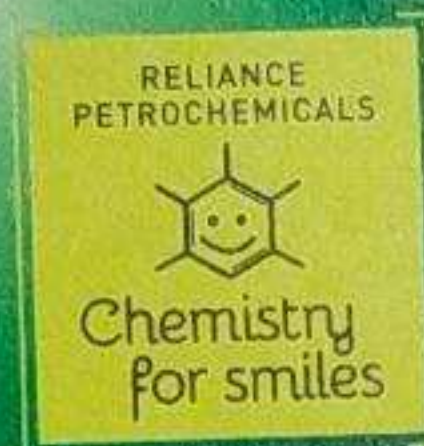


Delivering *life*



DELIVERING SPECIALISED PRODUCT



Xflo PE Pipes

Reliance introduced the most innovative PE pipe product Relpipe Xflo™ with a special white inner layer of polymeric lubricated material offering advantages of:



Higher flow and low power consumption



Free from rust and ultra violet radiation



Coil as well as Sprinkler pipes in the range of 20 mm to 110 mm



PUMPING PRESSURES AND SURGES

The inherent flexibility and creep recovery characteristics of Relpipe Xflo™ enables these pipelines to absorb impact loads, vibrations and stress caused by soil or ground movements.

This also means that Relpipe Xflo™ pipes resist transient surge pressure in the presence of cyclic loading (pumping mains, heavy traffic loading conditions).

NON-CORROSIVE AND UV RESISTANT

Relpipe Xflo™ is chemically inert within the normal temperature range it is used in. It does not rot, rust, pit, corrode or lose wall thickness through chemical or electrical reaction with the surrounding soil. Relpipe Xflo™ Pipes are compounded with carbon black which protects the pipes from the effect of UV light and enables pipes to be stored and used above the grounds.

HYDRAULIC PROPERTIES

The smooth bore of Relpipe Xflo™ Pipes enables them to be treated as hydraulically smooth when used for the conveyance of potable water. Studies conducted by Vadodara Municipal Corporation with Relpipe Xflo™ validated the fact that smooth inner flow gives higher flow rate than the conventional galvanized iron (GI) pipes.

NO LEAK FROM WITHIN OR OUTSIDE – EASY FIT COMPRESSION FITTINGS

Relpipe Xflo™ Polyethylene pipes are available with international approved compression fittings. These fittings supplied by Reliance are KIWA and WRc approved and are commonly used for all types of PE pipes joints that need no special skills for jointing.



RELPIPE: MANUFACTURING FACILITY

Relpipe plant of RIL makes the following pipes for various applications:

Xflo PE Pipes - for irrigation, bore wells and water supply.

IS4984 : 2016 PE Pipes - for water supply, irrigation and submersible pumps etc.

IS14333 : 1996 PE Pipes - for waste water, sewerage, drainage, effluent, slurry etc.

IS14151 (Part 1 & 2) PE Pipes - for sprinkler irrigation.

IS15801 : 2014 PP-R (Polypropylene random co-polymer) Pipes - for hot and cold water plumbing / process plant application.

We also make PE Pipes to various international standards such as ISO4427, ISO4437 : 2007, DIN 8074 :1999, EN 12201-2 : 2003 (Pipes for water supply) ASTM D 2513 / ASTM F2619 (PE Pipes for Coal Bed Methane Gas & Associated water flow), DIN 8077/78, etc.

ADVANTAGES & BENEFITS OF PE PIPES

- C value 150 - least frictional loss - techno - commercial gain.
- Non - toxic, microbial resistant and food grade.
- Tough, impact resistance, flexible - can be coiled up to 125 mm OD.
- Lower weight (3 times lighter than Al, 8 times lighter than Steel).
- Excellent water hammer / surge characteristics.
- Durable, long term working life ~ beyond 50 yrs.
- High abrasion resistance & no corrosion / incrustation over its lifetime.
- High stiffness: withstands long term internal pressure, static & dynamic loads when buried.
- Resistance to ultraviolet and thermal degradation.
- Temperature resistance (-40°C to 60°C).
- Suitable for gas flow application viz LPG / CNG etc.
- Preferred material of construction with techniques of HDD, pipe bursting, slip lining etc.
- Jointing by heat fusion, socket fusion, compression, fittings, mechanical-joint coupling and flange joint.
- Leak-proof fusion joints - Strong as the pipe itself.
- Fewer fitting required - Flexible PE pipe can be cold-bent in the field to follow contours easily reducing the need for fittings.
- Ease in laying on hilly terrains. Low maintenance required.
- Online tapping for gas and water connection possible.
- Lowest cost of ownership.



