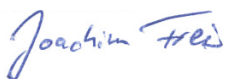



Report No: 4788945807
Report Date: 2019-07-31



Test Location Information	
Name	UL International Germany GmbH
Address	Admiral Rosendahl Strasse 23 63263 Zeppelinheim Neu-Isenburg
Client Information	
Name	LEGRAND
Address	Boite Postale 36 Sille Le Guillaume, 72140 France
Report Information	
Report Number	4788945807
Report Date	2019-07-31
Standard References	ISO 9227:2012 ISO 10289:2001
Product Information	
Type	Cable Trays
Product	Cable Tray parts
Testing Engineer	
Name/Signature	Joachim Freis 
Laboratory Review	
Name/Signature	Marijo Cosic 





General Information

Information conveyed by this Report applies only to the test sample(s) actually tested. UL Company did not select the sample(s), determine whether the sample(s) was representative of production sample(s), nor was UL provided with information relative to the formulation or identification of component materials used in the test sample(s).

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List of tests	Page
Corrosion tests in artificial atmospheres - Salt spray tests - ISO 9227	6

Table 1 "List of tests"

Appendix	Page
Instrument reference list	43
Product pictures	44

Table 2 "Appendix"

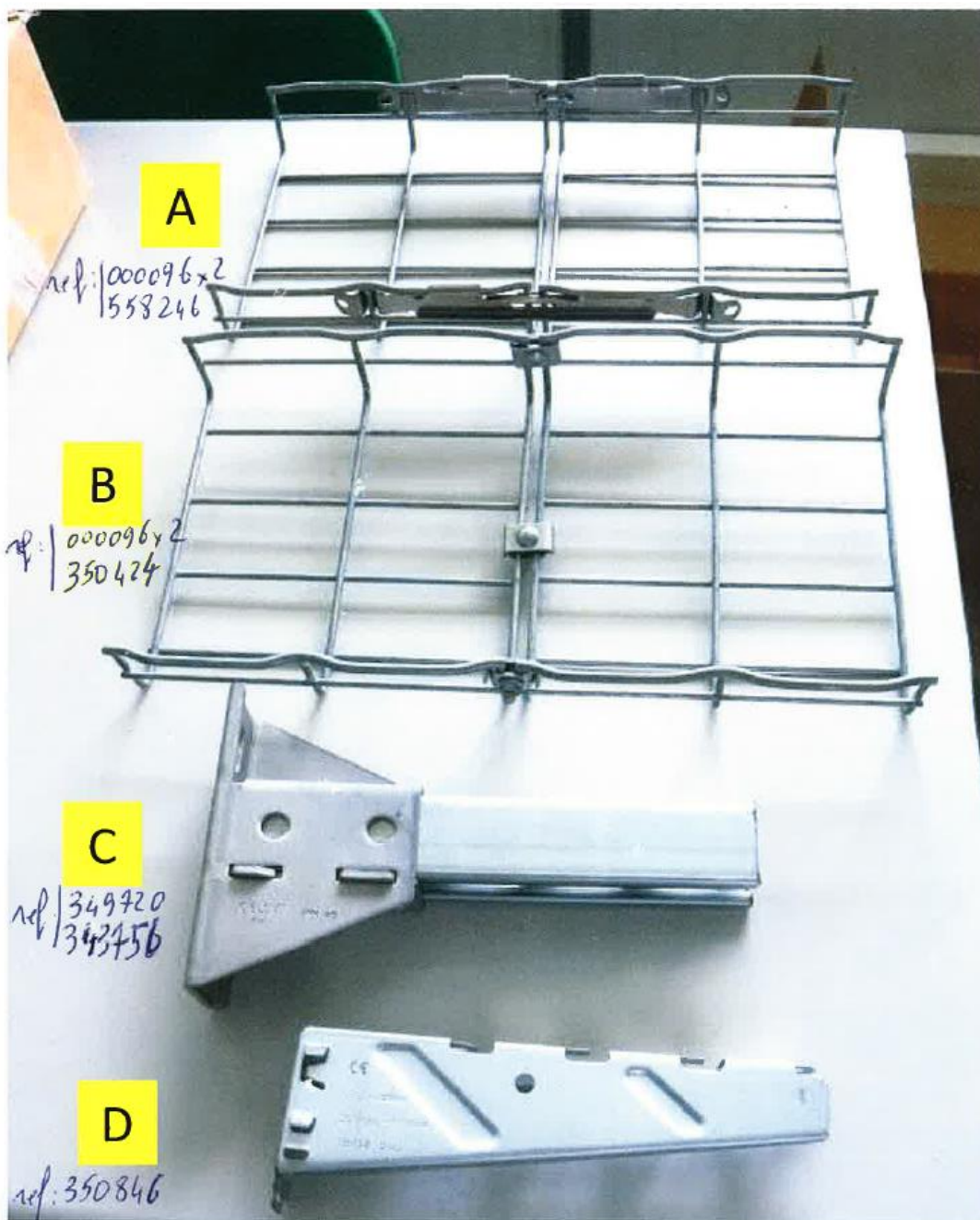




Sample Identification			
Sample No.	Sample Identification Number	Date Received	Product Description
1	2249936	2019-05-24	A: chemin de cables CF54/200 L:250 + eclisse 1 + chemin de cables CF54/200 L:250
2	2249940	2019-05-24	B: chemin de cables CF54/200 L:250 + eclisse 2 + chemin de cables CF54/200 L:250
3	2249943	2019-05-24	C: Rail 41 S L:250 + Platine PFN41S
4	2249945	2019-05-24	D: Console CB 200

Table 3 "Sample identification list"





Picture 1: Sample description by client

Tested by:	Joachim Freis	Test Date:	2019-06-11 2019-07-17
Sample Tested:	1-4	Instrument Code/Range:	62952/150mm; 155729/Salt mist chamber; 126654/s; 171466/14pH; 64188/°; 86987/300g;

Humidity/ [%r.H]	Barometric Pressure / [mBar]	Ambient / [°C]	Date
50.1	1003	21.7	2019-07-17

Corrosion tests in artificial atmospheres – Salt spray tests - ISO 9227

Description and Setup

