TEST REPORT

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109546 Verification report

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Company (address, VAT no)	MP bolagen Industri AB, Box 3, 574 21 Vetlanda, SE556220165601
Article specification and amount of objects incl. surface treatment	3 pcs HDG, SS-EN ISO 1461 1-3 3 pcs Benzinal 2000E 4-6
Type of test	NSS
Test standard(s)	ISO 9227:2012 Accredited method according to ISO/IEC 17025:2005
Requirement standard(s) and clarification of requirements	-
Clients requirement(s)	Evaluation an pictures somewhere between at 24 and aprox 96 and somewhere at 168 h + the evaluation times acc. to prices. (times stated by PTY upon confirmation before start)
Evaluation according to	Corrosion resistance according to ISO 10289:1999 | Area of defects A (%)	Rating Rp or RA
No defects	10
0< A ≤ 0,1	9
0,1 < A ≤ 0,25	8
0,25 < A ≤ 0,5	7
0,5 < A ≤1,0	6
1,0 < A ≤ 2,5	5
2,5 < A ≤ 5,0	4
5,0 < A ≤ 10	3
10 < A ≤ 25	2
25 < A ≤ 50	1
50 < A	0 | The R_A rating in this test was used to evaluate the white corrosion and the R_P rate is used to evaluate the base material corrosion.
Significant surface (clients choice)	All exposed
Other information	Stop test when all samples are Grade Rp5 or worse. Test to compare the 2 different coatings. Customer stopped testing at 1008h

Report issued by (Name, phone, signature):	Joel Pierre, +46(0)36-37 38 51	JP
Approved by (Name, phone, signature):	Joakim Ekström, +46(0)36-37 38 53	
Address (Lab):	Proton Technology Sjöåkravägen 28 SE-564 31 Bankeryd, Sweden	
Issue:	1	
Sample arrived at Technology	2016-02-23	

Test performance:	Test(s) are carried out at Proton Technology at the corrosion laboratory in Bankeryd.
	All test data gathered is sampled at Proton Technology AB.
	The evaluation methods and methods for calculation are not accredited.
	Corrosion resistance test
	During the test the samples were photographed and evaluated for corrosion resistance. The evaluation for corrosion resistance was made according to the following:
Test conditions	**NSS:**
	For the solution only highly refined vacuum salt (NaCl), containing less than 0.001 % Cu and Ni, was used which was dissolved in de-ionized water. Data gathered in the process is sampled at Proton Technology AB.
	Test cabinet id: MV2
	Temperature: $35.0 \pm 2^{o}C$
	Solution pH: 6.5 – 7.0
	Concentration of salt: $5.0 \pm 0.5\%$ NaCl
	Test period: 2016-02-29 – 2016-04-18
Results:	The following table(s) shows the results for the tested objects. The results are only valid for the tested objects in 109546 Verification report.

Results

Results from corrosion resistance test

Test duration	Requirement	Object no. 1	Object no. 2	Object no. 3	Object no. 4	Object no. 5	Object no. 6	Performed by:
24 h	Requirement for time until base metal corrosion (Rp5)	Ra1	Ra1	Ra1	Ra4	Ra4	Ra4	JP
96 h	Requirement for time until base metal corrosion (Rp5)	Ra0	Ra0	Ra0	Ra2	Ra2	Ra2	JW
168 h	Requirement for time until base metal corrosion (Rp5)	Ra0	Ra0	Ra0	Ra1	Ra1	Ra1	JW
240 h	Requirement for time until base metal corrosion (Rp5)	Rp9	Rp9	Rp9	Ra0	Ra0	Ra0	JW
504 h	Requirement for time until base metal corrosion (Rp5)	Rp5	Rp5	Rp5	Rp9	Ra0	Ra0	JP
744 h	Requirement for time until base metal corrosion (Rp5)	Rp3	Rp3	Rp3	Rp9	Ra0	Ra0	JW
1008 h	Requirement for time until base metal corrosion (Rp5)	Rp2	Rp2	Rp2	Rp9	Ra0	Ra0	JW

