

Anti-corrosion protective coating for Heat Exchangers

Tepsa offers **in-house**, anti-corrosion coating services on its specially equipped facilities to meet the most demanding customer needs. Our upgraded services provide more **economic, fast** and **flexible** solutions when it comes to protecting your HVAC/R equipment.

Economy

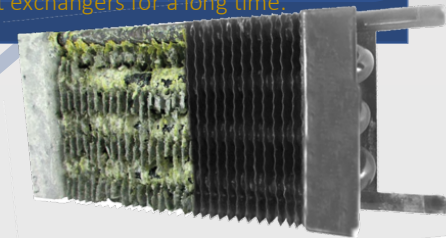
Intermediate cost elimination.

Speed

We provide coated coils on short notice upon order.

Durability

State of the art technology to seal your heat exchangers for a long time.



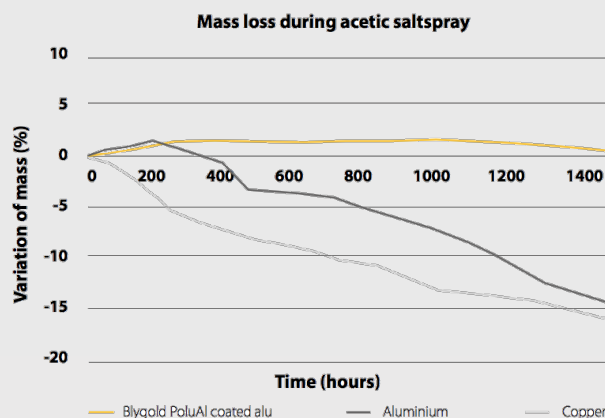
Tepsa's protective coatings & upgraded services

At Tepsa we take HVAC/R reliability and performance into great account. To protect HVAC/R equipment from corrosion in aggressive conditions, Tepsa has been offering anti-corrosion protection for almost two decades, solely through external partner. Moving a step forward, we now have our very own anti-corrosion coating department within our facilities, operated by trained personnel.

Before deciding on our coating of preference, Tepsa conducted a thorough research, which concluded to two anticorrosion coating options: **Heresite®** & **Blygold®**. Heresite®, manufactured in the U.S.A., is a result of more than 55 years R&D process, since it was the first coating to have been applied to aluminium-finned, copper-tubed heat exchangers. Blygold®, manufactured in Europe, with over 40 years of experience ... Both of them, having a multitude of success stories to share, have been established as the market leading anti-corrosion coating solutions. By continues improvements, today both of them have been transformed into specialised to the heat exchangers industry protective coatings, tailored to operate in a wide range of moderate to severely corrosive environments, including both costal and/or industrial applications (Levels C5-Industrial and C5-Marine). When cured, they will produce a hard, thermally conductive, corrosion resistant film which works as a protection mechanism. They are recommended as a heavy-duty maintenance coating for exposure to splash, spillage and fumes.

Key features & technical data

- Suitable for formerly known **C5-Marine & C5-Industrial atmospheric corrosivity categories** (aka the most severe levels) as per ISO 12944-2, which have been combined to **C-Extreme (aka CX)** category as per ISO 12944-9.
- Outstanding thermal conductivity, with **less than 1% heat transfer reduction** when applied to finned tube coil applications.
- **Appropriate for food related applications**, since it meets FDA 175.300 for **indirect food conduct**. **Non-toxic (environment friendly). Antibacterial.**
- Dry heat: Heresite® withstands 93°C, with excursions to 121°C with no damage, while Blygold® serves temperatures up to 150°C.
- Suitable for **coastal areas**, salt spray test (as per ASTM B-117): 1000 hours (H) / 11000 hours (B)
- **Excellent durability** score, adhesion test (as per ASTM D-4541): more than 750psi
- **Non-penetrable by water. Washable and abrasion resistant.**
- Coating type: phenolic (H) / aluminium pigmented polyurethane (B)
- Colour: grey (H) / champagne (B)
- Our specialized equipment and the application technique used by trained personnel, guarantee excellent anti-corrosion results.



Call us for more information!

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Corrosion: A huge pain point for our industry

Corrosion is the gradual deterioration of materials as a result of chemical (and/or electrochemical) reactions between the material and the surrounding environment. Corrosion of metals in particular, occurs when an exposed surface comes in contact with a contaminant. The corrosion process is accelerated by exposure to warm temperatures, acids, and salts.

Consequences of corrosion

Gathered data has shown that **40% of all HVAC failures are linked to corrosion**. Taking into account that, HVAC/R equipment is commonly used in environments with highly corrosive agents or in heavy-duty industries, places the need of a corrosion defend mechanism into the front seat of interest of well-informed HVAC/R professionals. Not giving the proper attention on the issue will lead to:

1) a **shorter lifespan** of your heat exchangers. When unprotected copper tubes are exposed in polluted industrial or high salinity environments, can lead to tube leaks and failure of the refrigeration system. Under severe, prolonged conditions, the metal will continue to corrode until the integrity of the material and equipment will be jeopardized.

2) customers will experience **degraded performance** (prior to any potential failure) and will face **unnecessary energy**

consumption. Corrosion has a great impact on coil's efficiency and hence on costs related to energy use. As it has been reported, in some extreme conditions, the operating performance of unprotected coils can decrease by over 30% in less than 6 months.

Which industries are to be concerned?

Despite of industrial corrosive environments and costal/marine areas being the common industries known to deeply suffer from corrosion's ugly consequences, there are many more applications that experience similar problems. Undoubtedly, proper precautions must be taken.

Protecting against corrosion is strongly advised when it comes to applications like:

- Marine/coastal areas
- Heavy-duty industries
- Food processing and storing (e.g. catering, restaurant kitchens). Pastries, ready-to-eat marinades/ marinated salads, dairies, meat/sausages, **fish/seafood**.
- Underground and underwater service, wastewater treatment plants
- Chemical storage areas
- Agricultural implements, intensive farming stables

The solution: Protective anti-corrosion coatings

An easy and cost-effective way to protect your investment and reduce the high costs of corrosion is by the application of specially formulated anti-corrosion coatings. The purpose of any protective coating is to insulate the material being coated from the environment's corrosive agents, working as a protective barrier between the coil material and the ambient harsh conditions, while persisting its precious thermal conductivity properties. Keep in mind that, even though corrosion cannot be eliminated completely, it can be drastically reduced.

Selecting a protective coating for heat exchangers

When it comes to coil coatings, the choices may seem endless. To choose the right manufacturer, there are many considerations and some very specific questions need to be answered. As professionals, we need a system to help us make informed decisions based on measurable facts. Thankfully, widely respected organisations, aiming to rate each coating product's quality, have form official standards which establish guidelines and strict acceptance criteria, in order for an anti-corrosion coating product to get certified. Your HVAC/R equipment's manufacturer should be in the position to provide a satisfactory answer to all of the following questions:

- Is the coating suitable for the environment in which the heat exchangers are placed based on the atmospheric corrosivity classification?
- Does it have good enough thermal conductivity properties as to introduce negligible performance loss?
- Is the coating appropriate for the coil's working temperature conditions?
- Is it compliant with food hygiene guidelines?
- **Is the coating layer formed by the treatment procedure thin enough as to not increase airside pressure drop?**
- Has the coating a good enough effective protection lifetime?
- Is it designed for a heavy-duty cleaning process?
- **Is it non-toxic as to be considered eco-friendly and promote sustainability**