The “Corrosion tests in artificial atmospheres – Salt spray tests” were performed according ISO 9227:2012. Neutral salt spray (NSS) test methods were used for testing.

The method of evaluating the cabinet corrosivity for the NSS test was performed according to ISO 9227:2012 clause 5.2.

The pH adjustment for NSS test was performed according to ISO:9227:2012 clause 3.2.2.

Test method Item	Neutral salt spray (NSS)	Acetic acid salt spray (AASS)	Copper-accelerated acetic acid salt spray (CASS)
Temperature	35 °C ± 2 °C	35 °C ± 2 °C	50 °C ± 2 °C
Average collection rate for a horizontal collecting area of 80 cm ²	1,5 ml/h ± 0,5 ml/h		
Concentration of sodium chloride (collected solution)	50 g/l ± 5 g/l		
pH (collected solution)	6,5 to 7,2	3,1 to 3,3	3,1 to 3,3

Table 4: Operating conditions

Duration of tests (specified by customer) [h]
850

Table 5: Duration of tests

Sample No.	Description of the material or product tested	Dimensions and shape of the test specimen, and nature and area of the surface tested
1	A: chemin de cables CF54/200 L:250 + eclisse 1 + chemin de cables CF54/200 L:250	420x230x70mm Wire frame See pictures below
2	B: chemin de cables CF54/200 L:250 + eclisse 2 + chemin de cables CF54/200 L:250	420x230x70mm Wire frame See pictures below
3	C: Rail 41 S L:250 + Platine PFN41S	255x155x55mm Mounting with C-profile See pictures below
4	D: Console CB 200	234x74x43mm Fixing bracket See pictures below

Table 6: " Corrosion tests in artificial atmospheres – Salt spray tests – Sample description "

Sample No.	Preparation of the test specimen, including and cleaning treatment applied and any protection given to edges or other special areas	Known characteristics of any coating, with an indication of the surface area
1	NA	NA
2	NA	NA
3	NA	NA
4	NA	NA

Table 7: " Corrosion tests in artificial atmospheres – Salt spray tests – Sample description "

Type and purity of salt
Hydrogen Carbonate 99.7

Table 8 " Corrosion tests in artificial atmospheres – Salt spray tests – salt specifications "

The assignment of the appearance rating was performed according to ISO 10289:2001 clause 6.