Pictures

Picture 1.   Samples 1-3 from the left before start of the corrosion resistance test.
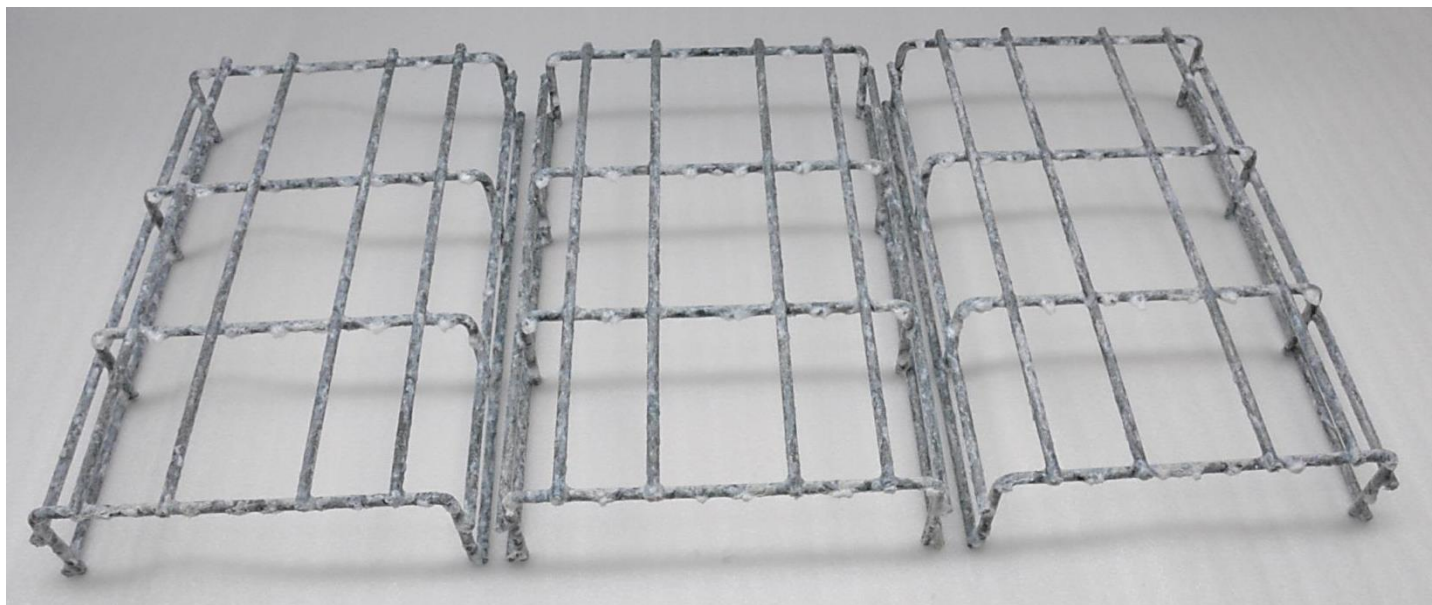

Picture 2.   Samples 4-6 from the left before start of the corrosion resistance test.

