

HDPE

HDPE 23050

HIGH DENSITY POLYETHYLENE (HDPE)

This grade is a natural-colored, high-density pipe-grade polyethylene produced by a low-pressure slurry-phase process. Its balanced mechanical properties, long-term stability, and processing adaptability make it a benchmark raw material for the international PE 100 pressure pipe market, providing a reliable and economical material solution for pipeline engineering.

Typical Application

- Drinking water transmission pipelines
- Gas transmission pipelines
- Pressurized sewage and rainwater pipelines and other municipal construction pipelines
- Industrial fluid transmission pipelines
- Seawater desalination and discharge pipelines
- Nuclear power and special engineering projects
- Agricultural irrigation, mining and dredging pipelines

Product Characteristics

- PE 100-rated long-term hydrostatic strength (MRS) of 10 MPa, withstanding working pressures up to 1.6 MPa under 20°C / 50-year service conditions
- Excellent creep resistance under sustained high-pressure loads
- Environmental stress cracking resistance (ESCR) time exceeds 10,000 hours
- Resistance to rapid crack propagation (RCP) and slow crack growth (SCG) at internationally recognized top-tier levels, verified by full-notch creep test (FNCT) and notched pipe test (CT)
- High-efficiency carbon black and thermo-oxidative stabilizer package for UV and thermal aging resistance in outdoor and buried service
- Excellent chemical resistance to acids, alkalis, salts and most organic solvents at room temperature without additional anti-corrosion treatment
- Wide, stable processing window compatible with extrusion of pipe from DN20 to DN2000 mm, with low sag on large-diameter pipe
- Good weldability supporting butt welding, electrofusion and trenchless laying techniques

Physical Properties

Properties	Test Method	Typical Value	Unit
Melt Flow Rate (190°C/5.0 kg)		0.23	g/10 min
Melt Flow Rate (190°C/21.6 kg)		6.4	g/10 min
Density		0.950	g/cm ³
Tensile Modulus (23°C)		900	MPa
Tensile Stress at Yield (23°C, 50 mm/min)		22-24	MPa
Tensile Strain at Break (23°C)		>500	%
Charpy Impact Strength - Notched (23°C)		20	kJ/m ²
Oxidation Induction Time (210°C)		>25	min
Moisture Content		≤0.02	%

Processing Guidelines

Compatible with standard extrusion pipe-line processing. The resin exhibits high viscosity and low sag with a wide processing window, enabling efficient production of pipe in all specifications from DN20 to DN2000 mm; large-diameter pipe production benefits from effective sag suppression, uniform wall thickness and precise roundness. The material supports mainstream jointing techniques including butt welding and electrofusion.

- 1. The melt flow rate is commonly quoted at the 190°C/5.0 kg test condition for this pipe-grade viscosity range rather than the standard 2.16 kg loading; the nominal value (0.23 g/10 min) is consistent across sources.*
- 2. Nominal properties reported herein are typical of the product and do not reflect normal testing variance; they should not be used for specification purposes.*
- 3. Typical values per the producer's published family data; grade-specific certificate of analysis supplied per lot at order.*