# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

**EPD HUB, HUB-5314**
Published on 10.02.2026, last updated on 10.02.2026, valid until 09.02.2031

## AN2520100Enhanced

Tandy Concrete

This EPD is intended for business-to-business and/or business-to-consumer communication. Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

## MANUFACTURER AND SITE

| | |
|---|---|
| Manufacturer | Tandy Concrete |
| Address | 21 Mackay Slade Point Road, Mackay, Australia |
| Contact details | sales@tandygroup.com.au |
| Website | www.tandygroup.com.au |
| Place of production | 21 Mackay Slade Point Road, Mackay, Auutralia |
| Place(s) of raw material origin | Australia |
| Place(s) of installation and use | Australia |
| Period for data | 1st July 2024 to 30th June 2025 |

## EPD STANDARDS, SCOPE AND VERIFICATION

| | |
|---|---|
| Program operator | EPD Hub, hub@epdhub.com |
| Reference standard | EN 15804:2012+A2:2019/AC:2021 and ISO 14025 |
| PCR | EPD Hub Core PCR version 1.2, 24 Mar 2025 |
| cPCR | EN 16757 Product Category Rules for concrete and concrete elements |
| Sector | Construction product |
| Category of EPD | Third party verified EPD |
| Parent EPD number | - |
| Scope of the EPD | Cradle to gate with options, A4-A5, and modules C1-C4, D |
| EPD author | Niki Jackson, EPD on DemaND |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification<br>☑ External verification |
| EPD verifier | Vera Durão, as an authorised verifier acting for EPD Hub Limited |

## PRODUCT SPECIFICATION

| | |
|---|---|
| Product name | AN2520100Enhanced |
| Concrete type | Ready-mix concrete |
| Product standards | AS 1379-2007 |
| Additional characteristic | - |
| GTIN (Global Trade Item Number) | - |
| NOBB (Norwegian Building Product Database) | - |
| A1-A3 Specific data (%) | 17.8 |

## PRODUCT DESCRIPTION

This ready-mixed concrete product is produced in accordance with AS1379:2007(2017) Specification and supply of concrete. The raw materials are proportioned so as to achieve a characteristic strength of 25MPa in accordance with the requirements of clause 6 of that Standard. The nominal maximum aggregate size is 20mm and the nominal consistence is 100mm slump when measured in accordance AS1012.3.1 Determination of properties related to the consistency of concrete - Slump test.

Application: General concrete works

## PRODUCT CHARACTERISTICS

**Compressive strength class:**
N25
**Strength evaluation days:**
28 days
**Exposure class:**
A1

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| Declared unit | 1 cubic meter |
| Declared unit mass, kg | 2342 |
| GWP-total, A1-A3 (kg $CO_2$e) | 206 |
| GWP-fossil, A1-A3 (kg $CO_2$e) | 206 |
| Secondary material, inputs (%) | 0.44 |
| Secondary material, outputs (%) | 70 |
| Total energy use, A1-A3 (kWh) | 183 |
| Net freshwater use, A1-A3 ($m^3$) | 5.79E-01 |

## WHO WE ARE

Tandy Concrete is an independently family-owned Australian pre-mixed concrete supply company proudly established in 1968. As part of the Tandy Group employing over 100 staff across Queensland. We have grown to be become a trusted and reliable concrete supplier throughout Central Queensland.
We supply high-quality pre-mix concrete produced to Australian Standards ensuring our customers receive consistent and reliable materials to all construction applications. All raw materials are sourced from trusted suppliers and meet or exceed the required specifications.

We operate fixed concrete batch plants in Airlie Beach, Mackay, Marian, Rockhampton and Yeppoon. We can also provide mobile site plants for major projects and remote locations. Our modern well-maintained transport fleet ensures we can confidently meet the evolving needs of our customers.

We offer a full range of concrete products including not limited to:

- N & S Grade (20–50+ MPa)
- Flowable fill
- Stabilised sands
- Block fills
- Spray mixes
- Shotcrete

Our fixed and mobile plants are supported by modern fleet of agitator trucks, including six-metre, nine-metre and mini agitators. These trucks can be moved from any of sites to meet the specific needs of each project.

Through vertical integration Tandy Group also own and operate TMR approved hard rock quarries and multiple sand plants allowing us to maintain consistent quality, dependable supply and competitive pricing.

