CUSTOMER:	Dr. Demuth Derisol Lackfarben GmbH & Co. KG Mr. Reiner Linke Hillerser Straße 8 37154 Northeim
Offer No:	240230
Contract No / Date:	- / 15/02/2024
Testing:	testing for resistance to corrosion according to DIN EN ISO 12944-6 (C5H)
Subject of Testing:	coated test panels
Origin of Samples:	provided by customer
Entry Date of Samples:	17/03/2020
Start of Testing:	18/03/2020
End of Testing:	27/05/2020
Archiving of Samples:	four weeks
Subcontracts:	none
Number of Pages:	8

An overview of all test methods used with issue dates and status of accreditation can be found at the end of this report.

1 SUBJECT OF TESTING

The customer provided 10 coated panels (150 mm x 100 mm x 3 mm) for testing with additional details as follows.

Substrate:	steel, test panels from Krüppel, Sa 2.5 blasted
Base coat:	2K Deripox Protec ZP
Top coat:	2K Derocryl Lack 70 ST, enzianblau (RAL 5010)
Date of coating:	cw 11 in 2020

Table 1: Designation of the samples and layer thickness values provided by the customer

Sample-No.	Base coat *Target (NDFT): 140 µm*		Top coat *Target (NDFT): 60 µm*		Total thickness [µm]
	Single values [µm]	Single values (reduced by 10 µm for correction)	single values [µm]	Single values (reduced by 10 µm for correction)	(reduced by 10 µm for correction)
B1	175 ± 10	165	54	44	219 ± 6
B2	183 ± 5	173	52	42	225 ± 9
B3	177 ± 5	167	48	38	215 ± 4
B4	171 ± 5	161	53	43	214 ± 8
B5	169 ± 8	159	56	46	215 ± 6
B6	158 ± 7	148	56	46	204 ± 14
B7	180 ± 11	170	38	28	208 ± 13
B8	173 ± 11	163	50	40	213 ± 12
B9	173 ± 8	163	47	37	210 ± 9
B10	171 ± 7	161	53	43	214 ± 7

2 TEST METHODS AND RESULTS

2.1 Assessment prior to artificial weathering

Test method: Cross cut according to DIN EN ISO 2409, removal of loosly adhering particles by using an adhesive tape (tesa 4122)

Pull-off test according to DIN EN ISO 4624, method B (adhesive: Pattex Ultra Gel, curing time: 24 h)

Table 2: Assessment prior to artificial weathering

Sample-No.	Cross cut *Target: ≤ 2*	Pull-off strength σ *Target: ≥ 2,5 MPa*	Type of fracture *Target: 0 % A/B, unless σ ≥ 5 MPa*
B1	1	6.7	100 % B
	1	7.8	100 % B
	1	7.8	100 % B
B2	1	7.7	100 % B
	1	8.4	100 % B
	1	7.5	100 % B
B3	1	7.2	100 % B
	1	7.8	100 % B
	1	7.2	100 % B

Figure 1: Test panels after cross cut and pull-off tests at state of delivery

2.2 Assessment after artificial weathering

2.3 Resistance to humidity

Test method: Resistance to humidity condensation according to DIN EN ISO 6270-1 (Condensation, single-sided exposure)

Test duration: 720 h

Assessment: Degree of blistering according to DIN EN ISO 4628-2 (immediately)

Degree of rusting according to DIN EN ISO 4628-3 (immediately)

Degree of cracking according to DIN EN ISO 4628-4 (immediately)

Degree of flaking according to DIN EN ISO 4628-5 (immediately)

Cross cut according to DIN EN ISO 2409 (after 7 d of reconditioning)

Pull-off test according to DIN EN ISO 4624, method B (adhesive: Pattex Ultra Gel, curing time: 24 h, after 7 d of reconditioning)

Table 3a: Assessment after 720 h of humidity condensation exposure

Sample-No.	Degree of blistering *Target: 0 (S0)*	Degree of rusting *Target: Ri 0*	Degree of cracking *Target: 0 (S0)*	Degree of flaking *Target: 0 (S0)*
B4	0 (S0)	Ri 0	0 (S0)	0 (S0)
B5	0 (S0)	Ri 0	0 (S0)	0 (S0)
B6	0 (S0)	Ri 0	0 (S0)	0 (S0)

Table 3b: Assessment after 720 h of humidity condensation exposure

Sample-No.	Cross cut *Target: ≤ 2*	Pull-off strength σ *Target: ≥ 2,5 MPa*	Type of fracture *Target: 0 % A/B, unless σ ≥ 5 MPa*
B4	1	8.3	80 % B, 20 % C
	1	7.3	60 % B, 40 % Y
	1	8.1	60 % B, 40 % C
B5	1	7.0	80 % B, 20 % C
	1	9.1	70 % B, 30 % C
	1	8.5	70 % B, 30 % C
B6	1	8.5	100 % B
	1	8.1	100 % B
	1	7.8	80 % B, 20 % C