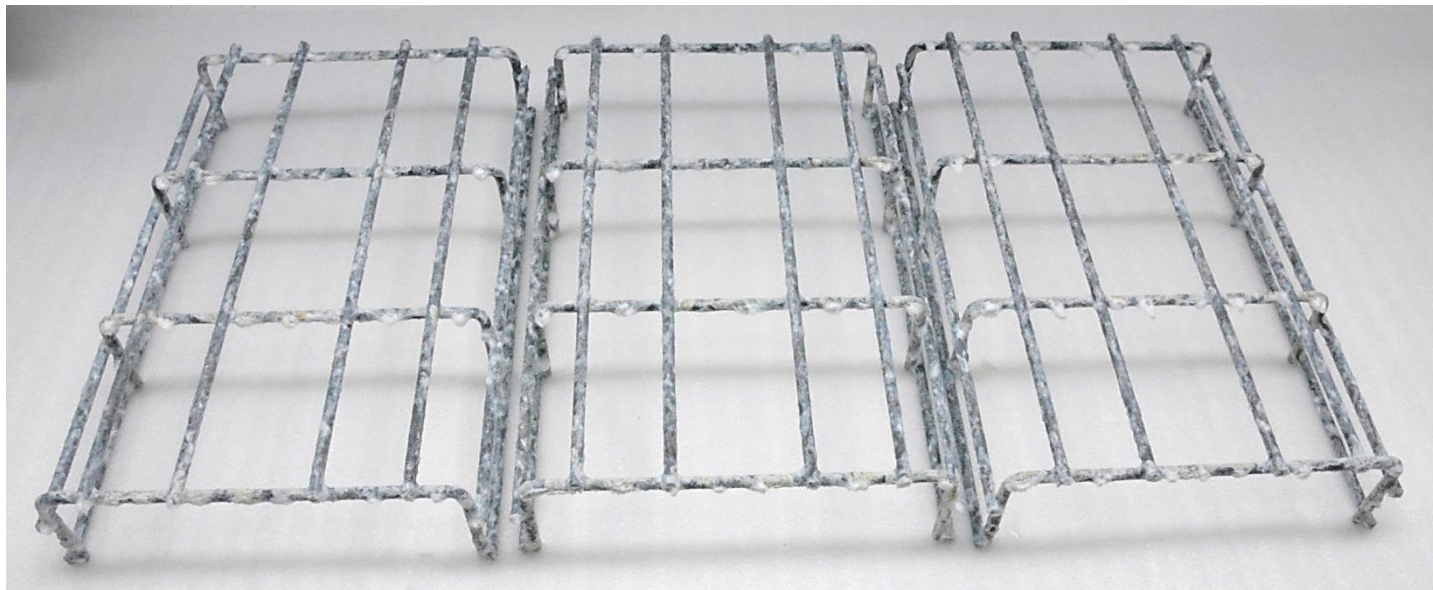**Picture 3.**   Samples 1-3 from the left after 24h of testing.

Picture 4.   Samples 4-6 from the left after 24h of testing.

