



TECHNICAL DATA SHEET

Medium-Density Polyethylene — MDPE

Product type: Thermoplastic polyethylene resin

Product form: Pellets or granules

Primary process: Pipe extrusion

Version: 1.0

Issue date: 13 July 2026

Product Description

Medium-Density Polyethylene is a durable thermoplastic resin offering a balance of strength, flexibility, impact resistance and long-term environmental stress-crack resistance. It is designed principally for gas-distribution pipes, water-supply pipes and industrial piping systems operating under medium-pressure conditions.

Main Applications

- Gas-distribution pipes
- Potable-water and service pipes
- Industrial piping systems
- Irrigation and utility pipes
- Pipe fittings
- Cable protection and conduit
- Extruded profiles and selected moulded products

Key Benefits

- Good flexibility and impact resistance
- High environmental stress-crack resistance
- Good resistance to chemicals and corrosion
- Low moisture absorption
- Lightweight and easy to process
- Suitable for extrusion and selected moulding processes
- Good long-term performance in buried piping
- Heat-fusion and electrofusion compatibility, subject to grade approval



Typical Properties

Property	Test Method	Representative Value
Appearance	Visual	Natural, black or coloured pellets
Density at 23°C	ISO 1183 / ASTM D1505	0.926–0.940 g/cm ³
Melt mass-flow rate, 190°C/5 kg	ISO 1133	0.2–1.0 g/10 min
Tensile stress at yield	ISO 527	17–23 MPa
Tensile elongation at break	ISO 527	≥350%
Flexural modulus	ISO 178	400–800 MPa
Vicat softening temperature	ISO 306	110–125°C
Melting range	DSC	Approximately 120–130°C
Environmental stress-crack resistance	ASTM D1693	Grade dependent
Moisture content	Internal method	≤0.10%
Carbon black content, black grade	ISO 6964	2.0–2.5%
Carbon black dispersion, black grade	ISO 18553	Grade dependent

MDPE is commonly defined by a density around **0.926–0.940 g/cm³**, although individual pipe standards may apply slightly different classification limits. Mechanical and flow properties vary considerably with molecular weight, comonomer and pipe classification.

The table contains representative values only and is not a guaranteed product specification.

Processing Guidelines

Processing Parameter	Recommended Starting Range
Feed-zone temperature	160–180°C
Compression-zone temperature	180–200°C
Metering-zone temperature	190–210°C
Die temperature	190–210°C
Melt temperature	190–220°C

Use equipment designed for polyethylene pipe extrusion. Actual settings depend on the extruder, die geometry, output rate, pipe dimensions and selected resin grade.

Pre-drying is normally unnecessary when the material has been stored in sealed packaging under dry conditions. Material exposed to condensation or excessive moisture should be conditioned before processing.



Avoid excessive residence time and melt temperatures because overheated polyethylene can degrade and release irritating fumes.

Colour and Stabilisation

Natural, black and customised coloured grades may be available.

Black pipe grades normally contain carbon black for ultraviolet protection. Pressure-pipe use requires a grade approved against the applicable pipe standard and service conditions.

Storage

Store in unopened original packaging in a clean, dry and well-ventilated warehouse.

Protect from:

- Direct sunlight
- Excessive heat
- Moisture and condensation
- Dust and chemical contamination
- Open flames and ignition sources

Recommended storage temperature: **below 40°C.**

Packaging

Typical supply options include:

- 25 kg bags
- 1,000–1,250 kg bulk bags
- Bulk silo or tanker supply

Packaging availability must be confirmed with the supplier.

Shelf Life

MDPE resin is generally stable for extended periods when stored correctly. A nominal shelf life of **24 months** may be applied for quality-control purposes, subject to supplier confirmation.



Quality and Compliance

For gas, potable-water or pressure-pipe applications, the buyer must specify the required grade and applicable standard, such as ISO, EN, ASTM or national utility requirements. Approval of one MDPE grade does not automatically cover another pressure class or end use.

Supplier

Basekim Chemical Production Co. Ltd.