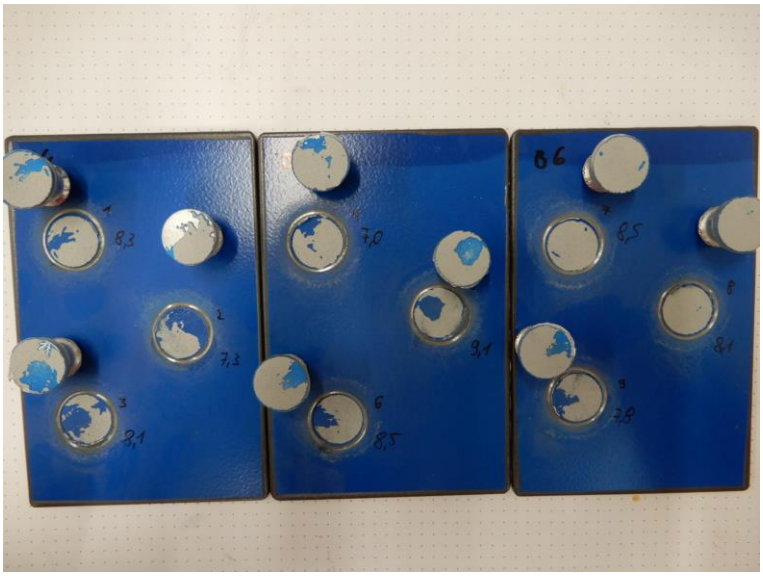

Figure 2: Test panels after 720 h humidity condensation exposure

2.4 Neutral salt spray test

Test method:	Resistance to neutral salt spray according to DIN EN ISO 9227 (NSS)
Scribe:	according to DIN EN ISO 12944-6, Appendix A.1 (milling machine, 2 mm wide scribe in horizontal position)
Test duration:	1440 h
Assessment:	Degree of blistering according to DIN EN ISO 4628-2 (immediately)
	Degree of rusting according to DIN EN ISO 4628-3 (immediately)
	Degree of cracking according to DIN EN ISO 4628-4 (immediately)
	Degree of flaking according to DIN EN ISO 4628-5 (immediately)
	Corrosion around scribe according to DIN EN ISO 12944-6, Appendix A.2 (within 8 h after end of test)
	Cross cut according to DIN EN ISO 2409 (after 7 d of reconditioning)
	Pull-off test according to DIN EN ISO 4624, method B (adhesive: Pattex Ultra Gel, curing time: 24 h, after 7 d of reconditioning)

Table 4a: Assessment after 1440 h NSS

Sample-No.	Degree of blistering *Target: 0 (S0)*	Degree of rusting *Target: Ri 0*	Degree of cracking *Target: 0 (S0)*	Degree of flaking *Target: 0 (S0)*
B7	0 (S0)	Ri 0	0 (S0)	0 (S0)
B8	0 (S0)	Ri 0	0 (S0)	0 (S0)
B9	0 (S0)	Ri 0	0 (S0)	0 (S0)

Table 4b: Assessment after 1440 h NSS

Sample-No.	Corrosion around scribe [mm] *Target: ≤ 1.5 mm*	Cross cut *Target: ≤ 2*	Pull-off strength σ *Target: ≥ 2,5 MPa*	Type of fracture *Target: 0 % A/B, unless σ ≥ 5 MPa*
B7	< 1.0 mm	1	8.0	70 % B, 30 % C
		1	8.7	60 % B, 40 % C
		1	8.0	60 % B, 50 % C
B8	< 1.0 mm	1	7.9	80 % B, 20 % C
		1	7.7	80 % B, 20 % C
		1	8.1	60 % B, 40 % C
B9	< 1.0 mm	1	9.0	80 % B, 20 % C
		1	8.9	70 % B, 40 % C
		1	8.1	60 % B, 40 % C

Figure 3: Test panels after 1440 h NSS

3 ASSESSMENTS

The coating system tested according to DIN EN ISO 12944-6 fulfils the requirements of the corrosion class C5 high.

4 TEST METHODS USED

Table 5: Overview of test methods used

Test method	Issue date	accredited
DIN EN ISO 2409	2013	x
DIN EN ISO 4624	2016	x
DIN EN ISO 4628-2	2016	x
DIN EN ISO 4628-3	2016	x
DIN EN ISO 4628-4	2016	x
DIN EN ISO 6270-1	2018	x
DIN EN ISO 9227	2017	x
DIN EN ISO 12944-6	2018	x

Magdeburg, 15/02/2024
iLF Magdeburg GmbH

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Dr. Bernd Neumann
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Notes:

The test results only relate to the items tested and apply to the samples as received. In this report the results are provided in a simplified way, it does not include all information required by the test methods used.