Provisional Technical Datasheet

P0049D Polysure HDPE — PE 100 Pipe

Product Characteristics:

Polysure P0049D is a 1-Hexene co-monomer based Bimodal high molecular weight High Density Polyethylene, produced by Advanced Dual Loop Slurry MarTECHT^{M} technology, suitable for Pipe Extrusion process. P0049D offers excellent processability, good toughness & outstanding creep resistance. Pipes made with P0049D have smooth surface finish, superb mechanical properties including long term hoop strength, resistance to slow crack growth and rapid crack propagation. Pipes when produced with P0049D and optimum dosage of carbon black as specified in clause 5.2.3 of IS 4984, will meet the hydrostatic strength requirement of PE 100 class of pipes.

Recommended Applications:

PE 100 pressure pipes used in Potable water distribution, Gas distribution pipes, High performance industrial pipes.

Typical Properties:

Sr. No.	Property	Test Method	Unit	Value*
Resin Properties				
1	Melt Flow Index (190°C & 5 kg)	ASTM D1238	g/10 min	0.26
2	Melt Flow Index (190°C & 21.6 kg)		g/10 min	8
3	Density (23°C)	ASTM D1505	g/cc	0.949
4	Tensile Strength at Yield, Type IV Specimen	ASTM D638 (50 mm / min)	MPa	26
5	Tensile Elongation at Break, Type IV Specimen		%	>700
6	Flexural Modulus (1% Secant)	ASTM D790A	MPa	1000
7	Notched Izod Impact Strength (23°C)	ASTM D256A	J/m	280
8	Vicat Softening Point (10N)	ASTM D1525	°C	125
9	ESCR (F50), 10% Igepal	ASTM D1693B	Hour	>1000
10	Oxidative Induction Time	ASTM D3895	min	>30
Pipe Properties#				
1	Slow Crack Growth Test	ISO 13479	Hour	>500
2	Minimum Required Strength	ISO 9080	MPa	10
3	Hydrostatic Pressure Test at Induced Stress 5.7 MPa	IS 4984 (80°C)	Hour	≥48
4	Hydrostatic Pressure Test at Induced Stress 5.5 MPa		Hour	≥165

***** *All the mechanical properties are determined on Compression Molded Test Specimen, prepared in accordance with ASTM D4703*

 # The properties are of pipes extruded with pellets of P0049D and carbon black concentrate

Processing Guidelines:

- Barrel Temperature : 180 - 220°C
- Die Temperature : 190 - 210°C

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Storage & Handling:
Bags should be stored in dry & dust free environment at temperature below 50°C and Prevent from direct exposure to sunlight & heat to avoid quality deterioration.

Regulatory Requirements:
P0049D to be manufactured complying the requirements specified in IS 10146 on “Specification for Polyethylene for its safe in contact with Foodstuff, Pharmaceutical & Drinking water”. Furthermore, the Additives added in this grade formulation compiles to the “Positive list of constituents for Polypropylene, Polyethylene and their Copolymers for its safe use in contact with Foodstuffs & Pharmaceuticals' as laid down under IS 16738:2018. In general, the additives & constituents used in the grade are in line with requirement laid down under FDA: CFR Title 21,177.1520, Olefin Polymers.

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