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UNI EN ISO 12944-6

Corrosion protection of steel structures by protective paint systems

Laboratory performance test for

Selemix Paint System
PUR primer (code 2.705.0500) +
UHS acrylic topcoat 7-120 (1.771.2000)

Work commissioned by
PPG Italia Business Support S.r.l.

1. Introduction

The purpose of this test report is the assessment of corrosion protection properties of Selemix paint system, here numbered "5" (Selemix PUR primer 2.705.0500 / Selemix UHS acrylic topcoat 7-120).

The paint system 5 has been evaluated with the following artificial ageing tests in accordance with ISO 12944 - Part 6 (Laboratory Performance Test Methods):

- neutral salt spray (ISO 7253) and water condensation (ISO 6270) for the paint system applied to steel substrates
- water condensation (ISO 6270) for the paint system applied to zinc-coated steel

Three panels for each test were provided by paint manufacturer.

2. Paint system

The below table shows the details of the Selemix paint system prepared and applied by paint manufacturer (following the instructions in the technical data sheets) in accordance with ISO 12944-6:

Paint system 5: Selemix PUR primer 2.705.0500 / Selemix UHS acrylic topcoat 7-120

	Generic name	Trade name	Hardener	%	Thinner	%
1st coat	2K PUR primer	2.705.0500	9-060	13%	1-430	10%
2nd coat	2K UHS acrylic topcoat	7-120	9-120	50%	1-410	10%

3. Test panels

Steel substrates: Panel size: 100x150 mm, 3mm thickness. The panels surface were prepared by blast-cleaning to surface preparation grade Sa $2^{1/2}$ or Sa 3 as defined in ISO 8501-1. The surface roughness (profile) corresponded to "medium (G)" as defined in ISO 8503-1. In all other aspects, test panels were complied with ISO 7384.

Zinc-coated steel substrates: Panel size: 100x150 mm, 3mm thickness. Reference guide for surface preparation was ISO 12944-4.

4. Conditioning

All the coated test panels were conditioned for 21 days in standard atmosphere (20±2)°C/(65±5) % relative humidity, as defined in ISO 554, before artificial ageing testing.

5. Neutral salt spray test

Salt spray test on steel substrates was carried out as described in ISO 7253 (pH = 7, [NaCl] = 50 g/l).

A cross scratch line, 60mm long, was produced on each steel panel. After the salt spray test, the measurement of the corrosion (M) of the surface across the scratch has been calculated using the following equation:

$$M = (C-W)/2$$

Where *M* is the corrosion of the substrate from the scratch, in millimeters; *C* is the maximum width, in millimeters, and *W* is the original width, in millimeters, of the scratch.

Assessment of the paint system performances in salt spray for the specified time has been carried out based on these requirements:

- Blistering (ISO 4628-2)
- Rusting (ISO 4628-3)
- Cracking (ISO 4628-4)
- Flaking (ISO 4628-5)
- Corrosion M (ISO 12944-6)
- Cross-cut test (ISO 2409)

6. Water condensation test

Water condensation test on steel and zinc-coated panels was carried out as described in ISO 6270 (°t = 38° C, relative humidity = 99%).

Assessment of the paint system performances in water condensation for the specified time has been carried out based on these requirements:

- Blistering (ISO 4628-2)
- Rusting (ISO 4628-3)
- Cracking (ISO 4628-4)
- Flaking (ISO 4628-5)
- Cross-cut test (ISO 2409)

7. Classification of the Paint System 5

According to the test results obtained, PAINT CYCLE 5 is qualified in the following corrosivity categories (ISO 12944-2) and durability ranges:

PAINT CYCLE 5 ON STEEL SUBSTRATES (480 h in salt spray and 240 h in water condensation):

- Corrosivity category C3 – High
- Corrosivity category C4 – Medium
- Corrosivity category C5-M – Low

PAINT CYCLE 5 ON ZINC-COATED STEEL SUBSTRATES (240 h in water condensation):

- Corrosivity category C2 – Low; Medium; High
- Corrosivity category C3 – Low; Medium; High
- Corrosivity category C4 – Low; Medium
- Corrosivity category C5-M – Low

Pisa, 10th July 2006

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