Table 1 — Protection (R_p) and appearance (R_A) ratings

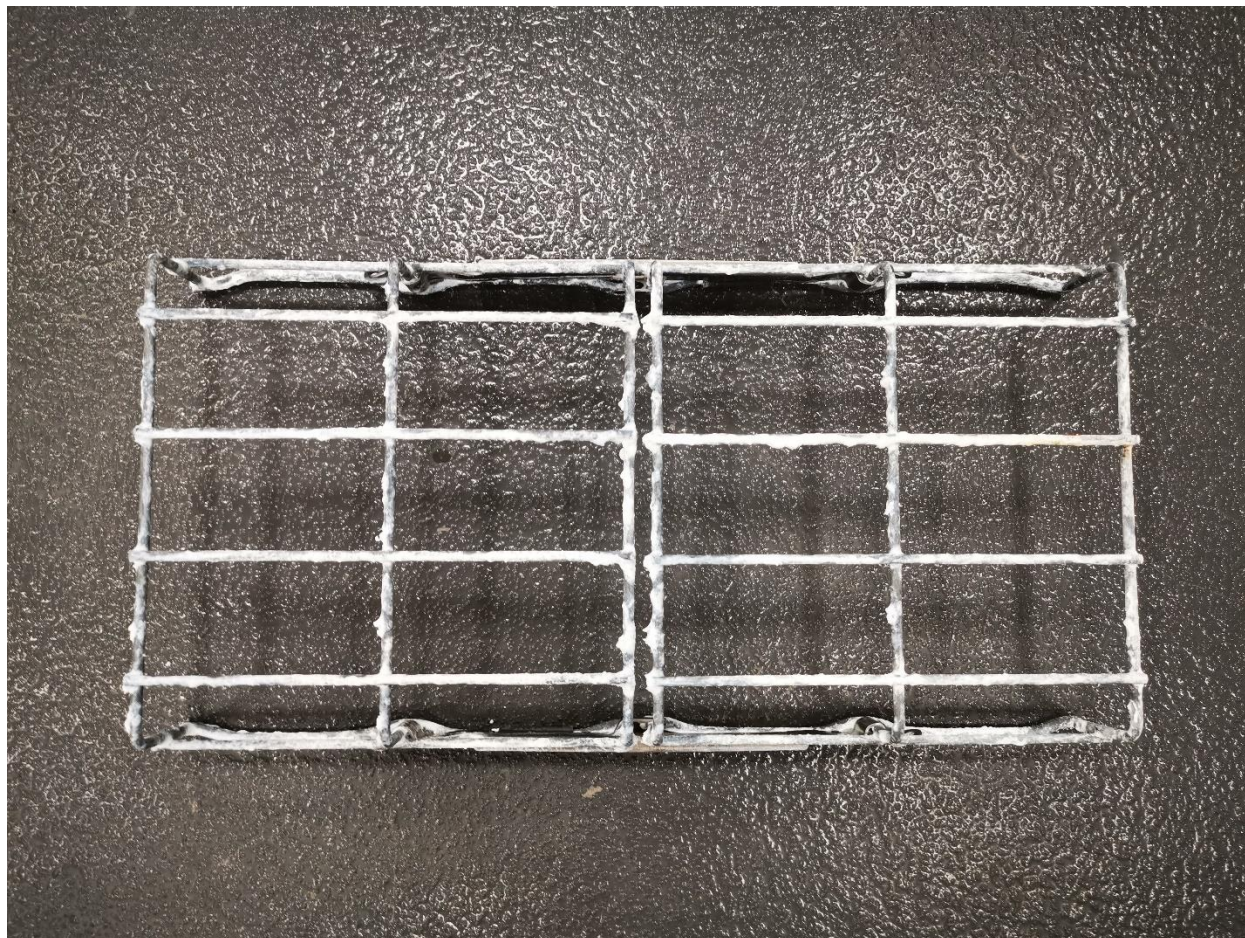
Area of defects A (%)	Rating R_p or R_A
No defects	10
$0 < A \leq 0,1$	9
$0,1 < A \leq 0,25$	8
$0,25 < A \leq 0,5$	7
$0,5 < A \leq 1,0$	6
$1,0 < A \leq 2,5$	5
$2,5 < A \leq 5,0$	4
$5,0 < A \leq 10$	3
$10 < A \leq 25$	2
$25 < A \leq 50$	1
$50 < A$	0