Relpipe: Manufacturing Facility

RIL has a state-of-the-art ISO 9001 certified pipe manufacturing facility at Hazira, Gujarat. The Battenfeld extrusion lines (capacity of ~80,000 MTA) process a variety of Polyolefins meeting Indian and International standards. A fully integrated Quality-Laboratory facilitates testing from raw material to end product. The pipes are manufactured & marketed with the brand name 'RELPIPE'.



Pipe Manufacturing Facilities – Hazira

- PE Pipe product range - 16 mm to 450mm/2.5 kg to 20 kg, from PE 63/80/100 grade in various standards
- X flow / ISI Coils for Water Supply • Sprinkler Pipes
- PPR (Poly Propylene Random) Pipes and Fittings • Duct Pipe and accessories for Telecom Sector
- Gas Pipes • In-house / Outsourced Moulded & Fabricated Fittings
- Cable Ducting with Innovative Coupling System • Electro fusion and Compression Fittings*





DELIVERING TRUST. DELIVERING QUALITY. DELIVERING RELIABILITY.



Reliance Polymers

Reliance offers various Polyethylene grades to meet the growing market demands across a wide range of densities, melt flow index and minimum required strength (MRS) for applications like high-pressure pipes for fluid conveyance, telecom ducts, supply of gaseous fuels, irrigation, etc.

The pipe extrusion grades enlisted below are classified on minimum required strength and long term hydrostatic properties as per ISO-12162 and testing and evaluation according to ISO 9080.

Most grades carry the prestigious Exova* certification, while some more are under the certification process.

Resin	Grade	Brief
PE63	46GP009	Natural resin
PE63	46GP009UV	UV Natural resin
PE80	45GP004	Natural resin*
PE100	46GP003	Natural resin*



ADVANTAGES & SALIENT FEATURES

Pipes manufactured from PE 80 or PE 100 grade of raw material offer techno-commercial advantages and are finding widespread usage in the country.

Classification of Materials

Sr. No.	Material Classification (Grade)	MRS (Minimum Required Strength) of PE Resin at 20°C for 50 year life Mpa	Design Stress at 20°C Mpa
1	PE 63	6.3	5
2	PE 80	8.0	6.3
3	PE 100	10.0	8

ISO Standard

IS : 4984 Standard

Advantages & Benefits of PE Pipes

- C value 150 - least frictional loss - techno-commercial gain
- Non-toxic, microbial resistant and food grade
- Tough, impact resistant, flexible - can be coiled up to 125mm OD
- Lower weight (3 times lighter than Al, 8 times lighter than Steel)
- Excellent water hammer / surge characteristics
- Durable, long term working life ~beyond 50 yrs
- High abrasion resistance & no corrosion / incrustation
- High stiffness: withstands long term internal pressure, static & dynamic loads when buried
- Resistance to ultraviolet and thermal degradation
- Temperature resistant (-40° C to 60°C)
- Suitable for gas flow applications viz LPG / CNG etc
- Preferred material of construction with techniques of HDD, pipe bursting, slip lining etc
- Jointing by heat fusion, electro fusion, socket fusion, compression, fittings, mechanical-joint couplings and flange joint
- Leak-proof fusion joints - strong as the pipe itself
- Fewer fittings required - Flexible PE pipe can be cold-bent in the field to follow contours easily reducing the need for fittings
- Ease in laying on hilly terrains. Low maintenance required
- Online tapping for gas and water connection possible



PE 63



PE 80
(17% Reduction
in Weight)



PE 100
(34% Reduction
in Weight)



PRODUCT CONFORMITY STANDARDS

- IS: 4984: 2016 High Density Polyethylene Pipes for Water Supply
- IS: 14333: 1996 High Density Polyethylene Pipes for Sewerage & Effluent
- IS: 14151 (Part 1) Polyethylene Pipes for Sprinkler Irrigation
- IS: 15801: 2014 – Polypropylene Random Co-Polymer (PP-R) Pipes & Fittings
- ISO 4427: 2007 - Plastic piping systems - Polyethylene (PE) pipes and fittings for water supply - Part 2 : Pipes
- ISO 4437: 2007 - Buried Polyethylene (PE) pipes for the supply of gaseous fuels - Metric series - Specification
- DIN 8074: 1999 - Polyethylene (PE) pipes
- EN 12201-2: 2003 Plastic piping systems for water supply – Polyethylene (PE) – Part 2 : Pipes
- DIN 8077/78 – Polypropylene Random Co-Polymer (PP-R) Pipes & Fittings

Our Engineering team will be happy to examine any special requirements.