Tandy Concrete has contributed to numerous significant projects including but not limited to:

| Project Name: | Location: |
|---|---|
| Catherine McAuley | Mackay |
| Resource Centre of Excellence | Mackay |
| Jenmar | Mackay |
| Richglen | Mackay |
| Aldi | Mackay/Airlie |
| Shute Harbour Units | Airlie Beach |
| Followmont Transport | Mackay |
| Hastings Deering Stage 2 | Mackay |
| Bunnings Stores | Mackay |
| Hastings Deering Stage 1 | Mackay |
| Alliance Aircraft Hanger | Rockhampton |
| Project Name: | Location: |
| Mental Health Unit | Rockhampton |
| St Brendan's College | Yeppoon |
| Edge Apartments 12 Story | Rockhampton |
| Echelon Apartments 9 Story | Rockhampton |
| Hospital Bridge | Mackay |
| Gargett Bridge | Gargett |
| Hay Point Expansion – HPX 3 | Hay Point |

We are equally proud to support local builders delivering high quality concrete solutions for residential, commercial, and civil applications across the region.

## QUALITY MANAGEMENT

Tandy Concrete is committed to maintaining the highest standards of quality across all operations. Our quality management processes ensure every load of concrete meets industry, regulatory, and customer requirements.

**Our Quality Assurance Measures**
**Regular Raw Material Testing**
All raw materials are tested regularly by external NATA-certified laboratories to ensure compliance and performance.
**Approved Material Sources**
All aggregates and raw materials used in concrete production are sourced exclusively from Department of Transport & Main Roads (DTMR) source assessed sites.
**Compliance with Australian Standards**
All concrete is manufactured in accordance with Australian Standard AS 1379 and all cement powders and chemical additives comply with their respective Australian Standards.
**Documented Mix Designs**
Every batch is produced to approved mix designs with detailed records of all additives logged, stored, and traceable in our Axi batch software.
**Plant Calibration**
All concrete plants undergo full weights and measures recalibration every six months by NATA-accredited calibrators.
**Fleet & Insurance**
Our transport fleet is fully insured, including $30 million third-party property damage coverage.
Innovation & Continuous Improvement
Innovation has always been integral to the way we operate. Over the years Tandy Concrete has delivered many industry firsts driven by our willingness to explore new solutions rather than limiting the services we provide. We continually invest in research, testing, and collaboration to ensure our products meet the evolving needs of our customers and the industries we support.

## INNOVATION & CONTINUOUS IMPROVEMENT

Innovation has always been integral to the way we operate. Over the years Tandy Concrete has delivered many industry firsts driven by our willingness to explore new solutions rather than limiting the services we provide. We continually invest in research, testing, and collaboration to ensure our products meet the evolving needs of our customers and the industries we support.

**Recent examples of our innovative concrete solutions include:**

**High-strength underwater concrete:**
A specialized liquid concrete mix designed with an anti-washout admixture capable of being pumped 20 meters underwater while maintaining structural integrity. This mix was developed for pylon remediation works in the Ocean at Hay Point Coal Terminal.

**High-performance fiber-reinforced mix:**
A custom fiber concrete mix design that delivered both exceptional strength and superior finish ability engineered specifically for super-flat flooring applications during the Hastings Deering robotic pallet racking up-grade.

**Lightweight concrete utilizing polystyrene beads:**
A carefully engineered lightweight mix incorporating expanded polystyrene beads to significantly reduce density and overall concrete weight. This solution is ideal for projects requiring lower loading on existing concrete structures, enabling safe upgrades and extensions without compromising structural performance. This mix was developed for a multimillion-dollar waterfront mansion on Airlie Beaches waterfront.

These projects demonstrate our commitment to pushing boundaries, solving complex challenges, and delivering tailored solutions that meet the highest technical standards

## CONCLUSION

Tandy Concrete remains committed to delivering high-performing concrete solutions backed by reliability, technical expertise, and a genuine focus on customer success. With a strong regional footprint, integrated supply chain, and an ongoing drive for innovation we continue to support Central Queensland's growth providing the foundations for projects of every scale. Our history, capability, and dedication ensure we are well positioned to meet the challenges of today and the opportunities of tomorrow.