Table 9: Table 1 of ISO 10289 clause 6

Results

Sample No.	1	2	3	4
Number of test specimens subjected to the test representing each material or product	1	1	1	1
Test temperature [°C]	35	35	35	35
Volume of the collected solution [cm ³]	26.5	26.5	26.5	26.5
pH value of test solution	7.0	7.0	7.0	7.0
Salt concentration [%]	5.0	5.0	5.0	5.0
Corrosion rate of reference specimens (made of steel) [g/m ²]	61.2			
Appearance Rating R _A acc. ISO 10289:2001	<1% (R _A :6)	<0.5% (R _A :7)	<0.5% (R _A :7)	No defects (R _A :10)
Method used to clean test specimens after the test with, where appropriate, an induction of the loss in mass resulting from the cleaning operation	Water	Water	Water	Water
Angle at which the tested surfaces were inclined [°]	20.0	20.0	20.0	20.0
Frequency and number of specimen location permutations, if any	NA	NA	NA	NA
Duration of the test and results of any intermediate inspections	850h / No intermediate inspections performed	850h / No intermediate inspections performed	850h / No intermediate inspections performed	850h / No intermediate inspections performed
Properties of any reference specimens placed in the cabinet to check the stability of the operating conditions	No corrosion detected	No corrosion detected	No corrosion detected	No corrosion detected
Any abnormality or incident occurring during the entire test procedure	NA	NA	NA	NA
Intervals of inspection [h]	24	24	24	24

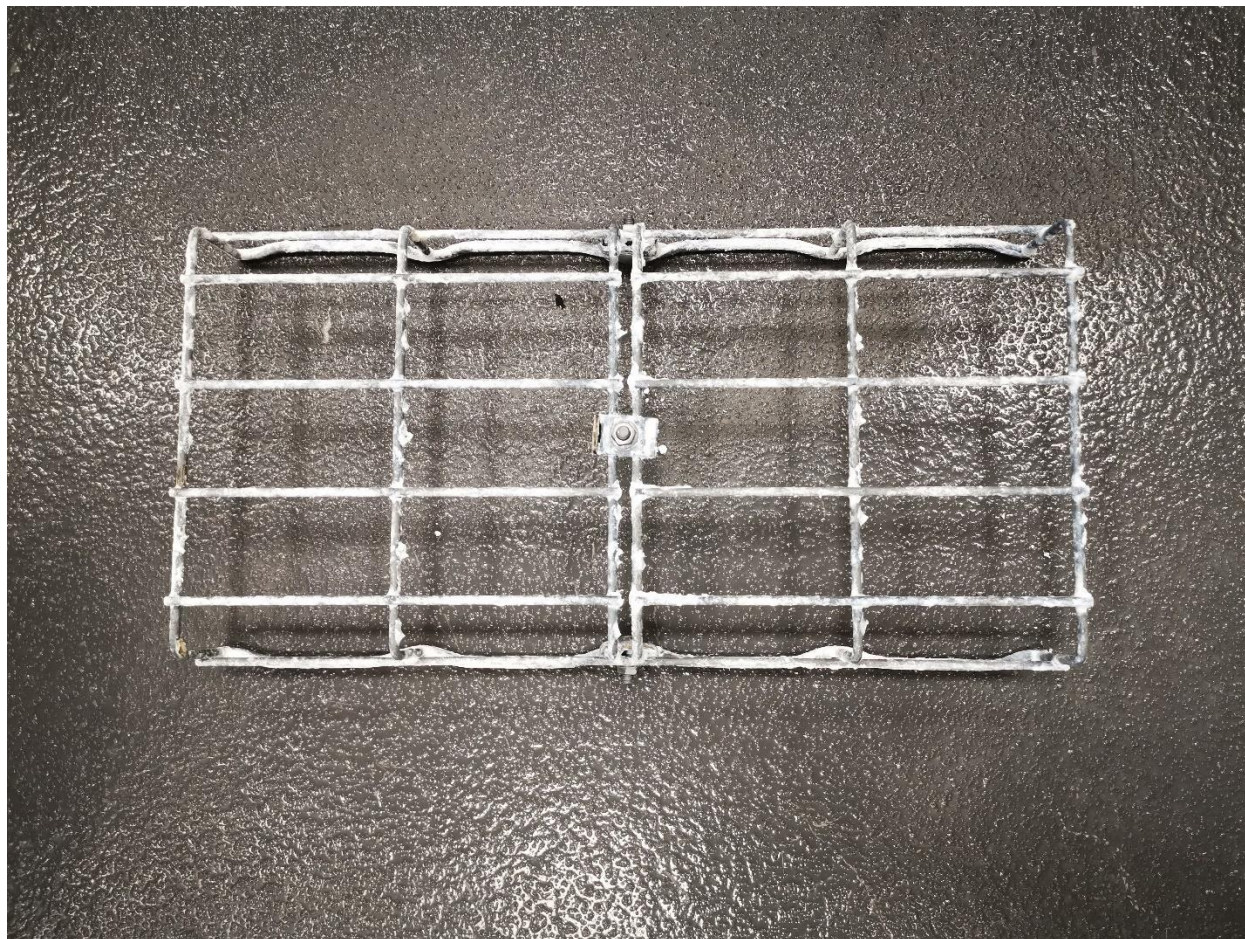
Table 10: " Corrosion tests in artificial atmospheres – Salt spray tests – results"



