

Comparison of Various Plumbing Materials

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Parameter	GI	PPR	cPVC	Compo- site	Cu	SS	Why SS is better
Corrosion Resistance	1	5	5	5	4	5	Stainless Steel grades 304/316L have better corrosion resistance. Even copper has Green corrosion of Copper Sulphate which is poisonous
Hygiene	1	3	3	4	4	5	Food Grade, Recommended for Drinking water, Food and Pharma equipment
Maintenance Free Life	1	3	2	1	3	5	Minimum replacement costs
Enhances Building Life	1	3	3	1	4	5	Negligible leakage, hence least damage to building
Strength of Pipes	4	2	1	1	3	5	Stainless steel is the strongest among competing materials
Ease of Installation	2	2	3	3	2	5	Fast installation with Low Skill worker
Earthquake Proof	3	2	2	5	3	5	Withstands the vibrations and shocks due to its ductile nature
Cleanability	1	2	2	2	4	5	Lowest deposit buildup due to smooth surface
Food Grade	1	2	2	2	4	5	Meets all food grade standards
High temperature Application	3	1	1	1	4	5	Retains strength at high temperature
Low Temperature Application	3	1	1	1	3	5	Is not brittle at low temperature, unlike plastics or GI
Fire Resistant	4	1	1	1	3	5	Withstands High temperature.
Experience of Usage	5	1	1	1	5	5	Worldwide usage experience of 30-40 years
Outside Painting Required	1	5	5	5	5	5	No need of painting
Deposition of Algae	2	1	1	2	3	5	Smooth surface prevents algae buildup
Blockage Problem	1	2	2	2	4	5	No deposit buildup hence no blockage
Damage due to Drilling	4	1	1	1	4	5	Strongest material doesn't get damaged due to drilling
High Flow Rate of Water	2	3	3	2	3	5	Smooth and Wear resistant at High Flow rate
Low Roughness (less scaling)	1	3	3	2	4	5	Smooth surface prevents deposition
Usage in Public Building	1	1	1	1	2	5	Strong material not easily damaged
Wear Resistant	1	1	1	1	1	5	Not effected by sand or high flow rate
Joint Assurance System	3	1	1	1	2	5	No Welding or Solution joining. Permanent Mechanical Joint checked for each joint by gauge
Saves Pumping Energy	1	3	3	2	4	5	Smooth surface need less electricity
Water Quality affect	1	5	5	5	4	5	No change in water quality during storage
Pressure Rating	3	2	1	1	3	5	Highest Design pressure rating of 25 bar
Joint Strength	2	1	1	1	2	5	Press fit joint has foolproof and high strength joint
Application Range	3	2	2	2	4	5	Used for Air, Water and Many Gases
Less conduiting (Jhiri) Requirement	2	1	1	3	3	5	As Pipe dia is less
High Wall Strength	3	1	1	3	3	5	Less Brick cutting for piping retains its strength
Saving in Labor Cost	1	4	5	5	1	5	Fast installation with Low Skill worker
Saving in Installation Time	1	3	3	5	1	5	Fast to install (approx 1/3rd time of GI piping)
Application in High Rise Buildings	3	2	2	2	4	5	Not affected by Vibration and Wind Speeds
Reduces Space requirement in Shafts	2	1	1	2	3	5	Since lower dia is possible, saving in Shaft sizes possible
Life Cycle cost	1	3	3	1	4	5	Lowest lifecycle cost
Equivalent ID (NB sizes shown)	1/2"	1"	1"	1"	1/2"	1/2"	Plastics are commonly denoted by OD sizes
Low Diameter possible (eq. OD)	3/4"	1"	1"	1"	1/2"	1/2"	High flow rates, less deposits, allow for use of low diameter
Cost index (GI = 100%), incl. Labor	100	90	80	110	200	140	Slightly more than GI and others
Total 5 * Ratings	1	3	4	6	2	34	Highest Rating in most parameters

RATING: 1= Poor, 5= Best