

m³ Concrete 20 MPa

Concrete is a composite material combining sand or other fine aggregates, coarse aggregates, a binder and water. Portland cement is the most commonly used binder, however other binders, such as polymers, may also be used. Supplementary Cementitious Materials (SCM) such as Fly Ash and Ground, Granulated Blast Furnace Slag (GGBFS), are also commonly used as a part replacement for Portland cement. Additives, such as plasticisers can be added to the mix to control concrete properties, such as workability. Concrete is usually combined with steel reinforcement to improve tensile strength.

Concrete is one of the most commonly used construction materials. It is highly durable and is thus typically used for structural elements in buildings and infrastructure projects. Concrete can be manufactured to meet a variety of strength grades. Concrete 20 MPa is commonly used in domestic floor construction, garage floors and driveways, where the loads supported are lighter. The typical mix ratio is 1:1.5:3 (cement, sand, coarse aggregate).

Category Concrete and Plaster Products
Type Concrete
Functional unit m³
Specific heat 880 J/(kg·K)
Density 2 335 kg/m³

Common uses
 Floor slabs, suspended slabs, driveways, precast wall panels

Process name
 Concrete 20 MPa, at batching plant/AU U

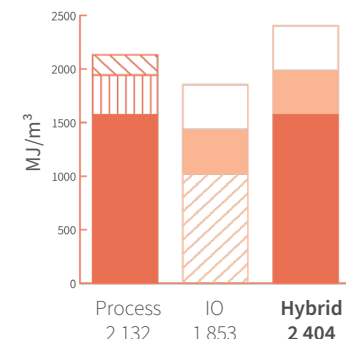
Input-output sector
 Cement, Lime and Ready-Mixed Concrete Manufacturing

Further information
doi.org/10.26188/5da54a205d0e5

Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions (kgCO ₂ e/unit)
Concrete 20 MPa	m ³	2 404	4 154	328
Concrete 20 MPa - 30% fly ash	m ³	2 026	4 011	251
Concrete 20 MPa - 30% GGBFS	m ³	2 186	4 034	263

TOP THREE INPUTS

- 9.1% Road Transport
- 1.2% Sand, at mine/CH U/ AusSD U
- 0.9% Diesel, burned in building machine/GLO U/AusSD U

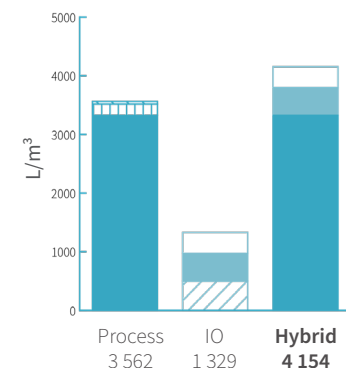


ENERGY

2 404 MJ/m³

TOP THREE INPUTS

- 22.8% Sand, at mine/CH U/ AusSD U
- 3.4% Tap water, at user, Australia/AU U
- 0.7% Professional, Scientific and Technical Services

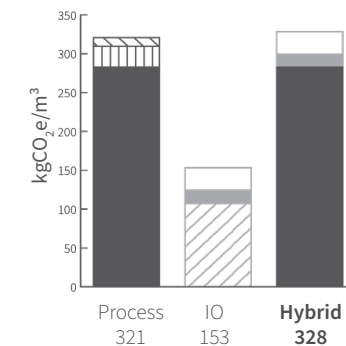


WATER

4 154 L/m³

TOP THREE INPUTS

- 2.0% Road Transport
- 0.8% Sand, at mine/CH U/ AusSD U
- 0.5% Diesel, burned in building machine/GLO U/AusSD U



GREENHOUSE GAS EMISSIONS

328 kgCO₂e/m³