Picture 2: Picture of sample 1 after testing



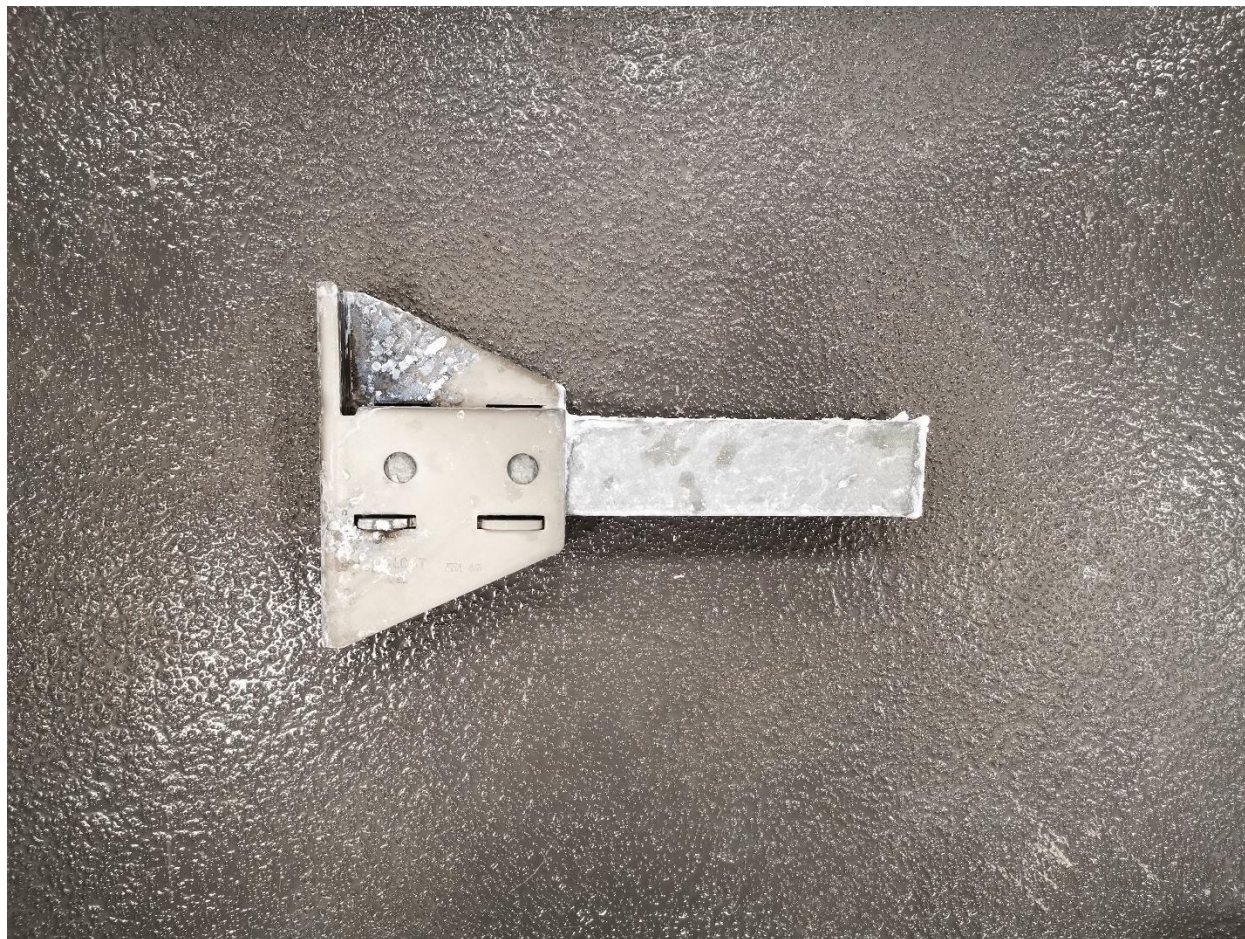
Picture 3: Picture of sample 1 after testing