# LIFE CYCLE ASSESSMENT

## SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

| Product stage | | | Assembly stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| x | x | x | x | x | ND | ND | ND | ND | ND | ND | ND | x | x | x | x | x |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy | Operational water | Deconstr./demol. | Transport | Waste processing | Disposal | Reuse, Recovery, Recycling |

*Modules not declared = ND.*

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

## VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

| Data type | Allocation |
|---|---|
| Raw materials | No allocation |
| Packaging materials | Not applicable |
| Ancillary materials | Allocated by mass |
| Manufacturing energy and waste | Allocated by mass |

- Economic allocation has been applied to the fly ash in the upstream generic process
- Fuel used for mixing 1m$^3$ of concrete was determined based on a 10-minute mixing time of the average load size of 6.2m3, for diesel burned in the full mixing mode of the concrete agitator barrel
- A market-based approach is used in modelling the electricity mix utilised in the factory. Renewables have been removed to provide a conservative approach, with electricity being less than 0.3% of the total impact; this would have very little impact on the results
- Distribution Loss Factor (DLF) of 1.033 was applied to the electricity
- Electricity is composed of 81.10% Coal, 16.66% Gas and 2.24% Oil
- Transport factors for raw materials, Aggregates 31-54km, Admixtures 950-980km, Cement 430-450km
- A4, Distance of 11km is assumed
- A5, 3% waste, and 73.62MJ of diesel consumed

This EPD is product and factory specific.

## PRODUCT & MANUFACTURING SITES GROUPING

| | |
|---|---|
| Type of grouping | No grouping |
| Grouping method | Not applicable |
| Variation in GWP-fossil for A1-A3, % | - |

## PRODUCT RAW MATERIAL MAIN COMPOSITION

The product is a ready-mix concrete consisting of aggregates, cement, filler, admixtures, and water. Main material categories as per EPD Hub GPI are shown below:

| Raw material category | Amount, mass- % | Material origin |
|---|---|---|
| Metals | 0 | - |
| Minerals | 100 | Australia |
| Fossil materials | 0 | - |
| Bio-based materials | 0 | - |

## SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

## BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

| | |
|---|---|
| Biogenic carbon content in product, kg C | - |

# PRODUCT LIFE CYCLE

## MANUFACTURING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. Also the fuel used in mixing of the concrete

Ready-mix concrete production is manufactured in line with the Australian Standard AS 1379:2007, “Specification and supply of concrete”. The process starts by transporting the binders, aggregates, and admixtures to the manufacturing site in trucks. Materials are stored on site in bulk silos, storage bins and bulk tanks. All the dry ingredients are weighed and added to the wet mixer or the agitator truck. Admixtures are generally added with the batch water. The raw materials are mixed to produce a heterogenous mixture of concrete and, in the case of wet mixers, discharged into a truck, for transport and delivery to the construction site.

No packaging is included as the product is transported with mixer trucks.

## TRANSPORT AND INSTALLATION (A4-A5)

Concrete is transported to the construction site by standard agitator trucks. The impacts associated with transport (A4) include direct exhaust emissions from fuel combustion, the environmental impacts of fuel production, and emissions linked to road and transport infrastructure.

Installation (A5) covers the energy required for placing the concrete, including the operation of the agitator truck and concrete pump. A production loss of *3%* is assumed during installation.

## PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied. Carbonation is not taken into account in this EPD.

## PRODUCT END OF LIFE (C1-C4, D)

At the end of its life, the concrete is assumed to be part of a concrete building that is demolished using machinery, consuming energy in the form of diesel (C1).

