



45GP004

POLYETHYLENE RESIN FOR PIPE EXTRUSION

Relene 45GP004 (PE:80) is a natural coloured 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:80 as per IS 4984:2016 for 'Polyethylene pipes for Water Supply - Specification' when incorporated with adequate quantity of carbon black as specified in clause 5.3 of IS: 4984: 2016. It will also meet the requirements of the designation PE EL C45T006 mentioned in the clause 4.2 of IS 7328: 1992.

Pipe made from Relene 45GP004 grade passes the Internal Pressure Creep Rupture Test when tested with 4.5 MPa induced stress at 80°C for 165 hrs and with 4.9 MPa induced stress at 80°C for 48 hrs as per clause 8.1 of IS 4984:2016, thereby meeting the requirement of PE:80 grade.

This grade conforms to ISO 4427 specification shown below and has been certified for MRS > 8 MPa as per ISO 9080.

| Property | Test Method | Unit | Remarks |
|---------------------------|-------------|------|---------|
| Hydrostatic Pressure Test | ISO 1167 | Hrs | |
| 10 MPa @20°C | | | >100 |
| 4.5 MPa @80°C | | | >165 |
| 4.0 MPa @80°C | | | >1000 |
| MRS | ISO 9080 | MPa | >8.0 |
| SCG | ISO 13479 | Hrs | >500 |

| Typical Characteristics* | | | |
|---|-------------|--------------------|-----------------|
| Property | Test Method | Unit | Typical Value** |
| Melt Flow Index (190°C/5.0 Kg) | ASTM D1238 | gm/10 min | 0.45 |
| Density (23°C) | ASTM D1505 | gm/cm ³ | 0.948 |
| Thermal Stability (O.I.T.) 200°C | ASTM D3895 | Min | >30 |
| Tensile Strength at Yield | ASTM D638 | MPa | 27 |
| Elongation at Break | ASTM D638 | % | >600 |
| Flexural Modulus | ASTM D790 | MPa | 850 |
| Notched Izod Impact Strength | ASTM D256 | J/m | No Break |
| ESCR @ 10% Igepal Soln (F ₅₀) | ASTM D1693 | Hrs | >1000 |

* Typical values not to be taken as specification

**Mechanical Properties are on Compression Moulding

Applications

PE 80 pressure pipes

Typical Process Conditions:

- Typical Process Temp (°C) - 180 – 220

Regulatory Information

- Meets the requirements stipulated in standard IS: 10146:1982 on "Specification for Polyethylene for safe use in contact with foodstuffs, pharmaceuticals, and drinking water". It also conforms to IS 16738:2018 "Positive List of Constituents for Polypropylene, Polyethylene and their Copolymers for its Safe Use in Contact with Foodstuffs and Pharmaceuticals"
- The grade and the additives incorporated in it also comply with the FDA: CFR Title 21,177.1520, Olefin polymers.
- The level of antioxidant in 45GP004 is not more than 0.3% by mass of the resin.

Storage Recommendations

- Bags should be stored in dry/closed conditions at temperatures below 50°C and protected from UV/direct sunlight.

DISCLAIMER

The information contained herein may include typical properties and processing parameters of the grade or its typical performances when used in respective applications. The values given above are based on analysis of representative samples and not the actual product supplied. It is the customer's responsibility to inspect and test our grades in order to satisfy itself as to the suitability of the products for customers' particular application. The customer is solely responsible for all determinations regarding any use of material or product and any process in its area of interest. RIL assumes no obligation or liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of using any of the information or product given in this document. The information and data presented herein is true and accurate to the best of our knowledge. No warranty or guarantee expressed or implied, is made regarding performance or otherwise. This information and data may not be considered as a suggestion to use our products without taking into account existing patents, or legal provisions or regulations, whether national or international. The user of any information and/or data is advised to obtain the latest details from any of the offices of the company or its authorized agents, as the information and/or data is subject to change based on the research and development work undertaken by the company.