DELIVERING CONVENIENCE & DURABILITY THROUGH URBAN AND RURAL INFRASTRUCTURE

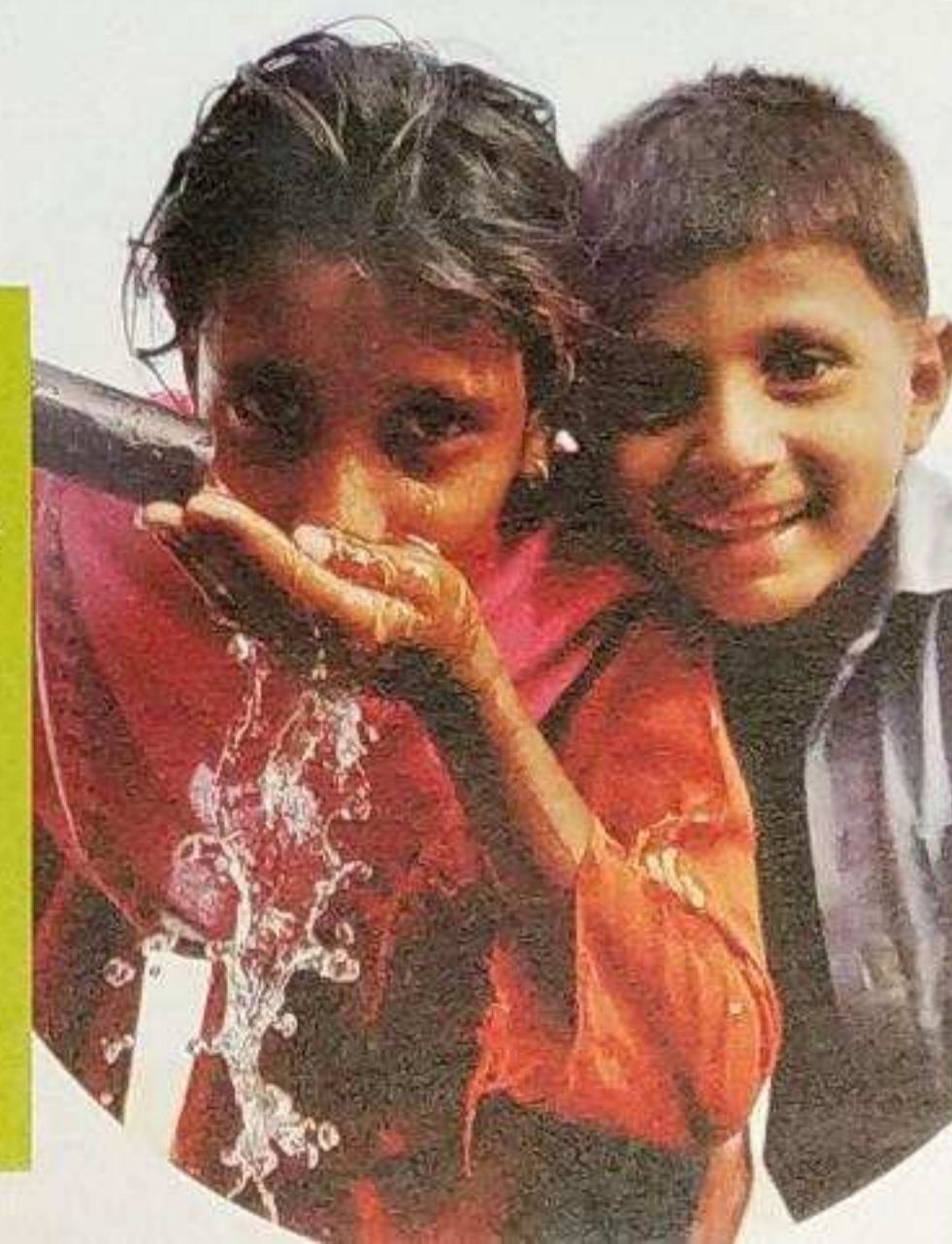
The transportation of water is one of the major challenges in our nation today. The piping material adapted needs to be cost effective and should offer the lowest 'Unit Cost of Delivered Water'. An evaluation of the various materials in terms of cost, availability, engineering properties, speed and ease in installation life cycle and maintenance makes PE Pipes a preferred MOC.

