



COT bv
Independent advice,
research and
management for
construction and
industry



REPORT

Testing of system NEOGUARD PRIMER 313 (80 micron) /
NEOGUARD 322 (120 micron) / NAVACOLOR PU HS 531 (80 micron)
according to ISO 12944-6 C4 High

Haarlem, July 9th, 2012

Civil projects
Corrosionprotection
Laboratory

Jan Tademaweg 40
2031 CV Haarlem
P.O. Box 2113
2002 CC Haarlem
The Netherlands
T +31 23-5319544
F +31 23-5277229
E info@cot-nl.com
I www.cot-nl.com

Client : Neokem SA
Ag. Georgiou 95
GR 19400 Koropi, Attiki
Greece
Contact person: Mr. Y. Koletsis

Project number : 20120118

Report number : LAB12-0470-REP

Handled by : Mr. R. Brakenhoff

Copy Right This report contains 5 numbered pages and is property of COT bv (Netherlands). No part of this report may be copied, distributed, inserted in any text document, or reproduced in any other way or published, without written permission of COT bv (Netherlands). This report is not transferable to any person or body, serves only to take cognisable and gives in no way the rights on this report, neither can lay a claim to any in this report discussed product or method. Use of information from this report is not permitted without written permission of COT bv. When not agreed in the by COT bv provided order confirmation, our Rules of Service are applicable.



CONTENTS

1	INTRODUCTION	3
1.1	Order	3
1.2	Samples	3
2	PAINT APPLICATION	3
3	RESULTS	4
3.1	Assessment before Artificial Aging tests	4
3.2	Assessment after Water Condensation test	4
3.3	Assessment after Neutral Salt Spray test.....	4
4	CONCLUSION	5

ANNEX I: Paint Application Form

1 INTRODUCTION

1.1 Order

By order of Neokem in Attiki, Greece, the Centrum voor Onderzoek en Technisch advies (COT bv) in Haarlem, The Netherlands, has tested the system Neoguard Primer 313 / Neoguard 322 / Navacolor PU hs 531 according to ISO 12944-6 C4 High.

The order has been given by signing and returning the COT order confirmation with reference LAB12-0092-OFF on February 6th, 2012.

1.2 Samples

COT sample number	Sample	Batch-number	Colour RAL	Received
28-02-12/0131 A-B	Neoguard Primer 313	Base: -- Cure: --	7135	27-02-2012
28-02-12/0132 A-B	Neoguard 322	Base: -- Cure: --	7001	
28-02-12/0133 A-B	Navacolor PU hs 531	Base: -- Cure: --	9016	
28-02-12/0134	Thinner S200 (Navacolor PU hs 531)	21780	--	
28-02-12/0135	Thinner S130 (Neoguard Primer 313 and Neoguard 322)	21722	--	

2 PAINT APPLICATION

The coating system has been applied by COT on Sa3 blasted steel panels, surface roughness Medium (G).

Specified Dry Film Thickness: Neoguard Primer 313 : 80 µm
Neoguard 322 : 120 µm
Navacolor PU hs 531 : 80 µm

Application data has been added in Annex I.

The edges and the back of the test panels have been coated with an epoxy coating.

The coating system has been cured for 13 days at 23 ± 2 °C and 50 ± 5 % Relative Humidity.

Required durability: ISO 12944-6 C4 High

Start Water Condensation test on April 19th 2012, end of test on May 9th 2012.
Start Neutral Salt Spray test on April 19th 2012, end of test on May 18th 2012.