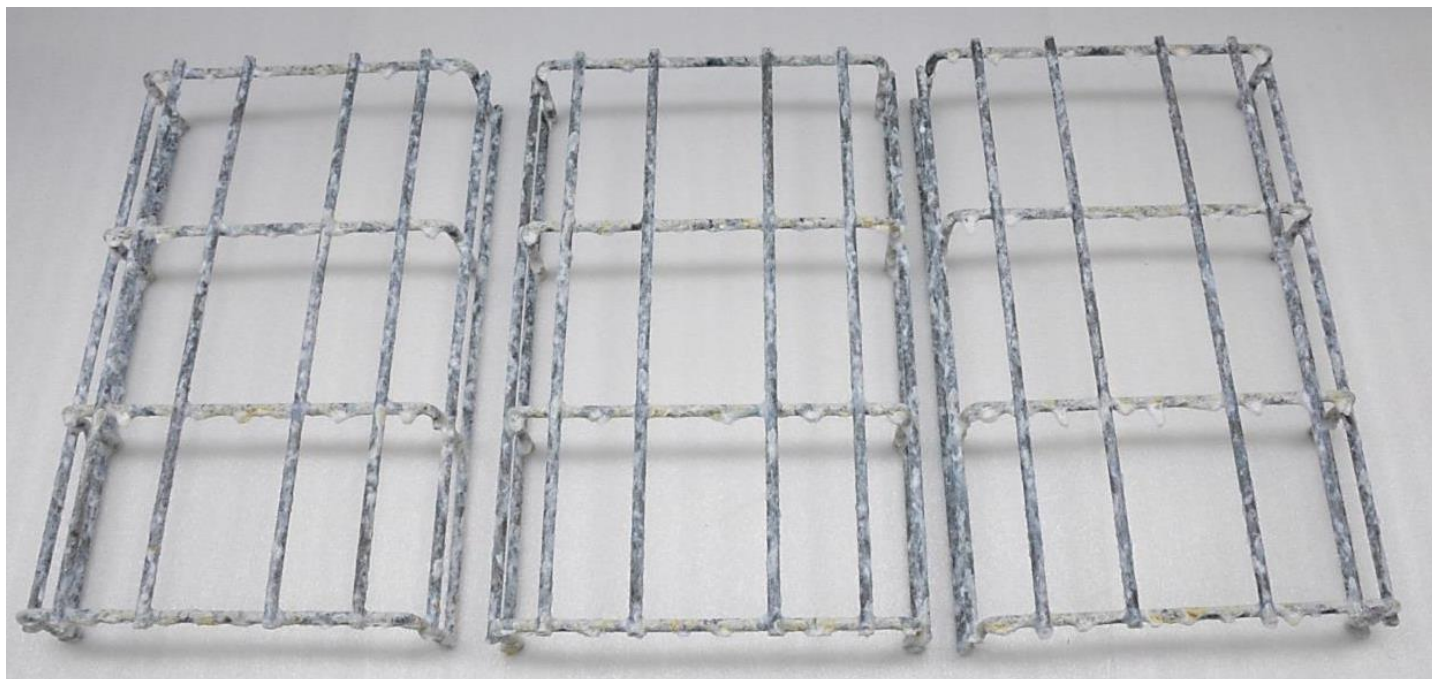**Picture 5.**   Samples 1-3 from the left after 96h of testing.

Picture 6.   Samples 4-6 from the left after 96h of testing.

Picture 7. Samples 1-3 from the left after 168h of testing.

Picture 8. Samples 4-6 from the left after 168h of testing.

Picture 9. Samples 1-3 from the left after 240h of testing.

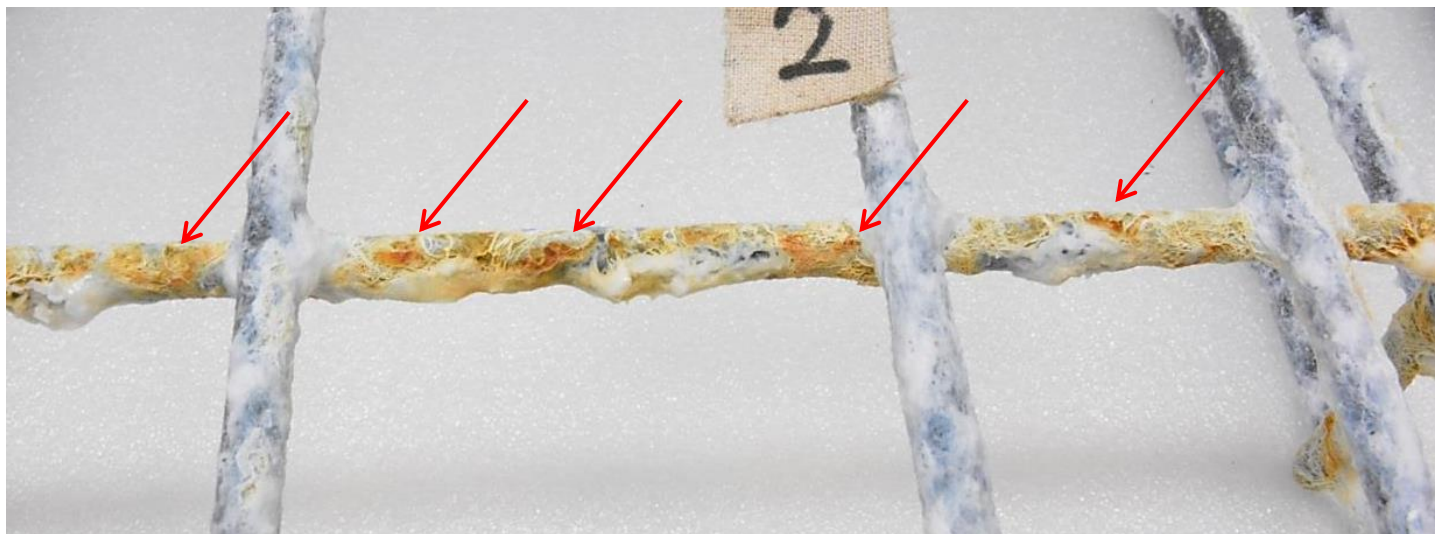**Picture 10.** Samples 4-6 from the left after 240h of testing.

