

# High density polyethylene

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**HDPE**

**High density polyethylene (HDPE)** is a [polyethylene thermoplastic](#) made from [petroleum](#). It takes 1.75 [kilograms](#) of petroleum (in terms of [energy](#) and raw materials) to make one kilogram of HDPE. HDPE has little [branching](#), giving it stronger [intermolecular forces](#) and [tensile strength](#) than lower density [polyethylene](#), HDPE is also somewhat harder and more opaque and it can withstand rather higher [temperatures](#) (120° Celsius for short periods, 110° Celsius continuously). The lack of branching is ensured by an appropriate choice of [catalyst](#) (e.g. [Ziegler-Natta catalysts](#)) and [reaction](#) conditions.

HDPE is resistant to many different [solvents](#) and has a wide variety of applications, including:

- Containers
  - Tupperware
  - Laundry detergent bottles
  - Milk cartons
- Plastic bags
- Containment of certain chemicals
- Chemical-resistant piping systems
- Geothermal heat transfer piping systems