Internal Rehabilitation of Heat Exchanger Using Belzona 1111 & 1321

ID: 9923

Industry:	*Heating, Ventilation & Air Conditioning*	Customer Location:	*2900 Veterans Way, Melbourne, FL 32940*
Application:	*HEX-Heat Exchangers*	Application Date:	*July 2025*
Substrate:	*Carbon steel*		
Products:	*Belzona 1111 (Super Metal),Belzona 1321 (Ceramic S-Metal),Belzona 9111 (Cleaner Degreaser)*		

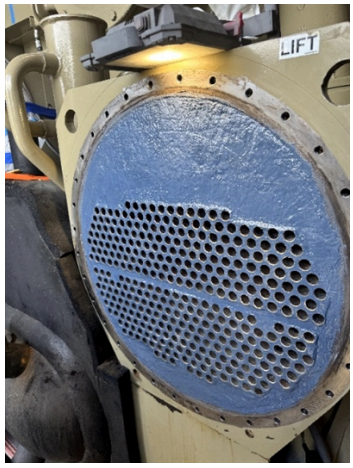
Problem

The customer was experiencing severe internal corrosion in the heat exchanger's tube sheets, covers, and water box. Oxidation had caused metal loss, flaking, and surface degradation, threatening the unit's structural integrity and performance. There was concern about potential leakage and the high cost of replacement.

Initial condition of the heat exchanger showing severe corrosion and rust accumulation on the tube sheet surface.

Surface after abrasive blasting, showing a clean and profiled tube sheet ready for application. Tubes protected using corks.

Rebuilding damaged areas using Belzona 1111 (Super Metal) to restore metal loss and ensure structural integrity.



Completed application of Belzona 1321 in two coats with plugs removed, revealing a smooth and fully protected tube sheet surface.

Application Situation

The customer was evaluating a costly replacement of a corroded heat exchanger. By selecting the Belzona solution, they avoided extended downtime and significant capital expenditure. The application was performed on-site with minimal disruption to adjacent systems, restoring structural integrity and providing long-term corrosion protection at a fraction of the cost of replacement.

Application Method

The internal surfaces were abrasive blasted to obtain a clean and rough surface with an anchor profile of approximately 3 mils. A chloride contamination test was performed after blasting to confirm surface suitability. Degreasing was then carried out using Belzona 9111. Areas with visible metal loss or damage were rebuilt using Belzona 1111 (Super Metal). After the rebuilding process, Belzona 1321 (Ceramic S-Metal) was applied in two coats, grey followed by blue, to ensure full coverage and long-term corrosion protection.

Belzona Facts

By choosing Belzona, the customer avoided the high cost and extended lead time associated with full equipment replacement. Belzona offered an in-situ repair solution with minimal disruption, reduced downtime, and extended service life. The combination of Belzona 1111 and 1321 provided structural rebuilding and long-term protection, making it a cost-effective and technically superior alternative to welding or replacement. Additionally, the visual color contrast between coats ensured proper application and quality control.

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

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

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