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Department of Evaluation and Testing



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EVALUATION OF THE EXPECTED LIFE OF A TWO-LAYER COATING SYSTEM ON STEEL IN THE OUTDOOR ENVIRONMENT ACCORDING TO THE REQUIREMENTS OF ČSN EN ISO 12944-6

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Test performed at: SYNPO akciová společnost, S. K. Neumanna 1316, 532 07 Pardubice, Czech republic
Test report: Test Report No T 370/089, issued in Pardubice on March, 17, 2022

1. The item of the test: Two-layer water-borne protective coating system

Test item		Paint designation	Characteristic	NDFT
Two layers protective coating system for steel substrates	1. coat	Anticorrosion paint, Patent number 309009	Primer	40 µm
	2. coat	TEMADUR 10 + Hardener	2-K PUR top paint	120 µm

2. Finding:

The assessment of corrosion resistance of coating system and, indirectly, the classification lifetime of the coating system was performed by exposure of the sample in neutral salt spray according to ČSN EN ISO 9227 NSS. The inspection of the coatings was focused on corrosion defects according to ČSN EN ISO 4628 - Part 2, 3, 4, 5 and 8.

The test duration in a corrosive environment for corrosion class C4-High according to ČSN EN ISO 12944 - Part 2 was chosen from Table 1 of the ČSN EN ISO 12944 Paints and varnishes – Corrosion protection of steel structures by protective paint systems, Part 6 - Laboratory performance testing methods.

3. Evaluation according to ČSN EN ISO 12944-6

Evaluation of the results of testing samples of coatings and their comparison with the requirements for long life in an environment having a degree of corrosivity of the atmosphere C4-High is described below.

Flat areas	Evaluated parameter	Standard	Unit	Required value	Value found	Complies
Neutral salt spray test ČSN EN ISO 9227 NSS 720 hours	Blistering	ČSN EN ISO 4628-2	Degree	0 (S0)	0 (S0)	✓ YES
	Rusting	ČSN EN ISO 4628-3	Degree	Ri 0	Ri 0	✓ YES
	Cracking	ČSN EN ISO 4628-4	Degree	0 (S0)	0 (S0)	✓ YES
	Flaking	ČSN EN ISO 4628-5	Degree	0 (S0)	0 (S0)	✓ YES
	Cross-cut	ČSN EN ISO 2409	Degree	0-2	0	✓ YES
	Pull-of test	ČSN EN ISO 4624	MPa	2,5	4,2	✓ YES
	Corrosion at scribe	ČSN EN ISO 4628-8	mm	< 1 mm	0,7 mm	✓ YES

4. Conclusions:

The corrosion resistance of the tested two-layer water-borne protective coating system, consisting of:

- **Anticorrosion paint, Patent number 309009**
- **2-K PUR top email TEMADUR 10 + hardener**

of nominal DFT 160 µm, made on low carbon steel S235 according to EN 10025-2,

complies with the selected requirements of EN ISO 12 944 - Coatings - corrosion protection of steel structures with protective coating systems - Part 6: Laboratory performance testing methods see also point 2 - finding and point 3 assessment.

Based on the results of the tests and the fulfillment of the selected requirements of Articles 6.3 and 6.4 of the standard ČSN EN ISO 12944-6, it is very likely that:

- according to Article 5.5 of the ISO 12944-1 standard, **a long service life (over 15 years)** of the tested coating system and its long-term anti-corrosion efficiency can be expected in an environment **classified by the C4 corrosivity of the atmosphere** according to ČSN EN ISO 12944-2.



Assessment elaborated by:

In Pardubice on March, 17, 2022

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