

## kg High-density polyethylene (HDPE) pipe

Polyethylene (PE) is the most common plastic and is a thermoplastic polymer. It has low strength and rigidity but high impact strength and ductility and low friction. It is highly waterproof.

PE is produced by polymerising ethylene monomers using different catalysts (typically metal chlorides or metal oxides). Different densities can be obtained with different properties. Multiple additives are also used to obtain different grades and properties of PE. PE is thermoformed into moulds or extruded.

High-density polyethylene (HDPE) has improved strength and durability. HDPE pipes are usually used for high pressure systems and are typically larger than LDPE pipes.

**Category** *Plastics*  
**Type** *High Density Polyethylene*  
**Functional unit** *kg*  
**Specific heat** *1 555 J/(kg·K)*  
**Density** *940 kg/m<sup>3</sup>*

**Common uses**  
*High-pressure pipes*

**Process name**  
*HDPE, extruded pipe (custom)*

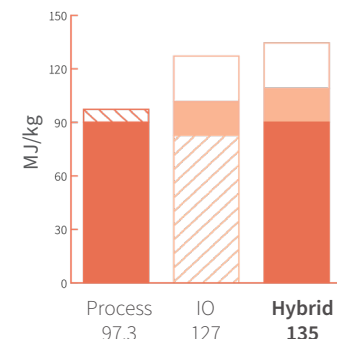
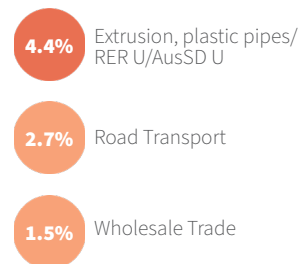
**Input-output sector**  
*Polymer Product Manufacturing*

**Further information**  
[doi.org/10.26188/5da5552ee9ccf](https://doi.org/10.26188/5da5552ee9ccf)

### Material variations

	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions (kgCO <sub>2</sub> e/unit)
<i>High-density polyethylene (HDPE) pipe</i>	<i>kg</i>	<i>135</i>	<i>130</i>	<i>5.6</i>
HDPE pipe - 32 mm inner dia., 1.88 mm thickness	m	12.3	11.9	0.5
HDPE pipe - 63 mm inner dia., 3.75 mm thickness	m	47.7	46.1	2.0
HDPE pipe - 125 mm inner dia., 7.35 mm thickness	m	188	181	7.8
HDPE pipe - 250 mm inner dia., 14.71 mm thickness	m	752	726	31
HDPE pipe - 500 mm inner dia., 29.41 mm thickness	m	3 007	2 903	124
HDPE pipe - 800 mm inner dia., 47.06 mm thickness	m	7 698	7 433	318

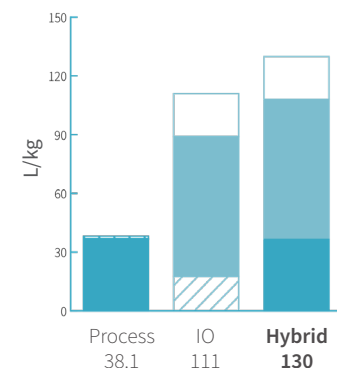
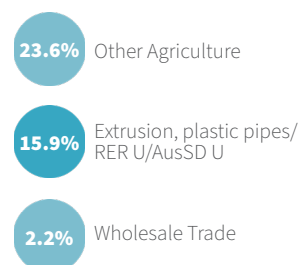
### TOP THREE INPUTS



### ENERGY



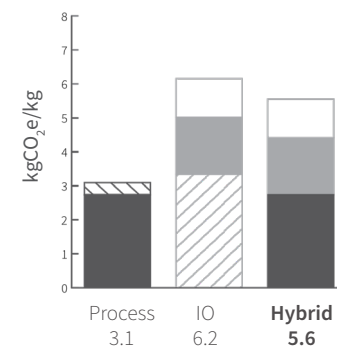
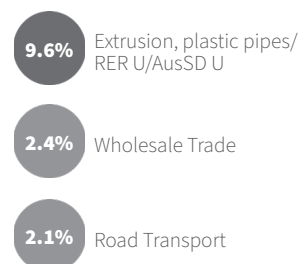
### TOP THREE INPUTS



### WATER



### TOP THREE INPUTS



### GREENHOUSE GAS EMISSIONS

