

SYLWRAP Case Study

Sulphuric Acid Line Elbow Reinforcement

An elbow on a 100mm sulphuric acid line required urgent reinforcement after it was discovered to have degraded from 22mm thickness to just 1mm



The weakened elbow joint was coated with Industrial Metal Epoxy paste for reinforcement

Defect

The line was located at one of Saudi Arabia's busiest petrochemical refineries. A routine inspection revealed it to have degraded by 21mm.

140 million barrels of petroleum products and 5 million tons of petrochemical products were produced per year at the refinery.

Shutting the line to replace the elbow would have severely impacted on output. A way of reinforcing the pipe was therefore needed to keep it working until a more convenient time for replacement.



Industrial Metal was applied via a hand tool by an engineer to encompass the entire elbow

Solution

The line normally operated under 22 bar pressure. This was reduced to 8 bar during the application.

Industrial Metal Epoxy Paste was applied with a hand tool. It cured to form an outer shell surrounding the elbow. If the original line was now breached, its contents would be contained by a casing with high corrosion and chemical resistance.

A SylWrap HD Pipe Repair Bandage was then applied over the Industrial Metal. This provided further reinforcement to the pipe by creating an impact resistant layer and increasing hoop strength.



SylWrap HD was used to complete the repair, setting rock hard for an impact resistant layer of protection

Result

24 hours after the application and the line was back fully operational at 22 bar pressure.

Inspections of the elbow over the next two years showed that there had been little to no decrease in the strength of the repair, allowing the refinery to further delay the installation of a replacement line.