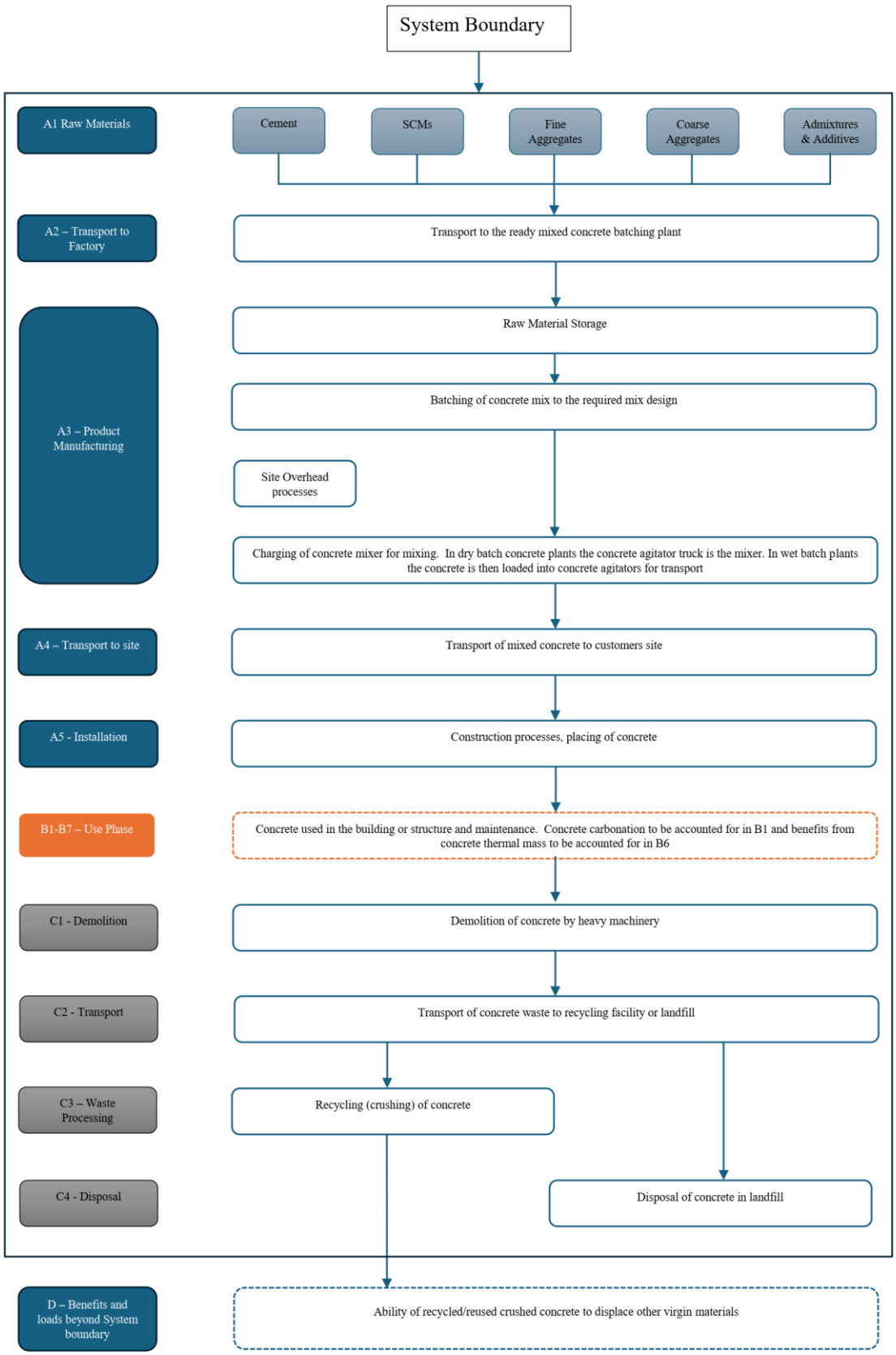
The concrete obtained after the demolition are delivered 50 km by a truck to the nearest construction waste treatment (C2). It is assumed that 100% of the demolished concrete is transported to a site where this waste is processed by, crushing the concrete to recycled aggregates. About 70% of concrete can be recycled this way (C3), with an assumption that non-reinforced concrete is being sorted. The remaining 30% of concrete is assumed to be sent to the landfill for disposal (C4). The crushed concrete received from waste treatment can be used as a replacement for virgin raw materials in road construction (D). The process losses of the waste treatment plant are assumed to be negligible.

## LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA Concrete EPD Generator v3.2.1. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent v3.10.1/3.11 and One Click LCA databases were used as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, cut-off, EN 15804+A2‘.

