

ONTARIO
**KNOW-HOW
IN ACTION**

BELZONA[®]
GREAT LAKES

009/2021

**STEEL
PROCESS TANK
LEAK REPAIR**



BELZONA[®]
Repair • Protect • Improve
AUTHORIZED DISTRIBUTOR

THE PROJECT

LEAK REPAIR
AUGUST, 2017

Pickling is a metal surface treatment used to remove impurities, such as stains, inorganic contaminants, rust or scale from ferrous metals, copper, precious metals and aluminum alloys. A solution called pickle liquor, which contains strong acids, is used to remove the surface impurities. It is commonly used to descale or clean steel in various steelmaking processes.

Once the hot-band coil leaves the hot mill it goes through a series of value-added processing steps. The first of which is pickling which involves unwinding the steel and running it through a series of hydrochloric acid tanks and rinse tanks.

LEAK REPAIR & PROTECTION

One of the major steel producer's in Canada, had a leak in one of their pickle line tanks. The tank operates at high temperatures and contains high concentrations of Hydrochloric acid (HCl). The tank had a rubber lining in place that was somewhat intact but somewhere the acid was leaking out and corroding the metal.



THE SOLUTION

A cold bonding repair system was specified to effectively seal the leak. The repair system consisted in Belzona 1511 (Super HT-Metal), Belzona 4341 (Magma CR4), Belzona 1593 and a metal plate.

First, the surface of the corroded area and the inside of the metal plate were prepared to bare metal using a grinder. Both surfaces were then cleaned and degreased. The plate was bonded using Belzona 1511 (Super HT-Metal) around the perimeter of the plate. Once in place, Belzona 4341 (Magma CR4) was injected to fill the rest of gap between the tank wall and the metal plate, ensuring 100% contact.

HIGH CHEMICAL RESISTANCE



After both products hardened. The wood supports were removed and surface preparation was performed on the outside surface of the plate. Two coats of Belzona 1593 were applied to complete the repair.

Belzona 4341 (Magma CR4) is a high-performance barrier coating optimized for resistance to hot inorganic acids, such as sulfuric and hydrochloric acid. In fact, the coating performs well against concentrations of up to 98% sulfuric acid and 37% hydrochloric acid.

Belzona 1593 is a high-temperature coating suitable for equipment operating in continuous immersion in solutions with temperatures up to 160 °C.

