



ELECTROFIN[®]

To stop corrosion
even in the worst
conditions.

One of the aspects that should be always taken into consideration in HVAC industry is prevention of damages and deterioration of components, even in the worst conditions. In particular, **corrosion often affects heat exchangers and can lead to performance loss and failure**. It is therefore very important to provide adequate protection in order to avoid or delay corrosion and its effects. Geoclima can provide **different coating solutions, according to the type and the site of installation**. In fact, not every application is under high risk of corrosion and in those cases there is no need for special coatings. Instead, some environmental conditions or some types of application present high risk of corrosion that should be prevented or reduced. In such scenario consideration of environment and of application is essential to provide the more resistant solution.

CONDITIONS THAT REQUIRE SPECIAL COATING

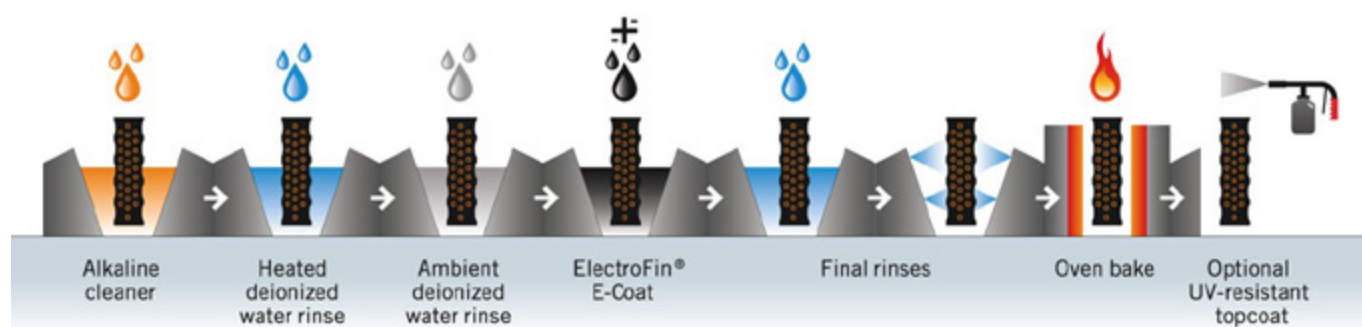
Environments that put equipment under high risk of corrosion are: coastal and sea-side areas, rural areas, polluted urban centres, industrial zones, desert zones. From

an installation point of view, types of application with high risk of corrosion are: power stations, chemical, fuel and gas industry, waste disposal and sewage treatment industry.

WHAT IS ELECTROFIN®

For all applications and environmental conditions where standard coatings are inadequate, we at Geoclima can offer a special coating treatment that provides the highest and best protection from corrosion.

This special coating is ELECTROFIN, a **factory-applied electro-deposition coating process that guarantees complete heat exchanger coverage**. The coil is immersed in a bath. Here the coil acts as a magnet and attracts the coating to every surface. The result is a thin, flexible, durable, corrosion-resistant coating.



Main feature of this special coating is that, whereas other coating processes fail in covering the entire surface, especially in particular structures such as microchannel or round tube plate coils, ELECTROFIN coating penetrates deep into the 100% of coil surfaces, covering all edges and filling all cracks.

In addition to this, the final stage of the ELECTROFIN coating process provides an extra UV-Resistant Topcoat: a layer is applied by spray to protect the ELECTROFIN coat from UV and ensure durability and long life to coils and microchannel.

BENEFITS

100% coverage of coil surface	No loss of operational efficiency
Maximum uniformity of coating	Reduction of maintenance, replacement and operating costs
No obstructions	Extension of heat exchanger's life

COMPARISON

Salt spray corrosion test has been carried out on two heat exchangers to test the corrosion resistance of ELECTROFIN applied on standard Cu/Al heat exchanger

compared to an uncoated standard Cu/Cu solution.