-AS 1379 2007 - Specification and supply of concrete
-AS 3600 2018 - Concrete Structures, Table 4.4
-Australian energy statistics 2025 - Table O, Australian electricity generation, by state and territory, by fuel type, physical units. https://www.energy.gov.au/publications/australian-energy-update-2025
-Australian Energy Market Operator - Distribution Loss Factors For The 2024/25 Financial Year. https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/loss_factors_and_regional_boundaries/2024-25-financial-year/distribution-loss-factors-for-2024-25.pdf
-Diesel used in the mixing of concrete. https://unique-mixer.com/news/How_much_diesel_does_a_self_loading_concrete_mixer_consume_per_hour.html

## MANUFACTURING PROCESS DIAGRAM (A1-A3)



# ENVIRONMENTAL IMPACT DATA

*The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.*

## CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP – total[1)] | kg $CO_2$e | 1.87E+02 | 1.52E+01 | 3.30E+00 | 2.06E+02 | 2.77E+00 | 1.44E+01 | ND | ND | ND | ND | ND | ND | ND | 4.46E+00 | 1.26E+01 | 7.17E+00 | 4.39E+00 | -1.32E+01 |
| GWP – fossil | kg $CO_2$e | 1.87E+02 | 1.52E+01 | 3.29E+00 | 2.06E+02 | 2.77E+00 | 1.44E+01 | ND | ND | ND | ND | ND | ND | ND | 4.46E+00 | 1.26E+01 | 7.17E+00 | 4.39E+00 | -1.31E+01 |
| GWP – biogenic | kg $CO_2$e | -2.04E-02 | 6.50E-03 | 3.64E-04 | -1.35E-02 | 6.28E-04 | 3.88E-04 | ND | ND | ND | ND | ND | ND | ND | 4.55E-04 | 2.86E-03 | -7.32E-04 | -1.40E-03 | -4.12E-02 |
| GWP – LULUC | kg $CO_2$e | 1.11E-02 | 1.07E-02 | 3.22E-04 | 2.22E-02 | 1.24E-03 | 1.72E-03 | ND | ND | ND | ND | ND | ND | ND | 4.56E-04 | 5.64E-03 | 7.35E-04 | 2.51E-03 | -1.82E-02 |
| Ozone depletion pot. | kg $CFC_{-11}$e | 2.45E-06 | 2.02E-07 | 5.18E-08 | 2.70E-06 | 4.09E-08 | 2.08E-07 | ND | ND | ND | ND | ND | ND | ND | 6.82E-08 | 1.86E-07 | 1.10E-07 | 1.27E-07 | -1.10E-06 |
| Acidification potential | mol $H^+$e | 7.01E-01 | 8.84E-02 | 2.65E-02 | 8.16E-01 | 9.45E-03 | 9.55E-02 | ND | ND | ND | ND | ND | ND | ND | 4.02E-02 | 4.30E-02 | 6.48E-02 | 3.11E-02 | -8.59E-02 |
| EP-freshwater[2)] | kg Pe | 3.12E-02 | 1.87E-03 | 2.29E-04 | 3.33E-02 | 2.16E-04 | 1.26E-03 | ND | ND | ND | ND | ND | ND | ND | 1.29E-04 | 9.81E-04 | 2.07E-04 | 3.61E-04 | -7.78E-04 |
| EP-marine | kg Ne | 4.35E-02 | 3.30E-02 | 1.06E-02 | 8.71E-02 | 3.11E-03 | 3.53E-02 | ND | ND | ND | ND | ND | ND | ND | 1.87E-02 | 1.41E-02 | 3.00E-02 | 1.19E-02 | -1.86E-02 |
| EP-terrestrial | mol Ne | 1.70E+00 | 3.59E-01 | 1.16E-01 | 2.17E+00 | 3.38E-02 | 4.23E-01 | ND | ND | ND | ND | ND | ND | ND | 2.04E-01 | 1.54E-01 | 3.29E-01 | 1.29E-01 | -2.43E-01 |
| POCP ("smog")[3)] | kg NMVOCe | 4.05E-01 | 1.16E-01 | 3.47E-02 | 5.56E-01 | 1.39E-02 | 1.24E-01 | ND | ND | ND | ND | ND | ND | ND | 6.09E-02 | 6.33E-02 | 9.81E-02 | 4.64E-02 | -6.23E-02 |
| ADP-minerals & metals[4)] | kg Sbe | 1.52E-05 | 4.08E-05 | 1.23E-06 | 5.72E-05 | 7.74E-06 | 5.93E-06 | ND | ND | ND | ND | ND | ND | ND | 1.60E-06 | 3.52E-05 | 2.57E-06 | 6.97E-06 | -1.32E-04 |
| ADP-fossil resources | MJ | 3.28E+02 | 2.07E+02 | 4.25E+01 | 5.77E+02 | 4.02E+01 | 1.26E+02 | ND | ND | ND | ND | ND | ND | ND | 5.83E+01 | 1.83E+02 | 9.38E+01 | 1.08E+02 | -1.95E+02 |
| Water use[5)] | $m^3$e depr. | 4.50E+01 | 1.55E+00 | 7.04E+00 | 5.36E+01 | 1.99E-01 | 1.90E+00 | ND | ND | ND | ND | ND | ND | ND | 1.46E-01 | 9.03E-01 | 2.34E-01 | 3.11E-01 | -2.60E+01 |

