

TESTS REPORT N° ES030110.a

According to ISO Standard 12944-6

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This is a summarizing chart of the (French) full report

A. TESTMETHODS and STANDARDS:

1) Samples :

- 1. Steel plate as basic comparative test sample :	Bare steel plate without any coating used as reference plate in the same test.
- 2. Steel plate coated with a commercial anti-rust paint as comparative sample :	Steel coated with a anti-rust coating made with modified acrylic resins classified as commercial zinc rich paint
- 3. Steel plate coated with Rust-Anode® :	Steel plate coated with Rust-Anode® containing about 96% (by weight) zinc dust (pure to 99,995%) in the dry layer.

The coatings have been applied on grit blasted steel plates (Sa ½) in order to obtain a thickness of minimum 80 µm in 2 layers of each about 40µm.

Three plates of each type have been tested.

The curing time period before realizing the tests has been 2 weeks at 15°C.

2) Tests according to ISO Standard 12944-6:

Tests were executed in December 2002 and January 2003 in order to obtain the following classification:

- A class C3: Medium atmospheric corrosivity – Lasting time of 5 to 15 years.
- A class C4: High atmospheric corrosivity (coastal conditions) – Lasting time of 2 to 5 years

B. TESTS:

B.1 TROPICAL TEST: HUMIDITY RESISTANCE ACCORDING TO ISO Standard 4626

(According to ISO Standard 6270: Determination of resistance to humidity by continuous condensation)

DESCRIPTION OF THE TESTING METHOD:

The painted plates have been placed into a testing room with a constant temperature of 40°C and 100% of relative humidity.

An St-Andreas half-cross has been drawn up to the steel support on one of the three exposed plates. The plates have been visually checked for blistering, rusting, cracking or chipping according to ISO Standard 4626 after 120 hours of exposal.

Sticking tests has been realized before the test and 24 hours after the ending of the test.

RESULTS SUMMARIZING CHART:

TESTS	CLASSIFICATIONS (ISO Standard 4626)
- 1. Control sample, uncoated grit blasted steel plates:	- Rusting: Ri = 5
- 2. Control sample with a commercial anti-rust coating: (Anti-rust zinc rich paint made with modified acrylic resin): remarks: «Crocodile skin» aspect, total flat light grey	- Blistering: S = 0 - Rusting: Ri = 0 - Cracking: S=4 (density 5) - Chipping: S = 0
- 3. Test plate with Rust-Anode® coating 80µm: remarks: White fade spots	- Blistering: S =0 - Rusting: Ri = 0 - Cracking: S = 0 - Chipping: S = 0

Scale for ISO Standard 4626 interpretation						
	Very good	Good	Medium	Bad	Very bad	Zero
S / Ri	0	1	2	3	4	5

B.2 RESISTANCE TO THE SALT SRAY TEST

(According to ISO Standard 7253: « Determination of the resistance to the neutral salt spraying test»))

TESTING CONDITIONS:

Temperature in the testing room	34,3°C
Concentration of NaCl in the spray solution	5%
PH concentration in the test spray solution	Between pH 6,7 and pH7,0
Duration of the test	240 hours
Quantity of salted sprayed solution	Between 1,02ml and 1,90 ml per hour
Air pressure of the spraying	0,99 bar

RESULTS SUMMARIZING CHART :

TESTS	CLASSIFICATIONS (ISO Standard 4626)
- 1. Control sample, uncoated grit blasted steel plates	- Rusting : Ri = 5
- 2. Control sample with a commercial anti-rust coating: Anti-rust zinc rich paint made with modified acrylic resins - Remarks: «Crocodile skin» aspect, total flat light grey, white ring marks <i>Plate A:</i> 2 red rust spots with rust drops <i>Plate B:</i> 5 red rust spots with rust drops <i>Plate C:</i> Several red rust spots with rust drops and high corrosion at cross (up to 1 mm each side)	- Blistering: S = 0 - Rusting: Ri=1 to Ri=2 - Cracking: S=4 (density 5) - Chipping: S=0
- 3. Test plate with Rust-Anode® coating 80µm: remarks: General whitening aspect	- Blistering: S=0 - Rusting: Ri=0 - Cracking: S=0 - Chipping: S=0

Scale for ISO Standard 4626 interpretation						
	Very good	Good	Medium	Bad	Very bad	Zero
S / Ri	0	1	2	3	4	5

C. RESULTS:

The tests according the ISO Standard 12944-6 of the samples with the coating Rust-Anode® were completely satisfactory.

The following classification has been satisfactory obtained.

- A class C3: Medium atmospheric corrosivity – Lasting time of 5 to 15 years.
- A class C4: High atmospheric corrosivity (coastal conditions) – Lasting time of 2 to 5 years