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TEST REPORT

Balan Valentin
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Central Laboratory
KERMI Department

Budapest, 16/12/2021

Test report No.:
R-1804395

Name of the client: address:	Orgachim JSC 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:

NAH-1-1351/2018/K
VIZSGÁLÓLABORATÓRIUM

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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
1st Layer	100	Alkyd	P 513 Alkyd Primer
2nd 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

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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

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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
1st Layer	80	Epoxy	G 3500 Epoxy Primer
2nd 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

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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

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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
1st Layer	100	Epoxy	G 3500 Epoxy Primer
2nd 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

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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

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The sample was removed by the payer after the tests.

ÉMI-TÜV SÜD Kft.
KERMI Osztály

Magasházy György
Expert

Kárpáti Szilveszter
Expert

Varjú András
Head of KERMI Department

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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