*1) GWP = Global Warming Potential. 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e. 3) POCP = Photochemical ozone formation. 4) ADP = Abiotic depletion potential. 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. 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.*

## ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Particulate matter | Incidence | 5.96E-06 | 1.75E-06 | 7.33E-07 | 8.44E-06 | 2.78E-07 | 2.63E-06 | ND | ND | ND | ND | ND | ND | ND | 1.14E-06 | 1.26E-06 | 1.40E-05 | 7.08E-07 | -1.10E-06 |
| Ionizing radiation[6)] | kBq U235e | 5.98E+02 | 3.68E-01 | 2.64E-02 | 5.98E+02 | 3.50E-02 | 1.80E+01 | ND | ND | ND | ND | ND | ND | ND | 2.58E-02 | 1.59E-01 | 4.16E-02 | 6.77E-02 | -3.10E+00 |
| Ecotoxicity (freshwater) | CTUe | 3.06E+02 | 3.55E+01 | 3.58E+00 | 3.45E+02 | 5.69E+00 | 1.70E+01 | ND | ND | ND | ND | ND | ND | ND | 3.21E+00 | 2.59E+01 | 5.17E+00 | 9.03E+00 | -2.34E+02 |
| Human toxicity. cancer | CTUh | 2.96E-07 | 3.06E-09 | 3.06E-10 | 2.99E-07 | 4.58E-10 | 9.85E-09 | ND | ND | ND | ND | ND | ND | ND | 4.58E-10 | 2.08E-09 | 7.38E-10 | 8.09E-10 | -1.36E-08 |
| Human tox. non-cancer | CTUh | 9.19E-06 | 1.22E-07 | 8.95E-09 | 9.32E-06 | 2.61E-08 | 2.97E-07 | ND | ND | ND | ND | ND | ND | ND | 7.25E-09 | 1.18E-07 | 1.17E-08 | 1.86E-08 | -2.49E-07 |
| SQP[7)] | - | 6.19E+02 | 1.76E+02 | 5.92E+00 | 8.01E+02 | 4.05E+01 | 4.41E+01 | ND | ND | ND | ND | ND | ND | ND | 4.08E+00 | 1.84E+02 | 6.58E+00 | 2.12E+02 | -1.88E+02 |

*6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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. 7) SQP = Land use related impacts/soil quality.*

