kg High-density polyethylene (HDPE) film

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 compared to LDPE. HDPE films are usually used as geomembranes.

Category *Plastics*

Type *High Density Polyethylene*

Functional unit *kg*

Specific heat *1 555 J/(kg·K)*

Density *940 kg/m³*

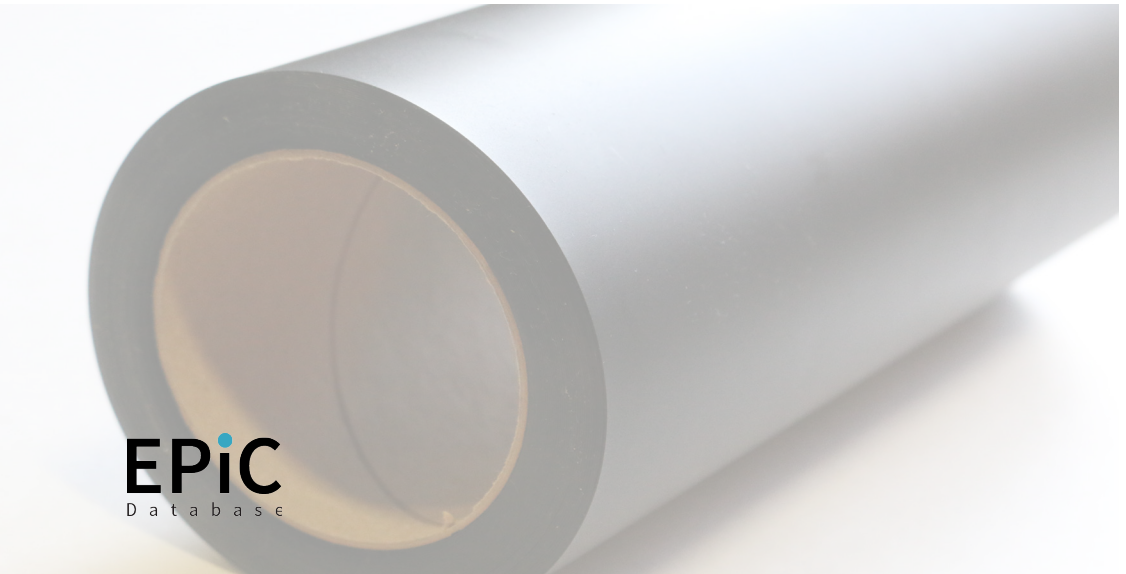
Common uses
Geomembranes

Process name
HDPE, extruded film (custom)

Input-output sector
Polymer Product Manufacturing

Further information
doi.org/10.26188/5da5551da9cb9

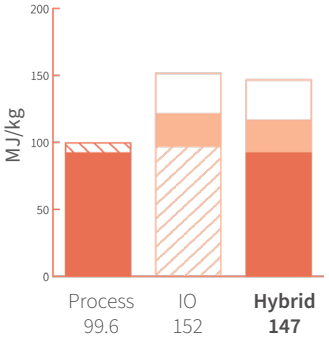
Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions ($kgCO_2e$/unit)
High-density polyethylene (HDPE) film	*kg*	*147*	*172*	*6.4*
HDPE film - 100 µm	m^2	13.8	16.2	0.6
HDPE film - 200 µm	m^2	27.6	32.4	1.2



EPiC Database

TOP THREE INPUTS

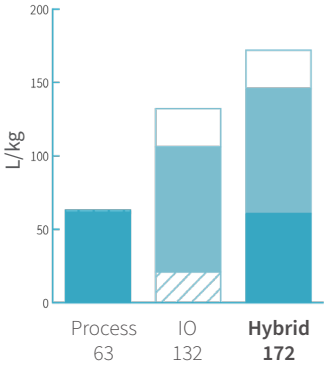
- 5.4% Extrusion, plastic film/RER U/AusSD U
- 2.9% Road Transport
- 1.6% Wholesale Trade



ENERGY
147 MJ/kg

TOP THREE INPUTS

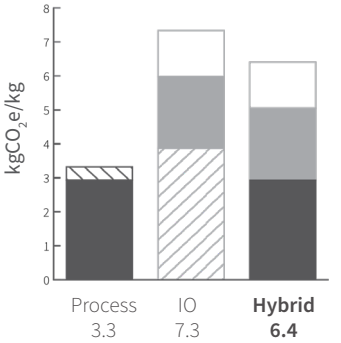
- 26.1% Extrusion, plastic film/RER U/AusSD U
- 21.2% Other Agriculture
- 2.0% Wholesale Trade



WATER
172 L/kg

TOP THREE INPUTS

- 11.4% Extrusion, plastic film/RER U/AusSD U
- 2.4% Wholesale Trade
- 2.2% Road Transport



GREENHOUSE GAS EMISSIONS
6.4 $kgCO_2e$/kg