The advantages of plastics for piping systems

Thermoplastics have a great many advantages to offer to the designer, installer and user of piping systems. They have been proven in the field for in excess of 40 years, and are used for both above and below- ground applications. Some of the many common uses include piping to transport gas, waste and clean water, chemicals, heating and cooling flu-ids, foodstuffs, ultra-pure liquids and slurries with abrasive solids.

Some of the key advantages of plastics for piping systems include:

Corrosion resistance

Plastics are non-conductive and are therefore immune to galvanic or electrolytic erosion (a major cause of failure in metal pipe systems). This corrosion resistance allows for the widespread use of plastics in above ground, exposed situ-actions, or below ground buried in acid or alkaline and wet or dry soils.

Chemical resistance

Plastics have excellent chemical resistance which allows the safe transportation of many acids, alkalis, and chemical concentrations without the risk of leaks due to corrosion of the material.

Abrasion resistance

Fluids carrying aggressive slurries or solids can be safely transported through most thermoplastics without the possibility of damage from abrasion or erosion.

Lightweight

Plastic piping is roughly one-sixth the weight of a steel piping system in the same size. It is easier to transport, handle and can be supported with corrosion resistant plastic fixings.

Non-toxic

Plastics are non-toxic and taint-free so they can be used for the transportation of potable water, foodstuffs and pharmaceutical products. Many of the thermoplastic piping systems available from International Plastic Systems have been independently tested and carry an approval from the UK Water Regulations Advisory Scheme.

Low thermal conductivity

all plastics used for piping have low thermal conductance. This advantage will help maintain the temperature of the flu-ids that are transported in plastic piping. In many cases the minimal heat loss through the pipe wall can also be used to eliminate or greatly reduce the need for pipe insulation.

Smooth bore

Metal systems frequently sutler from internal scaling or corrosion that, over time restricts the flow of liquid in the pipe. Plastics have an exceptionally smooth bore, resisting scaling and pitting and giving low frictional head losses for the life-time of the installation.

Easy installation

In many cases, thermoplastic piping can be installed with no special tools or equipment using cold solvent welding techniques. Other plastics use heat fusion techniques that can be used in the workshop or on site. In all cases, correctly made joints in thermoplastic piping systems offer excellent chemical resistance and mechanical properties.

Life expectancy

Thermoplastic piping systems are manufactured to exacting tolerances and demanding specifications, such that the design life for these materials can usually be estimated to be a minimum of 50 years.

Safety

High margins of safety are available when choosing thermoplastic piping systems, which are in accordance with inter-nationally recognized manufacturing standards. Margins of safety depend upon the material of construction, temperature, pressure and process conditions but typically they range from 1.25:1 up to 2.5:1.