## USE OF NATURAL RESOURCES

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Renew. PER as energy[8)] | MJ | 1.02E+01 | 5.98E+00 | 3.05E-01 | 1.65E+01 | 5.51E-01 | 1.25E+00 | ND | ND | ND | ND | ND | ND | ND | 3.69E-01 | 2.51E+00 | 5.94E-01 | 1.04E+00 | -1.93E+01 |
| Renew. PER as material | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total use of renew. PER | MJ | 1.02E+01 | 5.98E+00 | 3.05E-01 | 1.65E+01 | 5.51E-01 | 1.25E+00 | ND | ND | ND | ND | ND | ND | ND | 3.69E-01 | 2.51E+00 | 5.94E-01 | 1.04E+00 | -1.93E+01 |
| Non-re. PER as energy | MJ | 3.21E+02 | 2.07E+02 | 4.26E+01 | 5.70E+02 | 4.02E+01 | 1.26E+02 | ND | ND | ND | ND | ND | ND | ND | 5.83E+01 | 1.83E+02 | 9.38E+01 | 1.08E+02 | -2.01E+02 |
| Non-re. PER as material | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total use of non-re. PER | MJ | 3.21E+02 | 2.07E+02 | 4.26E+01 | 5.70E+02 | 4.02E+01 | 1.26E+02 | ND | ND | ND | ND | ND | ND | ND | 5.83E+01 | 1.83E+02 | 9.38E+01 | 1.08E+02 | -2.01E+02 |
| Secondary materials | kg | 1.02E+01 | 1.71E-01 | 1.37E-02 | 1.04E+01 | 1.71E-02 | 3.58E-01 | ND | ND | ND | ND | ND | ND | ND | 2.42E-02 | 7.79E-02 | 3.90E-02 | 2.71E-02 | -2.26E-01 |
| Renew. secondary fuels | MJ | 1.15E-06 | 1.09E-03 | 4.71E-05 | 1.14E-03 | 2.18E-04 | 1.95E-04 | ND | ND | ND | ND | ND | ND | ND | 6.33E-05 | 9.89E-04 | 1.02E-04 | 5.60E-04 | -1.56E-03 |
| Non-ren. secondary fuels | MJ | 7.05E+01 | 0.00E+00 | 0.00E+00 | 7.05E+01 | 0.00E+00 | 2.12E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Use of net fresh water | $m^3$ | 5.23E-01 | 4.13E-02 | 1.46E-02 | 5.79E-01 | 5.95E-03 | 2.83E-02 | ND | ND | ND | ND | ND | ND | ND | 3.85E-03 | 2.70E-02 | 6.20E-03 | 1.12E-01 | -6.04E-01 |

*8) PER = Primary energy resources.*

## END OF LIFE – WASTE

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.93E+00 | 6.20E-01 | 3.79E-02 | 2.59E+00 | 6.82E-02 | 2.03E-01 | ND | ND | ND | ND | ND | ND | ND | 6.49E-02 | 3.10E-01 | 1.04E-01 | 1.19E-01 | -1.52E+00 |
| Non-hazardous waste | kg | 3.76E+01 | 1.09E+01 | 5.88E-01 | 4.91E+01 | 1.26E+00 | 3.27E+00 | ND | ND | ND | ND | ND | ND | ND | 8.84E-01 | 5.73E+00 | 1.42E+00 | 2.72E+00 | -2.82E+01 |
| Radioactive waste | kg | 4.18E-04 | 8.98E-05 | 5.37E-06 | 5.14E-04 | 8.58E-06 | 2.81E-05 | ND | ND | ND | ND | ND | ND | ND | 6.33E-06 | 3.90E-05 | 1.02E-05 | 1.65E-05 | -3.88E-04 |

## END OF LIFE – OUTPUT FLOWS

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Components for re-use | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 0.00E+00 | 0.00E+00 | 1.46E+01 | 1.46E+01 | 0.00E+00 | 4.96E+01 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 1.64E+03 | 0.00E+00 | 0.00E+00 |
| Materials for energy rec | Kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy: Electricity | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy: Heat | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Pot. | kg $CO_2e$ | 1.87E+02 | 1.51E+01 | 3.28E+00 | 2.05E+02 | 2.76E+00 | 1.43E+01 | ND | ND | ND | ND | ND | ND | ND | 4.43E+00 | 1.25E+01 | 7.14E+00 | 4.35E+00 | -1.63E+01 |
| Ozone depletion Pot. | kg $CFC_{-11}e$ | 1.07E-06 | 1.62E-07 | 4.23E-08 | 1.27E-06 | 3.27E-08 | 1.39E-07 | ND | ND | ND | ND | ND | ND | ND | 5.41E-08 | 1.48E-07 | 8.70E-08 | 1.01E-07 | -1.12E-07 |
| Acidification | kg $SO_2e$ | 7.47E-02 | 6.58E-02 | 1.94E-02 | 1.60E-01 | 7.22E-03 | 5.48E-02 | ND | ND | ND | ND | ND | ND | ND | 2.83E-02 | 3.28E-02 | 4.55E-02 | 2.30E-02 | -7.81E-02 |
| Eutrophication | kg $PO_4^3e$ | 3.89E-02 | 1.46E-02 | 4.27E-03 | 5.78E-02 | 1.76E-03 | 1.35E-02 | ND | ND | ND | ND | ND | ND | ND | 6.61E-03 | 8.00E-03 | 1.06E-02 | 7.32E-03 | -1.53E-02 |
| POCP (“smog”) | kg $C_2H_4e$ | 6.72E-03 | 5.20E-03 | 1.32E-03 | 1.32E-02 | 6.44E-04 | 4.18E-03 | ND | ND | ND | ND | ND | ND | ND | 2.12E-03 | 2.93E-03 | 3.41E-03 | 2.18E-03 | -6.95E-03 |
| ADP-elements | kg Sbe | 1.52E-05 | 3.98E-05 | 1.20E-06 | 5.62E-05 | 7.54E-06 | 5.79E-06 | ND | ND | ND | ND | ND | ND | ND | 1.55E-06 | 3.43E-05 | 2.50E-06 | 6.83E-06 | -8.91E-05 |
| ADP-fossil | MJ | 3.25E+02 | 2.01E+02 | 4.22E+01 | 5.69E+02 | 3.97E+01 | 1.25E+02 | ND | ND | ND | ND | ND | ND | ND | 5.79E+01 | 1.80E+02 | 9.32E+01 | 1.07E+02 | -2.01E+02 |

