Graphite Heat Exchanger restored with Belzona

ID: 7987

Industry: *Fluid Flow*
Application: *HEX-Heat Exchangers*
Substrate: *Graphite*
Products: ** Belzona 1391T ,*

Customer Location: *Huelva - Spain*
Application Date: *June 2018*

Problem

The tube sheet and some of the tubes have been severely damaged due to a combination of chemical and erosive attack. The loss of material causes a reduction in the thermal efficiency of the heat exchager. Replacement is an expensive option.




Photograph Descriptions

* 1. Damaged Heat Exchanger Tube Sheet 2. Surface Preparation with mechanical grinder 3. PVC pipes in place 4. Completed repair ,

Application Situation

At a facility producing sulfuric acid from copper production by products. A heat exchanger with a graphite tube sheet, operating at temperatures up to 75ºC carrying dilute sulfuric acid, chlorides, and entrained solids.

Application Method

The surface was prepared using a mechanical grinder to remove contamination, getting back to clean & strong graphite, and achieving a rough surface. PVC tubes were inserted to form a mold around which the Belzona material can be poured, to restore the tube sheet back to it's original surface. Belzona 1391T was poured into the damaged areas, restoring the surface dimensions, and used to coat the entire surface, protecting from further damage. The application was carried out in accordance with a modified version of Belzona System Leaflet HEX-01 and HEX-03.

Belzona Facts

As the substrate was graphite, welding techniques to restore the surface were not possible. Replacing the equipment also carries a long lead time and a high cost. Cold applied Belzona materials were perfectly suited to restore the substrate back to it's original profile. Belzona 1391T has the high performance capabilities to resist the service conditions.