

# kg Unplasticised polyvinyl chloride (uPVC)

Polyvinyl chloride (PVC) is a plastic polymer characterised by good thermal and electrical insulation properties. Unplasticised PVC is rigid. PVC is the third most produced plastic, globally.

PVC is produced by polymerising vinyl chloride monomers, mostly through suspension polymerisation, followed by emulsion and bulk polymerisation. This generates heat and requires cooling and water. The resulting sludge is filtered, centrifuged, and dried, before being converted to pellets. These can be molten for moulding or extrusion. Multiple additives can be added to PVC to enhance its properties, notably chloride to enhance its resistance to ultraviolet light.

uPVC is widely used in the construction industry. Its main uses include window frames, doors, pipes, and gutters.

**Category** *Plastics*  
**Type** *Polyvinyl Chloride*  
**Functional unit** *kg*  
**Specific heat** *950 J/(kg·K)*  
**Density** *1 390 kg/m<sup>3</sup>*

**Common uses**  
*Window frames, doors, pipes, gutters*

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

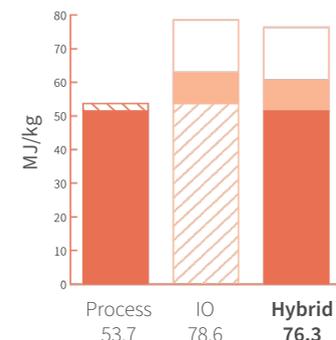
**Input-output sector**  
*Polymer Product Manufacturing*

**Further information**  
[doi.org/10.26188/5da558ad914dc](https://doi.org/10.26188/5da558ad914dc)

## Material variations

	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions (kgCO <sub>2</sub> e/unit)
<i>Unplasticised polyvinyl chloride (uPVC)</i>	<i>kg</i>	<i>76.3</i>	<i>561</i>	<i>4.2</i>
<i>uPVC pipe - 21.35 mm outer dia., 1.8 mm thick</i>	<i>m</i>	<i>11.7</i>	<i>86.2</i>	<i>0.6</i>
<i>uPVC pipe - 60.25 mm outer dia., 2.6 mm thick</i>	<i>m</i>	<i>50</i>	<i>367</i>	<i>2.7</i>
<i>uPVC pipe - 11.43 mm outer dia., 4.85 mm thick</i>	<i>m</i>	<i>177</i>	<i>1 301</i>	<i>9.7</i>
<i>uPVC pipe - 22.53 mm outer dia., 11.1 mm thick</i>	<i>m</i>	<i>792</i>	<i>5 826</i>	<i>43.2</i>

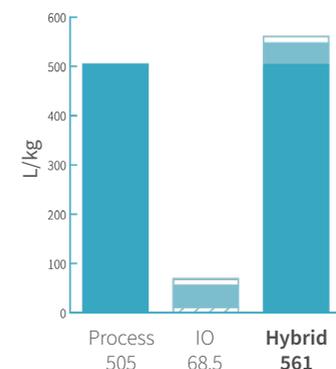
## TOP THREE INPUTS



## ENERGY



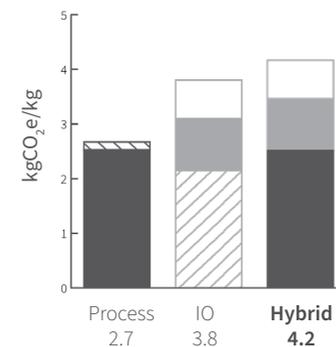
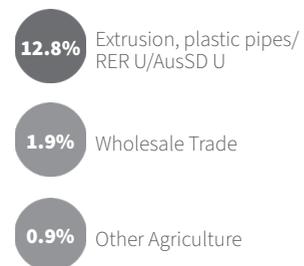
## TOP THREE INPUTS



## WATER



## TOP THREE INPUTS



## GREENHOUSE GAS EMISSIONS