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Picture 11. Close-up picture on sample 1 after 240h of testing. Example(s) of base metal corrosion is marked with arrow(s).
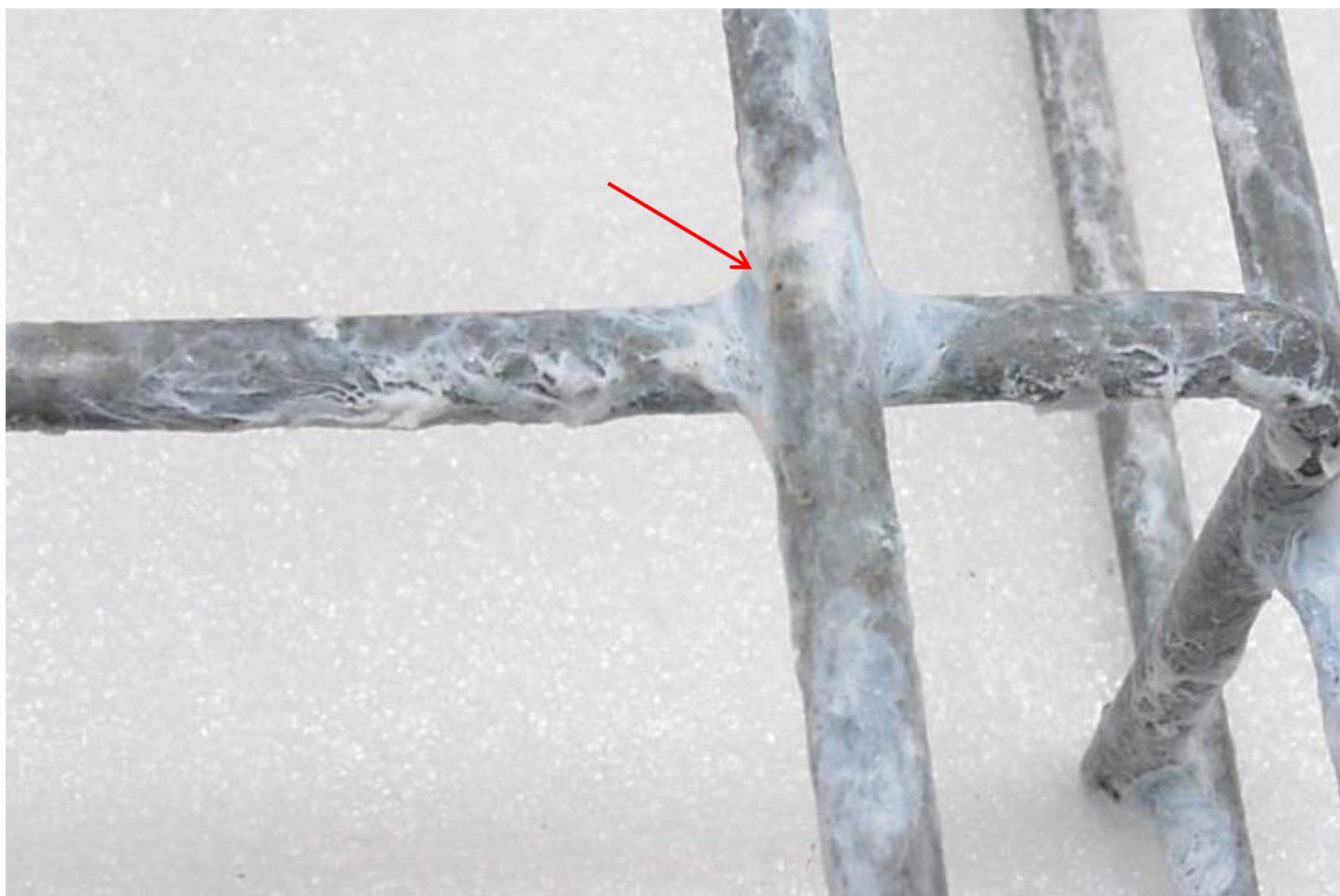
2016-04-25