3 RESULTS

3.1 Assessment before Artificial Aging tests

Pull-off ISO 4624	Panel 12	Requirements
Minimum – maximum DFT (µm)	286 - 337	
Average DFT (µm)	313 ± 19	280
Pull-off value (MPa)	>20 break in 2 nd layer and glue	No adhesion break to the substrate unless the values are ≥5 MPa

3.2 Assessment after Water Condensation test

480 hours ISO 6270	Panel 8	Panel 10	Panel 13	Requirements
Min. – max. DFT (µm)	292 – 336	264 – 313	300 – 326	
Average DFT (µm)	313 ± 17	289 ± 21	315 ± 13	
ISO 4628-2 (blistering)	0(S0)	0(S0)	0(S0)	0(S0)
ISO 4628-3 (rusting)	Ri 0	Ri 0	Ri 0	Ri 0
ISO 4628-4 (cracking)	0(S0)	0(S0)	0(S0)	0(S0)
ISO 4628-5 (flaking)	0(S0)	0(S0)	0(S0)	0(S0)
Pull-off value (MPa)	>20 break in 2 nd layer and glue	>20, break in 2 nd layer and glue	>20, break in 2 nd layer and glue	No adhesion break to the substrate unless the values are ≥5 MPa

3.3 Assessment after Neutral Salt Spray test

720 hours ISO 9227 NSS	Panel 16	Panel 17	Panel 18	Requirements
Min. – max. DFT (µm)	272 – 343	262 - 342	256 – 295	
Average DFT (µm)	311 ± 26	293 ± 33	280 ± 16	
ISO 4628-2 (blistering)	0(S0)	0(S0)	0(S0)	0(S0)
ISO 4628-3 (rusting)	Ri 0	Ri 0	Ri 0	Ri 0
ISO 4628-4 (cracking)	0(S0)	0(S0)	0(S0)	0(S0)
ISO 4628-5 (flaking)	0(S0)	0(S0)	0(S0)	0(S0)
Annex A (corrosion of the substrate from the scribe) (mm)	0	0	0	Not exceed 1 mm
Pull-off value (MPa)	>20 break in 2 nd layer and glue	>20 break in 2 nd layer and glue	>20 break in 2 nd layer and glue	No adhesion break to the substrate unless the values are ≥5 MPa

4 CONCLUSION

The system Neoguard Primer 313 / Neoguard 322 / Navacolor PU hs 53, dry film thickness 80 / 120 / 80 μm , (COT sample numbers 28-02-12/0131 0135) meets the requirements of ISO 12944-6 C4 High.

CENTRUM VOOR ONDERZOEK
EN TECHNISCH ADVIES (COT bv)

A handwritten signature in blue ink, appearing to read 'R. Brakenhoff', with a long horizontal stroke extending to the right.

R. Brakenhoff
Technical Manager Laboratory

A handwritten signature in blue ink, appearing to read 'Dr. B.P. Alblas', with a long horizontal stroke extending to the right.

Dr. B.P. Alblas
Manager Laboratory



ANNEX I

Paint Application Form			
Application data	1st coat	2nd coat	3rd coat
Paint system	Neoguard Primer 313	Neoguard 322	Navacolor PU hs 531
Manufacturer: Neokem			
Date	04-04-2012	05-04-2012	06-04-2012
Time	10.00	10.00	10.00
Surface prep.	Gritblasting	-	-
Blasting standard	Sa	-	-
Abrasive used	A2	-	-
Roughness	Medium	-	-
Batch No. Comp. A	--	--	--
Batch No. Comp. B	--	--	--
Equipment used	WIWA 66:1	WIWA 66:1	WIWA 66:1
Pressure on nozzle (At.)	150	170	150
Size nozzle	0.017"	0.021"	0.015"
Fan width	4	4	4
Mix.ratio by weight	100:9	100:12	100:12.5
Volume solid (%)	73	73	62
Wet film thickness (µm)	115	170	130
Dry film thickness (µm)	80	120	80
% Thinner	5 (S130)	5 (S130)	--
Air temperature (°C)	19.9	19.9	21.9
% RH	44.1	34.5	44.7
Steel temp. (°C)	20.1	22	22.1
Dew point (°C)	7.4	4.1	9.4
Present at application: R. Brakenhoff (COT)			