These are the results after inspection:



Cu/Cu heat exchanger without coating – Inspection after 1000 hours: the fin surface and the tubes appear completely oxidized



Cu/Al heat exchanger with ELECTROFIN coating – Inspection after 3500 hours: no attack is visible



TECHNICAL PERFORMANCE SPECIFICATIONS

ASTM B117-97	(Salt Spray)	ISO 9227	Certified @ 6.048 hrs
ASTM G85	(Swaat test – Modified Salt Spray)	ISO 9227	Tested 4.000 hrs with no failures
ASTM D3359-97	(Cross Hatch Adhesion)	ISO 2409	5B Rating/0 European
AHRI 410	(Heat Transfer Reduction)		below 1%
ASTM D7091	(Dry Film Thickness)	ISO 19840	0.6-1.2 mils / 15-30 µm
ASTM D870-02	(Water Immersion)	ISO 2812-2	above 1,000 hrs
ASTM D2794-93	(Impact Resistance)	ISO 6272-1	160 in/lbs direct
GM 9540P-97	(Accelerated Corrosion Test)		120 cycles
MIL-STD-810F			Method 509.4 (Sand and Dust)
TEMPERATURE LIMITS			-71 °F to 325 °F / -57 °C to 163 °C (dry load)
pH RANGE			3 – 12
C5 Mar.& C5 Ind. – High Durability (>15years)		ISO 12944	(for E-coat+UV)

CHEMICAL RESISTANCE GUIDE (AT AMBIENT TEMPERATURE)

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*ElectroFin is NOT suitable for high concentrations of: Nitric Acid, Sodium Hypochlorite, Formic Acid, Hydrofluoric Acid, Sulfuric Acid, Sodium Hydroxide and others.

General description – subject to change or deviations.
Kindly consider that the “mix effect” is not considered

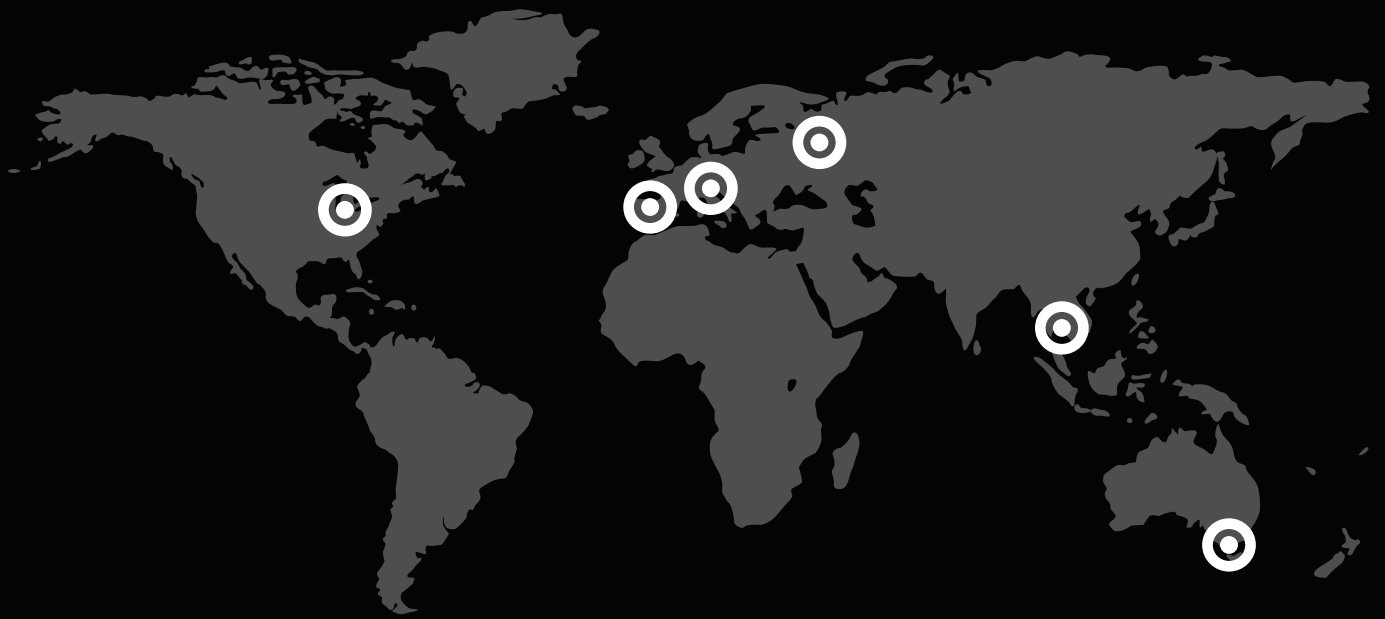


SPECIFIC ENVIRONMENT

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ELECTROFIN coating is certified for high durability (> 15 years) in C5-Marine and C5-Industrial environments, which is the highest possible corrosion class according to ISO-12944.





For contacts and information, please visit

www.geoclima.com

