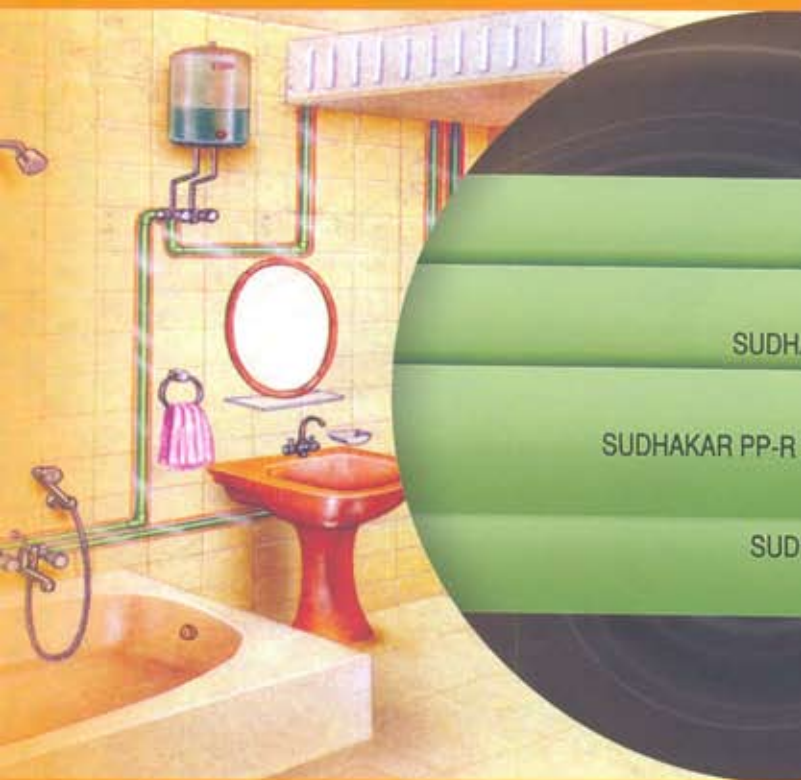
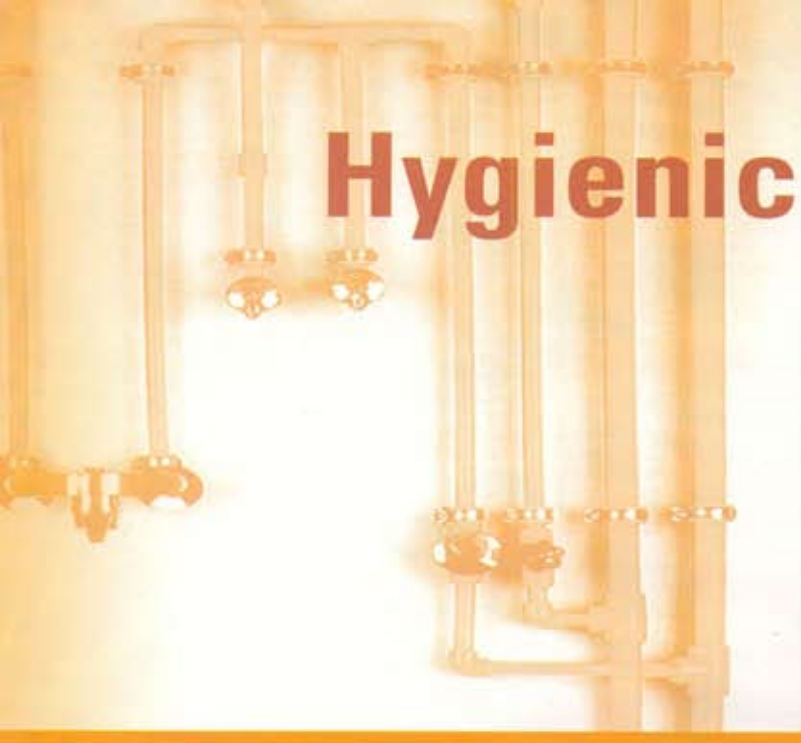


Hygienic Plumbing System



SUDHAKAR PP-R PIPES

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PP-Random Piping System

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What is PP-R ?

- Polypropylene homopolymer (PP-H) is made by polymerizing propylene in the presence of a catalyst at moderate temperatures and pressures.
- By introducing ethylene as a co-monomer during polymerisation polypropylene copolymer can be produced. If dispersion of ethylene is at random then it is called as polypropylene random copolymer. (PP-R).

Range : Sudhakar PP-R Pipes are available in the sizes of 20, 25, 32, 40 & 50mm. Maximum permanent operating pressure is 10 bar at 60°C. Pipes are manufactured as per the norms DIN 8077- 8078 and fittings as per DIN 16962.