## ADDITIONAL INDICATOR – GWP-GHG

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-GHG [9)] | kg $CO_2$e | 1.87E+02 | 1.52E+01 | 3.30E+00 | 2.06E+02 | 2.77E+00 | 1.44E+01 | ND | ND | ND | ND | ND | ND | ND | 4.46E+00 | 1.26E+01 | 7.17E+00 | 4.39E+00 | -1.31E+01 |

*9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.*

## SCENARIO DOCUMENTATION
## DATA SOURCES

**Manufacturing energy scenario documentation – A3 (Energy data source)**

1. Construction. specialized activities. demolition and site preparation. Diesel. burned in building machine. World. ecoinvent 3.10.1. 0.10 kgCO2e/MJ
2. Electricity. Electricity. consumption mix w/o renewables. Queensland. 2024. Australia. LCA study for country specific consumption mixes. OneClickLCA 2025. 1.08 kgCO2e/kWh

**Installation scenario documentation - A5 (Diesel consumption)**

1. Diesel, burned in building machine, World, ecoinvent 3.10.1, 0.1 kg CO2e/MJ

## TRANSPORT SCENARIO DOCUMENTATION - A4

| Scenario parameter | Value |
|---|---|
| Vehicle type used for transport (e.g., long distance truck, boat, etc.) / Vehicle type, Commission Directive 2007/37/EC (European Emission Standard) | Concrete mixer truck |
| Distance, km | 11 |
| Capacity utilization (including empty return) % | 50 % |
| Bulk density of transported products / kg/$m^3$ | 2342 |
| Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products) | 1 |

## INSTALLATION SCENARIO DOCUMENTATION - A5

| Scenario parameter | Value |
|---|---|
| Ancillary materials for installation (specified by material) / kg or other units as appropriate | 0 |
| Water use / $m^3$ | 0 |
| Other resource use / kg | 0 |
| Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg | 7.03E+01 |
| Output materials as result of waste processing at the building site e.g. collection for recycling / kg | 4.92E+01 |
| Output materials as result of waste processing at the building site e.g. collection for disposal / kg | 2.11E+01 |
| Direct emissions to ambient air, soil and water / kg | 0 |

## END OF LIFE SCENARIO DOCUMENTATION

| Scenario information | Value |
|---|---|
| Collection process – kg collected separately | 0 |
| Collection process – kg collected with mixed construction waste | 2342 |
| Recovery process – kg for re-use | 0 |
| Recovery process – kg for recycling | 1.64E+03 |
| Recovery process – kg for energy recovery | 0 |
| Disposal (total) – kg for final deposition | 7.03E+02 |
| Scenario assumptions e.g. transportation | Market for transport. freight. lorry >32 metric ton. EURO5; 50km EURO5; 50km |

# THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

Program assistant: Xinyuan Zhang

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools
Tool verifier: Imane Uald Lamkaddam
Tool verification validity: 28 March 2025 - 27 March 2028