E+00	3.17E-03	7.93E-07	3.37E-03
Pronto e-Mix – High Early Strength - Lower Carbon Concrete Products					
40	EPT4035	0.00E+00	3.35E-03	8.29E-07	3.53E-03
40	EPT4050	0.00E+00	2.59E-03	7.07E-07	3.01E-03
40	EPT4065	0.00E+00	1.83E-03	5.87E-07	2.49E-03
40	EPT4735	0.00E+00	3.73E-03	9.25E-07	3.94E-03
Normal Class					
20	EN20	0.00E+00	2.29E-03	6.75E-07	2.87E-03
25	EN25	0.00E+00	2.51E-03	7.04E-07	2.99E-03
32	EN32	0.00E+00	2.78E-03	7.56E-07	3.21E-03
40	EN40	0.00E+00	3.24E-03	8.25E-07	3.51E-03
50	EN50	0.00E+00	4.23E-03	9.59E-07	4.08E-03
Vic Department of Transport & Planning Projects					
32	EVR330	0.00E+00	4.18E-03	1.02E-06	4.33E-03
40	EVR400	0.00E+00	4.86E-03	1.11E-06	4.73E-03
50	EVR450	0.00E+00	6.00E-03	1.26E-06	5.37E-03
Special Applications					
40	E40SP	0.00E+00	3.67E-03	9.03E-07	3.84E-03
50	E50SP	0.00E+00	4.06E-03	9.56E-07	4.07E-03
50	E50SPLS	0.00E+00	2.60E-03	7.38E-07	3.14E-03
65	E65SP	0.00E+00	4.83E-03	1.06E-06	4.51E-03
80	E80SP	0.00E+00	5.89E-03	1.20E-06	5.11E-03
80	E80SPHE	0.00E+00	7.36E-03	1.45E-06	6.16E-03
100	E100SP	0.00E+00	7.00E-03	1.36E-06	5.78E-03
40	EGRA47	0.00E+00	3.84E-03	9.45E-07	4.02E-03

Indicator Strength (MPa)	Classification Code	CRU kg	MFR kg	MER kg	EE MJ
40	E40PT22N3M	0.00E+00	4.73E-03	1.05E-06	4.45E-03
40	E40PT22N3	0.00E+00	4.49E-03	1.01E-06	4.31E-03
50	E50PT22N3	0.00E+00	4.93E-03	1.06E-06	4.53E-03
Kerb 280kg	EKB280	0.00E+00	2.61E-03	7.40E-07	3.14E-03
Kerb 320kg	EKB320	0.00E+00	2.97E-03	7.89E-07	3.35E-03
	Other				
40	E40SPLS	0.00E+00	5.05E-03	1.15E-06	4.89E-03
50	E50SPHE	0.00E+00	4.64E-03	1.07E-06	4.55E-03
65	E65SPHE	0.00E+00	5.62E-03	1.22E-06	5.20E-03
65	E65N56PUD	0.00E+00	5.50E-03	1.13E-06	4.81E-03
32	E32700	0.00E+00	3.59E-03	8.75E-07	3.72E-03
32	E32600	0.00E+00	4.04E-03	1.01E-06	4.28E-03
40	E40700	0.00E+00	4.00E-03	9.36E-07	3.98E-03
50	E50700	0.00E+00	4.93E-03	1.06E-06	4.53E-03
50	E50600	0.00E+00	6.60E-03	1.36E-06	5.81E-03
32	EFM32	0.00E+00	2.17E-03	6.55E-07	2.78E-03
50	EFM50	0.00E+00	3.72E-03	8.53E-07	3.63E-03

Environmental impact indicator results A3

As the shared overheads of the batching plant are distributed evenly per cubic metre of concrete in the model, the results for each indicator in Module A3 are consistent for all mixes when declared per cubic metre. The following tables present the environmental impact indicator results for 1 cubic metre of concrete produced at Pronto.

Table 27 Mandatory potential environmental impact indicator results per m³ of concrete for A3 according to EN 15804:2012+A2:2019

Indicator	GWPT	GWPF	GWPB	GWPL	ODP	AP	EPF	EPM	EPT	POCP	ADPE*	ADPF*	WDP*
Unit	kg CO_2 eq.	kg CO_2 eq.	kg CO_2 eq.	kg CO_2 eq.	kg CFC 11 eq.	mol H^+ eq.	kg P eq.	kg N eq.	mol N eq.	kg MNVOC eq.	kg Sb eq.	MJ (NCV)	m^3
	5	5	-6.63E-02	4.26E-03	2.04E-07	4.52E-02	1.90E-03	5.89E-03	6.86E-02	1.94E-02	4.25E-04	4.43E+01	1.35E+01

Table 28 Additional potential environmental impact indicator results per m³ of concrete according to EN 15804:2012+A2:2019 (A3)

Indicator	GWP-GHG	PM	IRP**	ETPF*	HTPC*	HTPNC*	SQP*
Unit	kg CO_2 eq.	Disease incidence	kBq U-235 eq.	CTUe	CTUh	CTUh	Dimensionless
	5	5.03E-07	1.22E-01	1.80E+02	1.01E-08	2.74E-07	7.31E+01

Table 29 Resource use indicator results per m³ of concrete for A3

Indicator	PERE	PERM	PERT	PENRE	PENRM	PENRT	SM	RSF	NRSF	FW
Unit	MJ NCV	MJ NCV	MJ NCV	MJ NCV	MJ NCV	MJ NCV	kg	MJ NCV	MJ NCV	m3
	5.50E+00	0.00E+00	5.50E+00	6.05E+01	0.00E+00	6.05E+01	1.28E-01	9.46E-04	0.00E+00	1.50E-02

Table 30 Waste flow results per m³ of concrete for A3

Indicator	HWD	NHWD	RWD
Unit	**kg**	**kg**	**kg**
	2.52E-03	6.80E+00	1.95E-05

Table 31 Output flow results per m³ of concrete for A3

Indicator	CRU	MFR	MER	EE
Unit	kg	kg	kg	MJ
	0.00E+00	1.87E-02	1.07E-05	4.35E-02

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and 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.