PP-R Plumbing Systems Applications

- Hot and cold water supplying pipes
- Water Lines
- Water purifying plants
- Lines for conveying liquid food products
- Industrial Systems
- Conveying aggressive fluids like acids, alkaline solutions
- Pipes for Agriculture use
- Radiator heating pipes.
- Under floor heating pipes



PP-R Plumbing Systems Advantages :

Conventional Metal Pipes (G.I., C.I. and copper based) are used for hot water and other plumbing applications. PP-R Pipes can replace metal pipes. These Pipes are not only cost effective but has host of other advantages such as :-

- **Resistance to abrasion and corrosion :** • No corrosion by acid and alkaline fluids with pH values between 1 and 14 • High chemical resistance
- High abrasion resistance => High flow velocities possible. **High internal pressure resistance :** • Upto 50 years life time at 60 or 70 C and 10bar maximum pressure. **Drinking Water :** • Compliance with the international standards on the use of plastic materials for the transportation of drinking water. **Very smooth surface of pipes and fittings :** • No lime stone or othe deposits • Head loss / pressure drop reduced to a minimum. **Energy saving :** • low heat conductivity of PP-R Leads to 10-20% energy saving, even without external insulation. **Reduced Condensation :** • Low heat conductivity reduces the condensation of water on the outer surface of cold water pipes. **Silence / Sound absorption :** • Considerable noise reduction in comparison to metal. **Low weight :** • Easy transport and handling **Resistance to stray currents :** • PP-R has a low electrical conductivity. Perforation phenomena caused by stray currents are unknown. **Fitness for use in seismic areas :** • Flexibility and toughness of the PP-R Pipes allow their use in seismic areas. **Threaded insert fittings :** • Water tight assemblies with other metal elements in the installation. **Welding capacity :** • 100% homogeneous connections, guaranteing no leak, reliable & Long Lasting System • Fast and easy installation

OD mm	Wall Thickness (mm)		
	SDR-11 (PN-10)	SDR-7.4 (PN-16)	SDR-6 (PN-20)
20	1.9	2.8	3.4
25	2.3	3.5	4.2
32	2.9	4.4	5.4
40	3.7	5.5	6.7
50	4.6	6.9	8.3

PP-R Plumbing Systems Precautions

- Transport & Handling** • The products should be handled with normal care. Pipes and fittings with imperfections should not be installed.
- Exposure to UV Rays** • It is recommended neither to store nor to install the product in places which are directly exposed to UV rays.
- Bending** • If the bend radius is shorter than 8 times the dia of the pipe, it is recommended to heat up the part concerned by means of a hotair blower.
- Threaded Joints** • To ensure tightness, teflon or similar products can be used while fixing with the metal joints.
- Thermal Expansion** • The thermal expansion of plastics is higher than that of metals, hence the length expansion compensation should be considered.
- Welding** • Only chemically similar materials are supposed to be welded. Thus Polyethylene and polypropylene should not be welded. For the same material, the products to be welded should have approximately the same fusion index.
- Support** • The PP-R pipes are not self-contained so it is necessary to support them at specific distances.
- Pipe Cutting** • Cuttings should be carried out using tools which ensure a clean cut free from burrs and perpendicular to the axis.
- Low Temperatures** • At temperatures below 0° C, following precautions should be taken : • Pay attention when cutting the pipe. • Check the cut made. • Avoid impact and excessive strains • Not to mark elbows with very narrow radius. • In presence of cold draughts, welding must be carried out in protected areas, to avoid a quick cooling of the surfaces to be welded.

PROPERTY AND COST ANALYSIS

Characteristics	PP-R	CPVC	GI	COPPER	S.STEEL
Light Weight	Yes	Yes	No	No	No
Rust Proof	Yes	Yes	No	Yes	Yes
Ease of Jointing	Modern Method	Easier	Easier	Easier	Easier
Thermal insulation	Good	Good	Poor	Poor	Poor
Hot Water appln	Yes	Yes	Yes	Yes	Yes
Cost	Cheap	Costly	Costly	Very Costly	Very Costly

PP Pipes & Fittings : International Standards

Following Standards are Applicable to PP Pipes & Fittings :

- DIN 8077** - Polypropylene Pipes, Dimensions
- DIN 8078** - Types 1,2,3 Polypropylene Pipes, General Quality requirements and testing.
- DIN EN ISO 12612** - Thermoplastic Materials for pipes and fittings for pressure applications Classification, Designation and overall service co - efficient.
- DIN 16962** - Polypropylene Fittings.

Manufacturers :

Sudhakar Plastic Limited.,

Balaram Thanda, Near Industrial Estate, SURYAPET - 508 214. Nalgonda Dist. A.P., India.

e-mail : sales@sudhakarpipes.com
www.sudhakarpipes.com