

# Data Sheet: HDPE

*(High Density Polyethylene)*

## Details

This material is light in weight with high strength. It is resistant to chemicals and heat, impermeable and has good electrical insulation. It is highly ductile and is impact resistant. This material works well in both hot and cold temperatures. It is ideal for use in heavy construction, plumbing, agriculture and medical products.

## Key Features

Lightweight • Strong • Ductile

## Thermal Properties

| Property   | Value       |
|--|-------------|
| Heat deflection [°C]   | 64 - 77     |
| Glass transition temperature [°C]                                      | -110        |
| Vicat softening temperature [°C]                                       | 124         |
| Coefficient of thermal expansion [K <sup>-1</sup> · 10 <sup>-6</sup> ] | 130         |
| Thermal conductivity [W/m · K]   | 0.35 – 0.43 |
| Specific heat capacity [J/kg · K]                                      | 1.7 – 2     |
| Melting point [°C]   | 126         |

## Mechanical Properties

| Property                    | Value      |
|-----------------------------|------------|
| Tensile strength [MPa]      | 25         |
| Modulus of elasticity [GPa] | 0.9 – 1.55 |
| Flexural strength [MPa]     | 36.68      |

|                                      |             |
|--------------------------------------|-------------|
| Flexural modulus [GPa]               | 0.97 – 1.38 |
| Hardness                             | 43          |
| Impact strength [KJ/m <sup>2</sup> ] | 71          |
| Elongation at break [%]              | 9           |

## Physical Properties

| Property                        | Value               |
|---------------------------------|---------------------|
| Density [g/cm <sup>3</sup> ]    | 0.947               |
| Water Absorption [%]            | 0.005               |
| Electrical Resistivity [ohm-cm] | $16 \times 10^{15}$ |

## Reference

Datasheets provided by Xometry contain materials sourced through trusted OEMs, material distributors, and databases. Please visit [Materialdatacenter.com](https://www.materialdatacenter.com) for further information on this material.