# RELENE® 46GP003

### High Density Polyethylene

#### **Reliance Industries Limited**

#### Message:

Relene 46GP003 (PE-100) is a natural colored grade for pipe extrusion. It possesses bimodal molecular weight distribution, which improves processability. This grade meets the MFI, Density & Hydrostatic strength requirements of material grade PE-100 as per IS: 4984. When incorporated with adequate quantity of carbon black as specified in clause 5.2.3 of IS: 4984, pipes will meet PE:100 requirements.

Pipes made from Relene 46GP003 grade passes the Internal Pressure Creep Rupture Test when tested with 5.5 MPa induced stress at 80°C for 165 hrs and with 5.7 MPa induced stress at 80°C for 48 hrs as per clause 8.1 of IS 4984, thereby meeting the requirements of PE100 grade. The grade conforms to ISO 4427 specification shown and has been certified for MRS> 10MPa as per ISO 9080.

The grade contornis to 150 4427 specification shown and has been certified for whose form a as per 150 5000.

General mormation			
Features	Bimodal Molecular Weight Distribu	tion	
	Food Contact Acceptable		
	Good Processability		
Uses	Piping		
Agency Ratings	FDA 21 CFR 177.1520		
	IS 10141-1982		
	IS 10146-1982		
Processing Method	Pipe Extrusion		
Physical	Nominal Value	Unit	Test Method
Density	0.945	g/cm³	ASTM D1505
Melt Mass-Flow Rate (MFR) (190°C/5.0 kg)	0.30	g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance			
(Compression Molded, F50)	> 1000	hr	ASTM D1693
Mechanical	Nominal Value	Unit	Test Method
Mechanical Tensile Strength (Yield, Compression Molded)	Nominal Value	MPa	ASTM D638
Mechanical Tensile Strength (Yield, Compression Molded) Tensile Elongation (Break, Compression Molded)	Nominal Value 28.0 > 600	Unit MPa %	ASTM D638
Mechanical Tensile Strength (Yield, Compression Molded) Tensile Elongation (Break, Compression Molded) Flexural Modulus (Compression Molded)	Nominal Value 28.0 > 600 850	Unit MPa % MPa	ASTM D638 ASTM D638 ASTM D638
Mechanical Tensile Strength (Yield, Compression Molded) Tensile Elongation (Break, Compression Molded) Flexural Modulus (Compression Molded) Hydrostatic Pressure Test	Nominal Value     28.0     > 600     850	Unit MPa % MPa	Test Method   ASTM D638   ASTM D638   ASTM D790   ISO 1167
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup>	Nominal Value 28.0 > 600 850 > 4.2	Unit MPa % MPa day	Test Method   ASTM D638   ASTM D638   ASTM D790   ISO 1167
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup>	Nominal Value 28.0 > 600 850 > 4.2 > 41.7	Unit MPa % MPa day day	Test Method ASTM D638 ASTM D638 ASTM D790 ISO 1167
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup>	Nominal Value 28.0 > 600 850 > 4.2 > 41.7 > 6.9	Unit MPa % MPa day day day	Test Method ASTM D638 ASTM D638 ASTM D790 ISO 1167
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup> Oxidation Induction Time (200°C)	Nominal Value 28.0 > 600 850 > 4.2 > 41.7 > 6.9 > 30	Unit MPa % MPa day day day day min	Test Method ASTM D638 ASTM D638 ASTM D790 ISO 1167 ASTM D3985
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup> Oxidation Induction Time (200°C)   MRS	Nominal Value 28.0 > 600 850 > 4.2 > 41.7 > 6.9 > 30 > 10.0	Unit MPa % MPa day day day day min MPa	Test MethodASTM D638ASTM D638ASTM D790ISO 1167ASTM D3985ISO 9080
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup> Oxidation Induction Time (200°C)   MRS   SCG	Nominal Value   28.0   > 600   850   > 4.2   > 41.7   > 6.9   > 30   > 10.0   > 20.8	Unit MPa % MPa day day day day min MPa day	Test Method     ASTM D638     ASTM D638     ASTM D790     ISO 1167     ASTM D3985     ISO 9080     ISO 13479
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup> Oxidation Induction Time (200°C)   MRS   SCG   Impact	Nominal Value   28.0   > 600   850   > 4.2   > 41.7   > 6.9   > 30   > 10.0   > 20.8   Nominal Value	Unit MPa % MPa day day day day min MPa day Unit	Test Method ASTM D638 ASTM D638 ASTM D790 ISO 1167 ISO 1167 ISO 1000 ISO 1167 ISO 9080 ISO 9080 ISO 13479 Test Method
Mechanical   Tensile Strength (Yield, Compression   Molded)   Tensile Elongation (Break, Compression   Molded)   Flexural Modulus (Compression Molded)   Hydrostatic Pressure Test   20°C <sup>1</sup> 80°C <sup>2</sup> 80°C <sup>3</sup> Oxidation Induction Time (200°C)   MRS   SCG   Impact   Notched Izod Impact (Compression Molded)	Nominal Value   28.0   > 600   850      > 4.2   > 41.7   > 6.9   > 30   > 10.0   > 20.8   Nominal Value	Unit MPa % MPa day day day min MPa day Unit	Test Method ASTM D638 ASTM D638 ASTM D790 ISO 1167 ISO 1167 ISO 9080 ISO 9080 ISO 13479 Test Method ASTM D256

NOTE	
1.	12.4 MPa
2.	5 MPa
3.	5.4 MPa

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