

TEST REPORT



ÉMI-TÜV

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Name of the client: Orgachim JSC
address: 7000 Ruse, Bulgaria,
21 Treti Mart Blvd

Date of application: 20/09/2021

Description of the sample: P 513 Alkyd Primer/Alkyd Base Satin
G 3500 Epoxy Primer/UR 11 PolyU Topcoat
G 3500 Epoxy Primer/UR 11 PU Topcoat

Subject of application: Corrosion test according to EN ISO 12944-6:2018 /
C4 medium/

Receipt date of test samples: 10/11/2021

Date of testing: 10/11/2021 – 10/12/2021

Producer of tested samples: Orgachim JSC

Description of tested samples: The client documentation contains the detailed
product description.

Name and photo of test samples:



Remark: The result relates only to the items tested
No extract, abridgment or abstraction from a test report may be published or used to advertise a product without the written consent of the Director of ÉMI-TÜV SÜD Ltd KERM Department. The results contained herein apply only to the particular sample tested and to the specific test carried out and not to samples of the current production line.

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Bank: UniCredit Bank Hungary Zrt.
10918001-00000068-72970003

Managing Director
Miklós Cseresznyák

Phone: +36/1 210 9570
www.emi-tuv.hu



ÉMI-TÜV SÜD Kft.
Central Laboratory
KERM Department
H-1043 Budapest
Dugonics u. 11.



TEST RESULTS

Size of steel used for the test: 100x200x2 mm
 Application: by spraying
 Corrosion assessment: immediately
 Adhesion: 24 hours after reconditioning
 Conditioning time, day: 5 days
 Drying / curing conditions: 23 ± 2 ° C, 50 ± 5 rel%
 Degree of corrosion to be achieved: Outdoor C4 - medium (15 years)

1. P 513 Alkyd Primer/ Alkyd Base Satin Coating system properties: RAL 8012

1st SYSTEM			
Number of Layer	DFT (dry film thickness) in μm	Chemical base	Orgachim product's name
1 st Layer	100	Alkyd	P 513 Alkyd Primer
2 nd Layer	50	Alkyd	Alkyd Base Satin

Test parameters	Test results			Test methodes
	1	2	3	
Layer thickness, μm :	156 ± 1	157 ± 1	160 ± 1	EN ISO 2808:2020
Appearance: steel surface	Red-brown decorative free of cracking coating			visual
Gloss, 60°:	17,2	18,5	19,8	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2013

Properties of the coating after 120 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, silk matt, even			visual
Gloss, 60°:	5,6	7,2	7,2	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	3 (S4)	4(S4)	3(S4)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 2 — Slight	grade 2 — Slight	grade 2 — Slight	EN ISO 4628-8:2003



Properties of the coating after 240 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, blasen			visual
Gloss, 60°:	not measurable			EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	0 (S0)	0(S0)	2(S4)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 3 — Moderate	grade 3 — Moderate	grade 3 — Moderate	EN ISO 4628-8:2003

Coating system properties after 240 hours of neutral salt spray:

Testing according to MSZ EN ISO 9227: 2012 5.2 standard / NSS method

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, matt, even			visual
Gloss, 60°:	6,2	6,2	5,8	EN ISO 2813:2000
Adherence, grade:	0	0	0	EN ISO 2409:2021
Adhesion, Mpa: fracture image	1,5 B/C	1,7 B/C	1,7 B/C	EN ISO 4624:2003
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 3 — Moderate	grade 3 — Moderate	grade 3 — Moderate	EN ISO 4628-8:2003



Size of steel used for the test:	100x200x2 mm
Application:	by spraying
Corrosion assessment:	immediately
Adhesion:	24 hours after reconditioning
Conditioning time, day:	5 days
Drying / curing conditions:	23 ± 2 ° C, 50 ± 5 rel%
Degree of corrosion to be achieved:	Outdoor C4 - medium (15 years)

2. G 3500 Epoxy Primer/UR 11 PU Topcoat Coating system properties: RAL 8012

2st SYSTEM			
Number of Layer	DFT (dry film thickness) in μm	Chemical base	Orgachim product's name
1 st Layer	80	Epoxy	G 3500 Epoxy Primer
2 nd Layer	50	Polyurethane	UR 11 Polyurethane Topcoat

Test parameters	Test results			Test methodes
	1	2	3	
Layer thickness, μm :	130 ± 1	128 ± 1	148 ± 1	EN ISO 2808:2020
Appearance: steel surface	Red-brown decorative free of cracking coating			visual
Gloss, 60°:	90,1	89,1	91,5	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2013

