

## GRAPHITE HEAT EXCHANGER RESTORED WITH BELZONA

### CUSTOMER

Huelva - Spain

### APPLICATION DATE

June 2018

### APPLICATION SITUATION

At a facility producing sulphuric acid from copper production by-product. A heat exchanger with a graphite tube sheet, operating at temperatures up to 75°C carrying dilute sulphuric acid, chlorides, and entrained solids.

### 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 exchanger. Replacement is an expensive option.

### PRODUCTS

Belzona 1391T

### SUBSTRATE

Graphite

### 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 its 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 its original profile. Belzona 1391T has the high performance capabilities to resist the service conditions.

### PICTURES

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



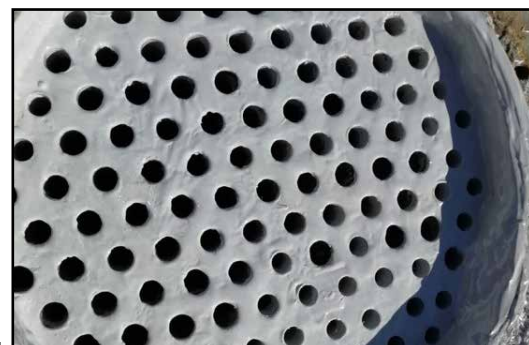
1.



2.



3.



4.

For more examples of *Belzona Know-How In Action*, please visit <http://khia.belzona.com>



Belzona products are manufactured under an ISO 9000 Registered Quality Management System.

UK • USA • Canada • Thailand  
[www.belzona.com](http://www.belzona.com)

**BELZONA**  
Repair • Protect • Improve