kg Glass reinforced plastic (GRP)

Glass reinforced plastic (GRP) is a composite laminate material including glass fibres to reinforce a plastic, typically a polyethylene (PE) resin. GRP is strong, lightweight, weather-resistant and heat resistant. It is also commonly referred to as glass reinforced polyester, glass-fibre reinforced plastic (GFRP), fibre reinforced plastic (FRP) or fibre reinforced polymer (FRP).

GRP is made by laying the glass fibres in two or three dimensions and embedding them into the plastic resin. This is typically done through moulding. GRP is thus available in multiple shapes, including flat sheets and curved objects.

GRP can be used for roofing, storage tanks, door and window surrounds, piping and cladding.

Category *Plastics*

Type *Other polymers*

Functional unit *kg*

Specific heat *700 J/(kg·K)*

Density *1 350 kg/m³*

Common uses
Roofing, storage tanks, door and window surrounds, piping, cladding

Process name
Glass fibre reinforced plastic, polyester resin, hand lay-up, at plant/RER U/AusSD U

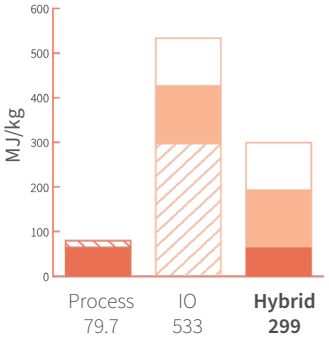
Input-output sector
Polymer Product Manufacturing

Further information
doi.org/10.26188/5da55484429d7

Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions ($kgCO_2e$/unit)
Glass reinforced plastic (GRP)	*kg*	*299*	*529*	*18.8*
GRP panel - 10 mm	m^2	4 037	7 144	254
GRP panel - 20 mm	m^2	8 075	14 288	509
GRP panel - 50 mm	m^2	20 187	35 719	1 271

TOP THREE INPUTS

- 12.5% Polyester resin, unsaturated, at plant/RER U/AusSD U
- 8.4% Glass fibre, at plant/RER U/AusSD U
- 8.3% Petroleum and Coal Product Manufacturing

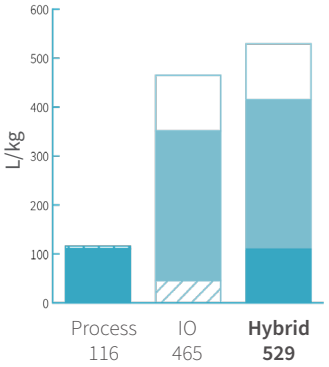


ENERGY

299 MJ/kg

TOP THREE INPUTS

- 24.2% Other Agriculture
- 16.5% Polyester resin, unsaturated, at plant/RER U/AusSD U
- 4.0% Glass fibre, at plant/RER U/AusSD U

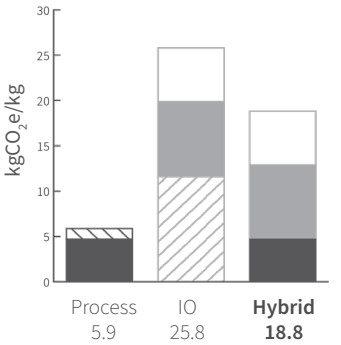


WATER

529 L/kg

TOP THREE INPUTS

- 14.7% Polyester resin, unsaturated, at plant/RER U/AusSD U
- 10.2% Glass fibre, at plant/RER U/AusSD U
- 5.7% Polymer Product Manufacturing



GREENHOUSE GAS EMISSIONS

18.8 $kgCO_2e$/kg