

High temperature Chlorine pipe

ICI Mond Division, Runcorn UK

For more than a quarter of a century, corrosion had been causing severe problems in chlorine/alkali plants. The ICI engineers recognised the use of GRP equipment in chlorine/alkaline plants, and therefore specified that all the pipework for wet gas and chlorinated brine should be constructed using Atlac resin.



MANUFACTURING CHLORINE

Chlorine manufacturing is carried out in cells by electrolysis of brine (sodium chloride solution) in chlorine gas and sodium hydroxide solution. Both streams are purified before use in other processes. All equipment facing aqueous process environments in the chlorine/alkaline electrolysis can be manufactured of Atlac based Glassreinforced plastic products.

In addition to chlorine manufacture, other important uses of GRP include brine treatment, chlorine treatment and gaseous and liquid effluent treatment. In the ICI chlorine production plant, a variety of plant items were made of GRP, including vessels, piping, ducting, valves, pumps, fans, covers and vent stacks.

MATERIAL OF CHOICE

The ICI engineers and maintenance staff recognised that the use of GRP equipment in chlorine/alkali plants lead to many benefits. The service life of GRP is significantly longer than traditional rubber-lined steel. And due to its non-conducting behaviour, GRP minimises stray

currents to ground, resulting in large savings in electrical power costs.

That is why Atlac is used for all thie pipework for wet gas and chlorinated brine in the 'K' plant. Furthermore, on cell headers and covers for mercury cells, pipework and venturi scrubbers are also manufactured using Atlac resins.

THE ATLAC SOLUTION

Atlac 382 is a propoxylated bisphenol A fumarate unsaturated polyester resin, and the mainstay of the Atlac product family with more than 35 years of proven performance in the field of chemical resistant FRP applications. The cured resin combines excellent high-temperature behaviour with outstanding resistance against a broad range of aqueous, acidic, salt and alkaline solutions. In particular, its resistance to strong inorganic acids and oxidising media is superior. Atlac GRP is also readily available, easy to maintain, low in weight and offers great deisgn freedom.

SUMMARY

> Chlorine piping system

OPERATING CONDITIONS

> 90 - 100% Chlorine at 90°C working temp
pressure: 5 Bars

ATLAC SOLUTION

> Atlac 382 bisphenol A polyester

IN SERVICE

> 01-01-1968

BENEFITS

> Corrosion free
Chemical resistant
Heat resistant
minimised stray currents

REMARKS

> All the pipework for wet gas and chlorinate brine in 'K' plant is Atlac.
Further on cell headers and covers for mercury cells, pipework and venturi scrubbers are manufactured of Atlac.

Customer Case

Technical details	
Application	Piping system
Medium	90-100% Chlorine
Conditions	Working temperature of 90°C.
	Pressure of 5 bars.
Construction details	Maximum diameter is 1 metre
Resin	Atlac 382 bisphenol-A polyester
Commissioning	01-01-1968
Inspected	01-01-1971
Manufacturer	Prodorite, APV-Kestner, Plastics Design & Engineering, ICI maintenance staff.
End user	ICI Mond Division
Location	Runcorn, England
Remarks	All the pipework for wet gas and chlorinated brine in 'K' plant at Runcorn is Atlac.

About DSM

DSM Composite Resins is the largest producer of unsaturated polyester resins in Europe. With production facilities in many different European countries, DSM Composite Resins offers a wide range of resins, matching every conceivable processing and end-use requirement, in the most diverse applications. Local Sales offices and Technical Service laboratories enable close cooperation and partnerships between customers and DSM Composite Resins. Central Research & Development is fully equipped to develop and test new resins and to tune systems for optimal results in specific processing techniques. The development, service and manufacture of composite resins are certified according to ISO 9001.

About Atlac

For several decades Atlac resins have proven themselves highly suitable in applications where chemical and thermal resistance in combination with high mechanical properties are required. Atlac resins have outstanding corrosion resistance to a wide range of organic and inorganic acids, alkalines, solvents and bleaches. They are widely used for fibre-reinforced applications such as storage tanks, vessels, pipes and ducts. The Atlac resins can be processed by means of a wide range of fabrication techniques, including filament winding, hand layup, spray-up, and polymer concrete.

Contact

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