Picture 12. Samples 1-3 from the left after 504h of testing.

Picture 13. Samples 4-6 from the left after 504h of testing.
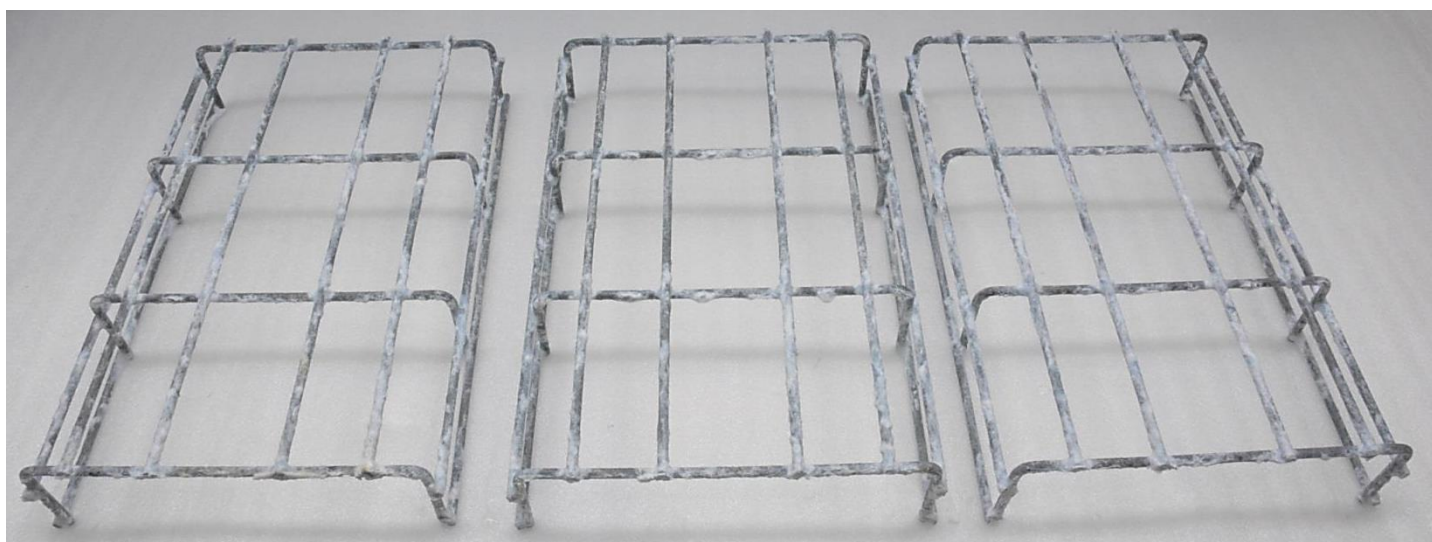
2016-04-25

Picture 14. Close-up picture on sample 2 after 504h of testing. Example(s) of base metal corrosion is marked with arrow(s).

