

CASE HISTORY

Rehabilitation of the Cooling Tower for Repsol YPF-Tarragona Refinery



DATE

2008 - 2009

DISTRIBUTOR

Quimilock, s.a.u

SPECIFYING ENGINEER

Repsol YPF

READY MIX SUPPLIER

Quimilock

CONTRACTOR

HCC & Quimilock

CUSTOMER

Repsol YPF-Tarragona Refinery

LOCATION

La Pobla de Mafumet (Tarragona) Spain

PRODUCTS

MCI®-2020

Q-2023

Q-2039 T

Anti-Carbonation Coating

PROBLEM

The deterioration of a concrete cooling tower at the Repsol YPF Refinery had occurred from the aggressive environment; which included heavy thermal gradients and constant humidity changes. Spalling of the concrete occurred due to generalized corrosion on the reinforcing steel. The corrosion also affected the strength of the rebar and caused a decrease in the tower's structural integrity. In addition to the evident damage, the goal was to passivate any potential corrosion that was not yet visible.

APPLICATION

In order to make the repairs needed to the damaged areas, the following steps were taken:


- Using a very high pressure sprayer (35,000 psi), the spalling concrete and corrosion were removed.
- Q-2023 grout (equivalent to MCI®-2023) was applied to passivate corrosion on the rebar.
- Q-2039 T, a polymeric mortar similar to MCI®-2039, was used to return the concrete structure to its original shape.
- MCI®-2020 was applied to the entire structure using an airless sprayer at the recommended dosage rate.
- Carbon fiber reinforcement, followed by an acrylic, anti-carbonation coating (similar to MCI® Architectural Coating) was applied to restore the structural integrity of the main support beams for the ventilation chimneys.

CONCLUSION

Cortec's MCI®-2020 was applied to over 2,000 linear meters of concrete pillars along with over 5,000 linear meters of concrete beams in the building. About 1,500 m² of concrete slab was repaired using Quimilock's mortar followed by Cortec's MCI®-2020.

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FROM GREY TO GREEN