The various applications related to urban and rural infrastructure are as follows:

- Potable Water Supply
 - Transmission Main - Rising and Gravity
 - Distribution & Service Line
 - Internal Plumbing
- Sewage Disposal
 - Treatment Plant Piping
 - Gravity and Pressure Line for Sewage Disposal
- Raw Water Supply Lines
- Ducts for OFC: Telecom
- Microducts for Fibre to the Premises (FTTx):
IT, Telecom, Broadband Connectivity
- Power Generation
 - Power Cable Encasing
 - Fly Ash Disposal
- Fire Fighting Pipe Line
- Suction and Delivery Pipe Lines for Pumps

Unit Cost of Delivered Water is minimum in PE

- Life Cycle More Than 50 yrs
- Lowest Power Cost
- Constant Flow
- Capacities
- Minimum Maintenance
- Easy Installation
- No Leakages



Test	Test Method	Performance
Outside Diameter	IS 4984	14 +/- 0.1 mm
Density	ASTM D 792	940 - 958 Kg/m ³
Melt Flow Index @ 190°C on 5 Kg. load	IS 2530	0.2 - 1.1 gms/10 min.
Crush Resistance Test - Deflection @ 100 Kg. load	R4G Project Spec	< 10%
Crush Resistance Test - Deflection (5 mins. after recovery)	10070-40-EF- PSS-PR-029	< 2%
Reversion Test - Deviation	IS 4984	3% max.
Impact Strength with 1 Kg. load (Height - 1.5 m)	IS 12235 (Part-9)	No Crack & Split
Internal Coefficient of Friction (ICOF)	Bell Core GR 356	≤ 0.12
Tensile Strength at Yield (using Type V Specimen)	ASTM F 2160 & ASTM 638	Min 20 N/mm ²
Elongation at Break		Min 400%
Oxidation Induction Test	ASTM D3895	Min. 30 mins
Hydraulic Characteristics @ 80°C/2.1 mpa/165 hours)	IS 4984	No localized swelling or leakage during the test period
Coil Set	TEC GR No. GR/MDS- 01/01 Feb 2010	Shall be straight without any bends or kinks and without deformation
Mandrel Test		Freely Pass Through
Bead Ball Blowing Test		Freely Pass Through



DELIVERING SPECIALISED PRODUCTS

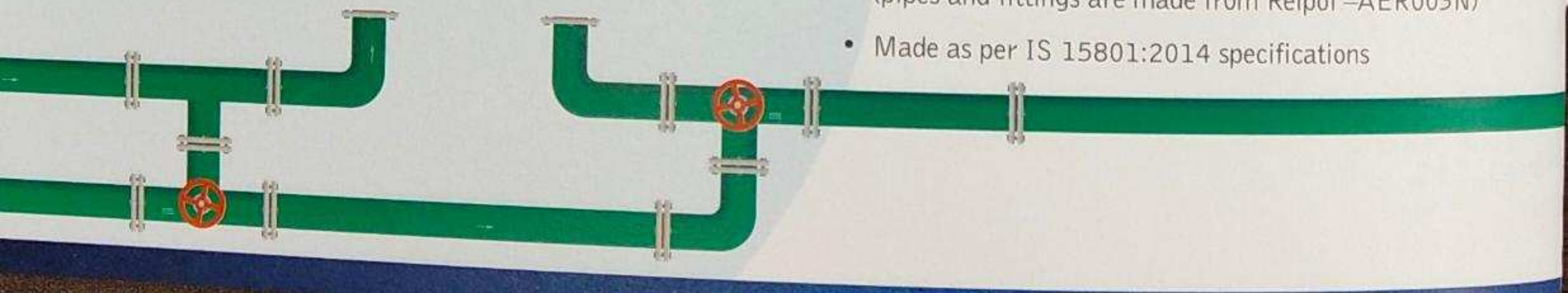
Xflo PE Pipes

Reliance introduced the most innovative PE pipe product Relpipe Xflo with a special white inner layer of polymeric lubricated material offering advantages of:

- Higher flows and low power consumption
- Free from rust and ultra violet radiation
- Coils as well as Sprinkler pipes in the range of 20 to 110 mm

Polypropylene Random Copolymer (PP-R) pipes

PP-R pipes are used for hot and cold water applications. Relpipe PP-R pipes are finding wide acceptance among building contractors, colony water schemes, chemical plants, DM plants, individual house users, etc. because of following advantages:

- Easy to join
 - Distribute clean water safely – Non-toxic hygienic product
 - Cost-effective over conventional piping material
 - Properties like long term performance, corrosion resistance, no incrustation, leak proof plumbing besides thermal stability for hot water, good chemical resistance etc.
 - Complete range of Pipes and fittings 20 mm to 110 mm (pipes and fittings are made from Relpol –AER003N)
 - Made as per IS 15801:2014 specifications
- 

Reliance Industries Ltd. (RIL)

Reliance Industries Limited (RIL) is India's largest private sector company on all major financial parameters, and the first Indian Fortune 500 company too. It has a formidable presence in Petrochemicals with diverse product offerings, such as Polyesters, Polymers, Elastomers, Aromatics & Fibre Intermediates. In each of the product groups, Reliance ranks among the top ten global leaders. Reliance endeavours to partner its customers in developing products & services that bring smiles to the faces of end-consumers and add value to life, through an initiative called 'Chemistry for Smiles'.

For further details contact:

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