

Belzona rescues 3.1m diameter evaporator tube sheet

ID: 10293

Industry: Sugar
Application: HEX-Heat Exchangers
Substrate: Carbon steel
Products: Belzona 1511 (Super HT-Metal), Belzona 1593

Customer Location: Newark UK
Application Date: June 2026

Problem

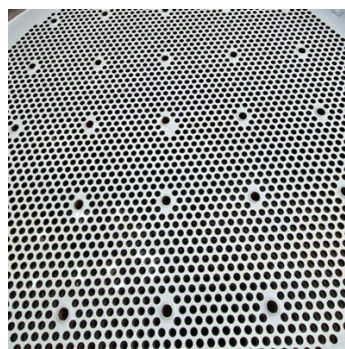
The customer presented the top tube sheet of a large evaporator for assessment while the unit remained in situ. Manufactured from mild steel, the tube sheet was 3,100 mm in diameter and between 30 mm and 35 mm thick. The tube sheet was heavily corroded, with significant pitting and wear across its surface. It housed an estimated 2,000 tubes, each 32 mm in diameter. The evaporator processes raw beet juice at 4 bar and operates at a temperature of 120°C.



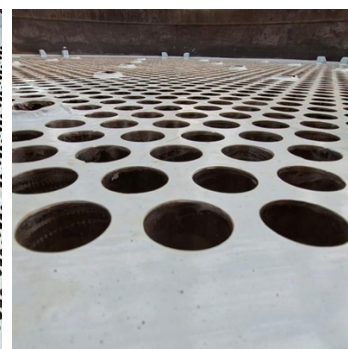
Initial condition of the tube sheet



Corks fitted and ready for Grit Blasting, prior to filling with Belzona 1511



Tube sheet rebuilt, Belzona 1593 applied over the Belzona 1511 and the corks removed



Complete refurbishment of the tube sheet showing Belzona 1593 applied over Belzona 1511, all corks removed and all tube ends dressed using rotary power tools

Application Situation

The tube sheet had suffered extensive corrosion and required a long-term repair solution. While several options were considered, the customer selected Belzona UK to provide an alternative. One option was the complete replacement of the tube sheet, which was estimated to cost approximately half a million pounds.

The Belzona solution restored the integrity of the tube sheet while providing long-term protection against further deterioration. The entire project was completed in just six working days, enabling the customer to return the evaporator to service and commence the next campaign with confidence.

Application Method

All repair works were carried out by Belzona UK's in-house application team.

Access to the work area was established and a temporary enclosure erected to provide a controlled working environment. All equipment and materials were then safely hoisted to the work platform, located approximately 21 metres above ground level. Cork plugs were installed into the 32 mm tubes to protect them during the surface preparation process. The entire tube sheet was then grit blasted in accordance with the Belzona 1511 Instructions for Use, ensuring the required surface profile and cleanliness.

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

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

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were achieved.

Belzona 1511 was mixed and applied across the tube sheet surface, flush with the tube ends, and allowed to cure. Within the specified overcoating window, two coats of Belzona 1593 were then applied in accordance with the Belzona 1593 Instructions for Use.

Upon completion of the coating application, the cork plugs were removed and the tube ends dressed as required. All equipment and materials were subsequently removed from site, with the work area left clean and tidy.

Belzona Facts

The cost of the Belzona application was approximately one-tenth of that associated with a full tube sheet replacement, delivering a significant cost saving for the customer.

Following the successful completion of the project, from initial survey through to final handover, Belzona UK was informed of additional specialist repair opportunities expected to arise in the near future for the Belzona Applications Team.

The client's Project Manager was extremely complimentary of the Belzona personnel involved, specifically highlighting their excellent commitment to health and safety, clear communication, strong work ethic, and high levels of technical knowledge and application expertise.

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