Picture 15. Close-up picture on sample 4 after 504h of testing. Example(s) of base metal corrosion is marked with arrow(s).
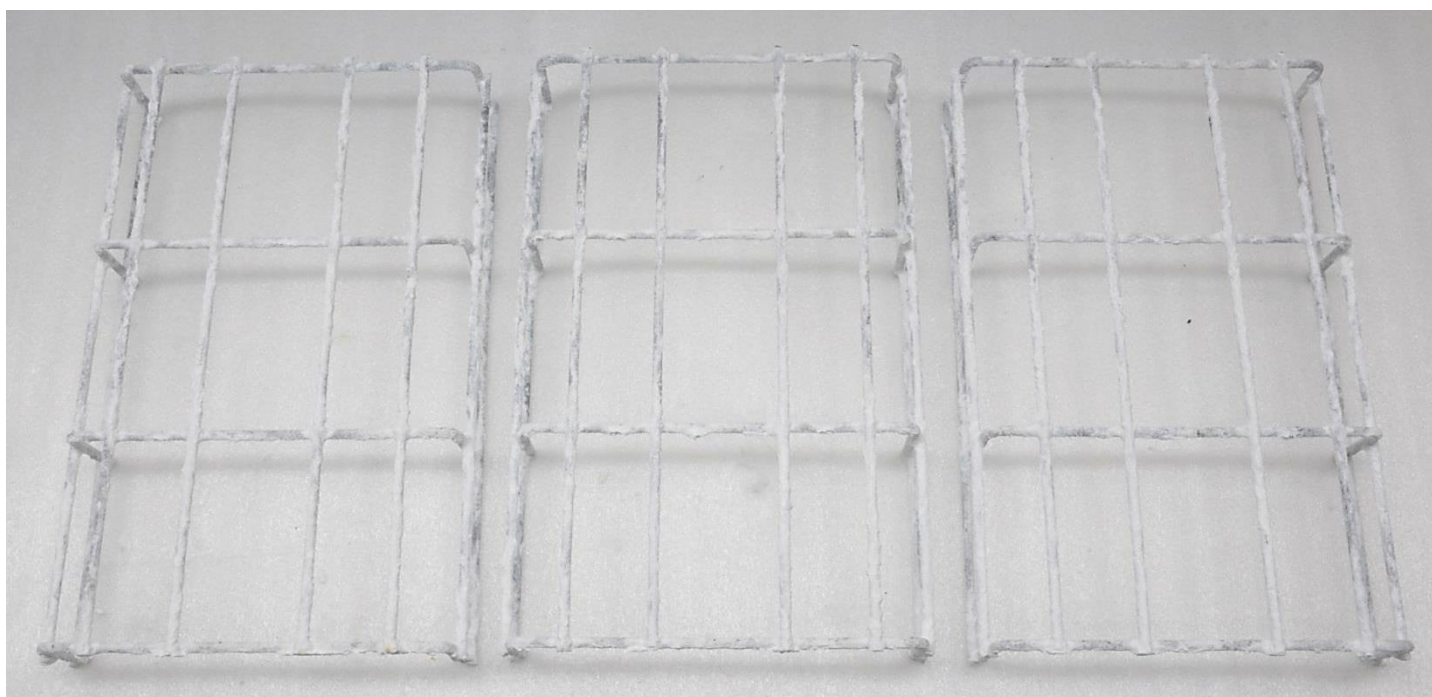
Picture 16. Samples 1-3 from the left after 744h of testing.

Picture 17. Samples 4-6 from the left after 744h of testing.

Picture 18. Samples 1-3 from the left when the test was finished after 1008h of testing.

Picture 19. Samples 4-6 from the left when the test was finished after 1008h of testing.

Picture 20. Close-up picture on sample 2 after 1008h of testing.