Properties of the coating after 120 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	86,1	84,9	86,2	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 1 — Very slight	grade 1 — Very slight	grade 1 — Very slight	EN ISO 4628-8:2003

Properties of the coating after 240 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	84,0	86,8	81,4	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 1 — Very slight	grade 1 — Very slight	grade 1 — Very slight	EN ISO 4628-8:2003

Coating system properties after 480 hours of neutral salt spray:

Testing according to MSZ EN ISO 9227: 2012 5.2 standard / NSS method

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	82,4	83,2	81,0	EN ISO 2813:2000
Adherence, grade:	0	0	0	EN ISO 2409:2021
Adhesion, Mpa: fracture image	3,5 B/C	3,7 B/C	3,7 B/C	EN ISO 4624:2003
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 2 — Slight	grade 2 — Slight	grade 2 — Slight	EN ISO 4628-8:2003



Size of steel used for the test: 100x200x2 mm
 Application: by spraying
 Corrosion assessment: immediately
 Adhesion: 24 hours after reconditioning
 Conditioning time, day: 5 days
 Drying / curing conditions: 23 ± 2 ° C, 50 ± 5 rel%
 Degree of corrosion to be achieved: Outdoor C4 - medium (15 years)

3. G 3500 Epoxy Primer/UR 11 PU Topcoat Coating system properties: RAL 8012

3st SYSTEM			
Number of Layer	DFT (dry film thickness) in μm	Chemical base	Orgachim product's name
1 st Layer	100	Epoxy	G 3500 Epoxy Primer
2 nd Layer	60	Polyurethane	UR 11 Polyurethane Topcoat

Test parameters	Test results			Test methodes
	1	2	3	
Layer thickness, μm :	150 ± 1	147 ± 1	145 ± 1	EN ISO 2808:2020
Appearance: steel surface	Red-brown decorative free of cracking coating			visual
Gloss, 60°:	90,1	90,0	90,2	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2013

Properties of the coating after 120 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	86,1	84,9	86,2	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 1 — Very slight	grade 1 — Very slight	grade 1 — Very slight	EN ISO 4628-8:2003

Properties of the coating after 240 hours of water vapor condensation: MSZ EN ISO 6270:2001

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	87,4	81,8	82,9	EN ISO 2813:2000
Adherence, grade: on steel surface	0	0	0	EN ISO 2409:2021
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 1 — Very slight	grade 1 — Very slight	grade 1 — Very slight	EN ISO 4628-8:2003

Coating system properties after 480 hours of neutral salt spray:

Testing according to MSZ EN ISO 9227: 2012 5.2 standard / NSS method

Test parameters	Test results			Test methodes
	1	2	3	
Appearance: on steel surface	Red-brown in color, high gloss, even			visual
Gloss, 60°:	84,9	87,5	82,8	EN ISO 2813:2000
Adherence, grade:	0	0	0	EN ISO 2409:2021
Adhesion, Mpa: fracture image	3,5 B/C	3,7 B/C	3,7 B/C	EN ISO 4624:2003
Blasen:	0 (S0)	0(S0)	0(S0)	EN ISO 4628-2:2003
Rusting:	Ri0	Ri0	Ri0	EN ISO 4628-3:2003
Cracking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-4:2003
Flaking:	0(S0)	0(S0)	0(S0)	EN ISO 4628-5:2003
Delamination and corrosion around a scribe	grade 2 — Slight	grade 2 — Slight	grade 2 — Slight	EN ISO 4628-8:2003



ÉMI-TÜV

The sample was removed by the payer after the tests.



ÉMI-TÜV SÜD KR.
KERMI Osztály

A handwritten signature in blue ink, appearing to read 'Magasházy György'.

Magasházy György
Expert

A handwritten signature in blue ink, appearing to read 'Kárpáti Szilveszter'.

Kárpáti Szilveszter
Expert

A handwritten signature in blue ink, appearing to read 'Varjú András'.

Varjú András
Head of KERMI Department

Photo Annex:

1 coating system: P 513 Alkyd Primer/Alkyd Base Satin RAL 8012
After 120 hours of water vapor condensation, the properties of the coating



1 coating system: P 513 Alkyd Primer/Alkyd Base Satin RAL 8012
After 240 hours of neutral salt spray, the properties of the coating



2 coating system: G 3500 Epoxy Primer/UR 11 PU Topcoat Coating system properties: RAL 8012, After 240 hours of water vapor condensation, the properties of the coating

