RUSPERT®

Patent No. 1526310 and 1570203

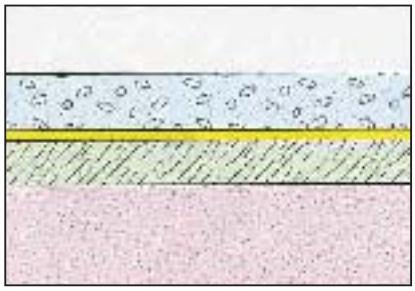
DESCRIPTION

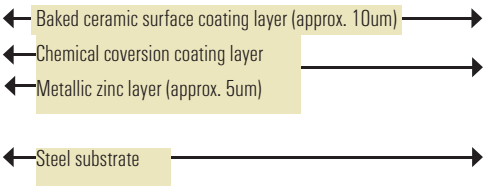
RUSPERT® metal finish is a high-grade metal surface processing technology that prevents corrosion. It consists of three layers: the 1st layer: a metallic zinc layer, the 2nd layer: a high-grade anti-corrosion chemical conversion film, and a 3rd outer layer; baked ceramic surface coating. The distinguishing feature of RUSPERT® is the tight joining of the baked ceramic surface coating and the chemical conversion film. These layers are bonded together through chemical reactions, and this unique method of combining layers results in rigid combination of the coating films. RUSPERT® treatment does not attribute its anti-corrosion properties to merely a single material, but the synergy of these three layers, which combined have superb rustproof qualities.

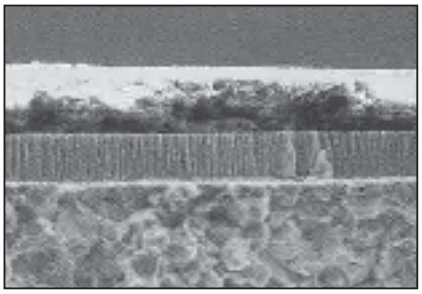
BENEFITS

1. Superior corrosion resistance. ..... Superior performance against salt water, gas, weathering and others.
2. Corrosion resistance against scratches..... Minimal surface scratches due to composite layers.
3. Electrolytic corrosion resistance ..... Less contact corrosion with other metals.
4. Low processing temperature ..... The drying temperature below 200°C (392°F) protects from metallographic changes.
5. Color variation..... Various colors suit different purposes.

FILM STRUCTURE AND THE CORROSION PREVENTION MECHANISM







Cross section of RUSPERT® (type 2)

Microscope view (x1000)

Coating layers		Corrosion prevention mechanism
1st layer	Metallic zinc layer	The steel/iron substrate is protected from corrosion by the self-sacrifical galvanic effect of the zinc coating.
2nd layer	Chemical conversion coating layer	Rustproof performance is improved as the chemical conversion inactivates the zinc plated surface and creates a tight adhesion between the chemically converted layer and the paint-layer.
3rd layer	Baked ceramic surface coating layer	Corrosive elements are intercepted by the strong paint film made of ceramic materials.

TREATMENT PROCESS

Zinc treatment ▶ **Chemical treatment** ▶ **RUSPERT®** ▶ **Baking**

CORROSION RESISTANCE TEST RESULTS

Test items	RUSPERT®	Zinc electro-plating (Coloured Chromate)	Hot dip galvanising
Before tests			
Salt spray tests after 1,000 hours Test method: 5% concentrated salt mist continuously sprayed in accordance with JIS Z 2371 standard.			
Combined corrosion test after 200 cycles Test method: repeat a series of cycles, each cycle consists of 2 hours of salt spraying, 4 hours of drying at 60°C (140°F) and 2 hours of exposure to humidity of 95% R.H. at 50°C (122°F) in accordance with the JASO M609-91 standard.			
Cass test after 10 cycles Test method: repeat series of cycles, each cycle consists of 16 hours of exposure and 6 hours of non-exposure to an acetic acid solution of 5% concentration with it pH adjusted between 3.0 and 3.1.			
Sulfur dioxide gas corrosion test after 15 cycles Test method: repeat a series of cycles, each cycle consists of 8 hours of exposure to a condensation of gas under 98% R.H. at 40C (104oF) after supplying sulfur dioxide gas (S02) of 2.0 ltr to a tightly sealed chamber of 300 ltr &16 hours of drying at 75% R.H.