Finer and more resisting metals.

The first type includes organic polymer coatings, which comprise thermosetting powder coatings, that represent the "core business" of Europolveri, a company that for many years has been involved in the research, development and creation of innovative pre-treatment products capable of guaranteeing ever increasing levels of resistance to corrosion for the treated metal items.

Primer devised to give metals effective protection against corrosion.

At the end of a considerable research activity, which was followed by a series of rigorous checks and tests, Europolveri can offer the market a series of coatings under the name of "Anticorrosion11", that can be employed as primers with different and specific characteristics according to the type of surface that has to be treated.

All the "Anticorrosion11" primers devised by Europolveri have an epoxy type polymer base. In fact the epoxy polymers combine:

- excellent chemical resistance;
- elevated resistance to humidity;
- elevated electrical resistance (which is required to protect against oxidation caused by stray currents in underground structures, such as tanks, cylinders, piping etc.);
- excellent coating capacity on metal surfaces, covering even corners and the most inaccessible parts;
- excellent adhesion to the metal surface;
- good characteristics for supporting further coats of paint with different chemical characteristics, such as polyester and polyurethane paints.

These intrinsic anticorrosive characteristics of epoxy polymers are enhanced by the presence of mineral components (natural and/or synthetic) that by acting in synergy increase the resistance of the primer to the action of corrosive agents.

The "Anticorrosion11" range of primers.

The "Anticorrosion11" range of primers, devised by Europolveri to combat corrosion, includes:

6L4870013T000 anticorrosion primer for wheels in horizontal in line plants;

6L4870013T001 anticorrosion primer for wheels in vertical in line plants;

6L4800003T002 HP (High Peformance) anticorrosion primer with a wide range of employment;

6L2800003T002 AP (Active Protection) anticorrosion primer with an elevated impermeability that combines a very compact epoxy base with the presence of high concentration "zinc phosphates" (whose iron protection properties have been well known for a long time). This product is ideal as a primer for steel when an elevated chemical resistance is required.

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The protective barrier.

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anti corrosion11

The corrosion of metal structures and/or items, intended as the gradual and progressive deterioration of the material and the consequent decay of its intrinsic properties, due to the chemical and physical interaction with the surrounding environment, is a problem that causes serious operational, functional and economic damage.

We must point out how the corrosive action on metal items causes the gradual reduction of the mechanical and structural characteristics of the metal layer, leading in many cases to the gradual loss of functionality of the object itself.

Obviously the optimal solution is prevention protecting the items against the corrosive action of exogenous agents so as to guarantee their durability and functionality in time, which also means saving money, and an optimal use and depreciation of the property itself.

The different methods employed to protect metals and metal alloys against corrosion can be divided in two distinct types:

- **Passive protection** this consists in insulating the metal surface from the surrounding environment by means of a coating that forms a protective barrier against the passage of corrosive agents.
- **Active protection** provided by a material or by electric current. In this case the electrochemical properties of the metal that has to be protected and of the material used for protecting it (sacrificial anode) are exploited.

anti corrosion 11

The entire research and development phase of the Europolveri anticorrosion pre-treatment cycles has been accompanied by continuous corrosion resistance tests (carried out both in-house and by external certified laboratories).

The test results, the effectiveness of the treatments is confirmed.

The final tests have been carried out as follows:
- test pieces preparation (carried out at the Europolveri and Dollmar laboratories);
- employed support: CRS steel panels with a thickness of 1 mm;
- pre-treatment (by Dollmar SpA) as follows:

1. phospho-degreasing with FP150 (heavy iron salts);
2. rinsing with mains water;
3. rinsing with demineralised water;
4. treatment with SA115 ("no-rinse" passivating agent).

Primer and top-coat application (by Europolveri SpA) by means of an ITW Gema electrostatic load gun (at 50-60 kV).
Primer cross-linking cycle: forced ventilation oven, at 180°C for 15 minutes (complete film cross-linking), thickness 50-60 µm. Employed top-coat: 5L1100003T000 White/L TS TF EMP Qualicoat P-0476.
Top-coat cross-linking cycle: forced ventilation oven, at 180°C for 20 minutes (complete film cross-linking), thickness 70-80 µm.

Corrosion resistance tests in accordance with the UNI EN ISO 9227:2006 standard; 5% p/p NaCl aerosol solution, room temperature 35°C. On one side of the panel a diagonal cross incision has been made to reveal the metal. Before each check the test pieces are rinsed with water to remove the salt and dried with paper, after about 1 hour the adhesion test is carried out by applying sticky tape on the cross, according to the standard, and then tearing it off.
The saline fog resistance tests of plates treated with Europolveri primers have given the following results:

Test	Piece Code	Overall duration in neutral saline fog
N°1	6L4870013T000 GREY/0 TS E.M.P. Ral 7001 **Anticorrosion primer for horizontal plants**	After 1.750 hours coating delamination below 1mm around the cross (1)
N°2	6L4870013T001 GREY/0 TS E.M.P. Ral 7001 **Anticorrosion primer for vertical plants**	After 1.650 hours coating delamination below 1mm around the cross (1)
N°3	6L4800003T002 GREY/0 TS EMP HP **HP (High Performance) anticorrosion primer**	After 2.200 hours coating delamination below 1mm around the cross (2)
N°4	6L2800003T002 **AP (Active Protection) anticorrosion primer**	Oltre 3.000 hours coating delamination below 1mm around the cross (2)

(1)Test carried out in the Europolveri laboratories (2)Test carried out in the Dollmar laboratories

The resistance of the panels with top coat only (that had not been treated with primer) subject to the above mentioned cycle was of about 300 hours. (See image "TEST 0"). QUALITAL has recently issued Europolveri the Test Report N°168-10 Corrosion Resistance in neutral saline fog chamber, in accordance with the UNI EN ISO 9227-2006 standard, that certifies the achievement of 2000 test hours.
For Europolveri this is only a stage in its research activity that is in continual evolution, experimenting new formulae capable of improving and increasing corrosion resistance with the aim of offering its customers the most specific and innovative solutions.
All the primers mentioned above are also available in different shades other than the standard colour (grey, generally Ral 7001). The Europolveri staff and laboratories are also at the customers disposal for studying and devising made-to-measure solutions for specific requirements.

Application sectors.

Employing anticorrosion primers is fundamental for the surface treatment of many metal and steel items.
Here are a few examples of products and merchandise sectors where their use is decisive for guaranteeing the duration, functionality and the appearance of the items.

- **Machinery and equipment**
- **Architecture elements**
- **Street furniture equipment**
- **Enclosure systems, safety gates, bollards and bars**
- **Boating articles and destined for use in a marine environment**
- **Car wheels and other car components**
- **Tanks for liquid substances**
- **Outdoor lighting supports and elements**
- **Pipelining and water main**
- **Metal furniture for terraces and gardens**

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