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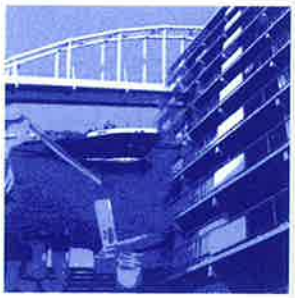

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REPORT

Testing of ZINGA 2 x 90 µm
dry film thickness
according to ISO 12944-6

Haarlem, 6 September 2010

Client	:	Zingametall bvba Industriepark – Rozenstraat 4 B – 9180 Eke (Belgium) Contact person: Mr. F. Peirsegaele
Project number	:	20090602
Report number	:	LAB10-0770-REP
Handled by	:	Mr. N. Blokker

CONTENTS

1 INTRODUCTION

1.1 Order

By order of Zingametall bvba in Eke, Belgium, the Centrum voor Onderzoek en Technisch advies (COT bv) in Haarlem has tested Zinga 2 x 90 µm dry film thickness according to ISO 12944-6.

The order has been given by signing the COT quotation LAB10-0234-OFF on 24 February 2010

1.2 Samples

Samples : 44 coated steel test panels with 2 layers Zinga (2 x 90 µm DFT)

COT sample number : 22-02-10/0175 B

Received : 19 February 2010

2 PAINT APPLICATION

The Zinga system has been applied at Zingametall bvba.

Specified Dry Film Thickness : 2 layers, 90 µm dry film thickness per layer

Required durability : ISO 12944-6 C5-I
ISO 12944-6 C5-M
ISO 12944-6 Im3

Test times:

Water Condensation test	:	Start 16-03-2010	End 15-04-2010
Neutral Salt Spray test	:	Start 16-03-2010	End 14-05-2010
Chemical Resistance test	:	Start 08-03-2010	End 20-04-2010
Water Immersion test	:	Start 01-04-2010	End 24-06-2010

3 RESULTS

3.1 Assessment before tests

Cross-cut test ISO 2409	Panel 10	Panel 17	Requirement
Minimum – maximum DFT (µm)	147 – 185	157 – 197	
Average DFT (µm)	169 ± 13	175 ± 13	
Classification	0	0	0 or 1

3.2 Assessment after Water Condensation test

720 hours ISO 6270	Panel 5	Panel 11	Panel 12	Requirements
Minimum – maximum DFT (µm)	147 – 179	169 – 183	159 – 175	
Average DFT (µm)	163 ± 11	177 ± 4	167 ± 5	
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)
ISO 2409 Cross-cut test (Classification)	0	0	0	0 or 1

3.3 Assessment after Neutral Salt Spray test

1440 hours ISO 9227 NSS	Panel 9	Panel 15	Panel 16	Requirements
Minimum – maximum DFT (µm)	135 – 173	159 – 181	183 – 211	
Average DFT (µm)	156 ± 11	172 ± 7	195 ± 8	
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)	<0.5	<0.5	<0.5	Not exceed 1 mm
ISO 2409 Cross-cut test (Classification)	0	0	0	0 or 1

3.4 Assessment after Chemical Resistance test

Instead of immersion, in accordance with ISO 2812-1, the system has been tested according to ISO 3231 with 0.2 L SO_2 during 30 cycles.

30 cycles ISO 3231	**Panel 1**	**Panel 2**	**Panel 3**	**Requirements**
Minimum – maximum DFT (µm)	165 – 195	175 – 215	139 – 177	
Average DFT (µm)	181 ± 10	196 ± 14	160 ± 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)
Annex A (corrosion of the substrate from the scribe) (mm)	0	0	0	Not exceed 1 mm
ISO 2409 Cross-cut test (Classification)	0	0	0	0 or 1

3.5 Assessment after Water Immersion test

2000 hours ISO 2812-2 (5% m/m sodium chloride)	**Panel 18**	**Panel 19**	**Panel 21**	**Requirements**
Minimum – maximum DFT (µm)	167 – 223	167 – 191	159 – 189	
Average DFT (µm)	199 ± 19	176 ± 8	177 ± 10	
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)
Cross-cut (Classification)	0	0	0	0 or 1

4 CONCLUSION

The system 2 layers Zinga, dry film thickness 90 µm per layer (COT sample number 22-02-10/0175 B), meets the requirements of the following corrosivity categories of ISO 12944-6:

C5-I-High and C5-M-High
Im2-Medium and Im3-Medium

CENTRUM VOOR ONDERZOEK
EN TECHNISCH ADVIES (COT bv)

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