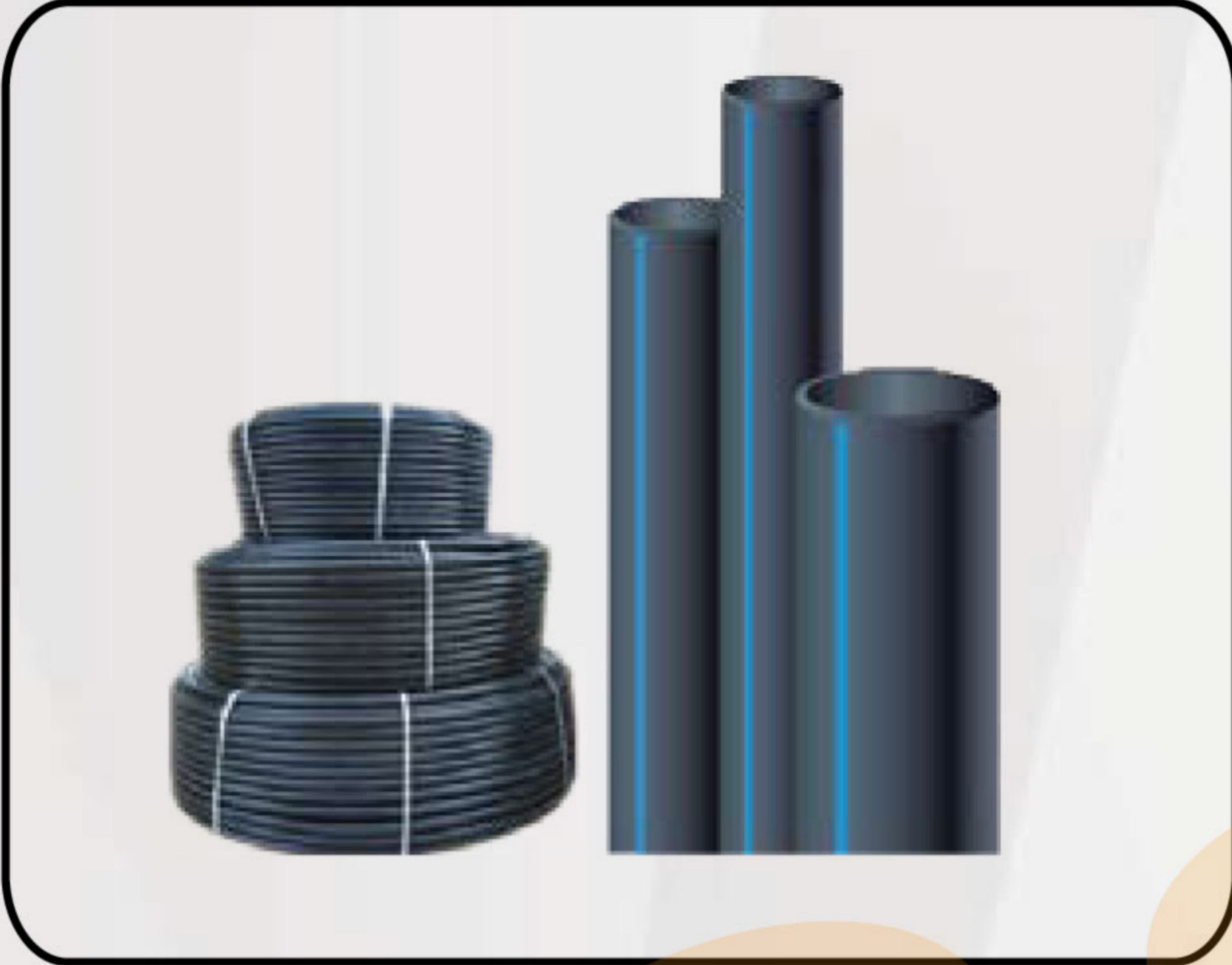


## HDPE Pipes

Polyethylene is recognized internationally product for gas and water distribution. Polyethylene is flexible, leak-tight and highly resistant to chemical attack. PE 80 and PE 100 pipes fittings are suitable for use where ground movement is expected, where corrosive soils are present and where long ducts and flexibility in bending are required.



### Scope and Field of Application

Although principally developed for conveying water and gas, polyethylene pipes have many other applications. HDPE pipes become widely adopted in a variety of piping systems which are successfully used for many applications some of which are:

- 1- Potable water supply and distribution pipelines
- 2- Drainage and sewerage
- 3- Irrigation systems
- 4- Fire fighting networks
- 5- Chilled water
- 6- Electrical conduits
- 7- Gas distribution
- 8- Industrial and chemical applications

### General Properties

The properties of PE have been described as

- Light and easy to handle
- Impact resistant and long lasting
- Corrosion resistance
- Strong
- Conveniently Flexible
- Tough
- Resists cracking
- Low frictional resistance
- Resistance to chemical attack

### Strength

The strength of a pipeline may be considered as the ability to withstand stress in the pipe material under internal pressure over a period of time. The design stress considered within the water industry is taken to be a life expectancy in excess of 50 years.

### Toughness

In practice it is recognized that PE is a tough material. The many years of successful installation of PE pipe in the water and gas applications added confidence of this recognition.

### Flexibility

The inherent flexibility and recovery of PE enables the pipeline to absorb impact loads, vibration and stress caused by soil or ground movement which implies that PE have useful fatigue characteristics where loading are present, ( pumping and heavy traffic loading conditions).

The property of flexibility enables PE pipelines to be countered to difficult road layouts or rapid changes of direction.





## Chemical effects

PE has a good resistance to a wide range of chemicals. It does not rot, rust, pit, corrode or lose wall thickness through chemical or electrical reaction with the surrounding soil.

## Weatherability

Generally PE material has good weatherability properties and can withstand the variation of the weather without degradation.

## Hydraulic properties

The smooth bore of PE pipes enables them to be treated as hydraulically smooth when used for the conveyance of potable water.

## Low temperature

The mechanical properties of PE allow the pipe to be successfully operated in low temperature environment because PE will retain its flexibility until temperature as low as  $-60^{\circ}\text{C}$  are reached.

## Corrosion resistance

Corrosive ground (e.g. ground with low Ph or high sulphate characteristics) has little or no effect upon PE but all metal fittings, bolts, etc., should be carefully protected in the normal way.