Picture 4: Picture of sample 2 after testing



Picture 5: Picture of sample 2 after testing



Picture 6: Picture of sample 3 after testing



Picture 7: Picture of sample 3 after testing



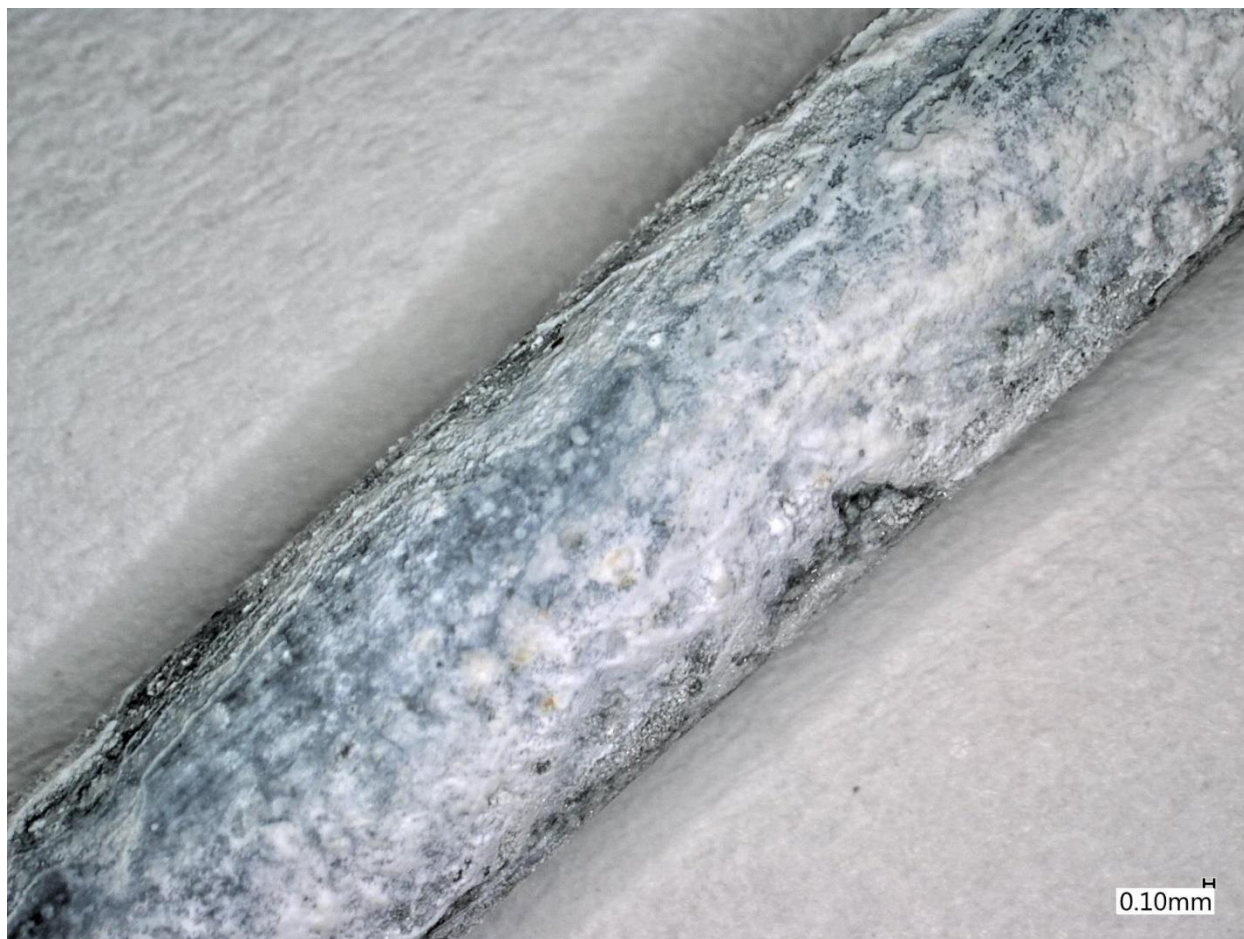
Picture 8: Picture of sample 4 after testing



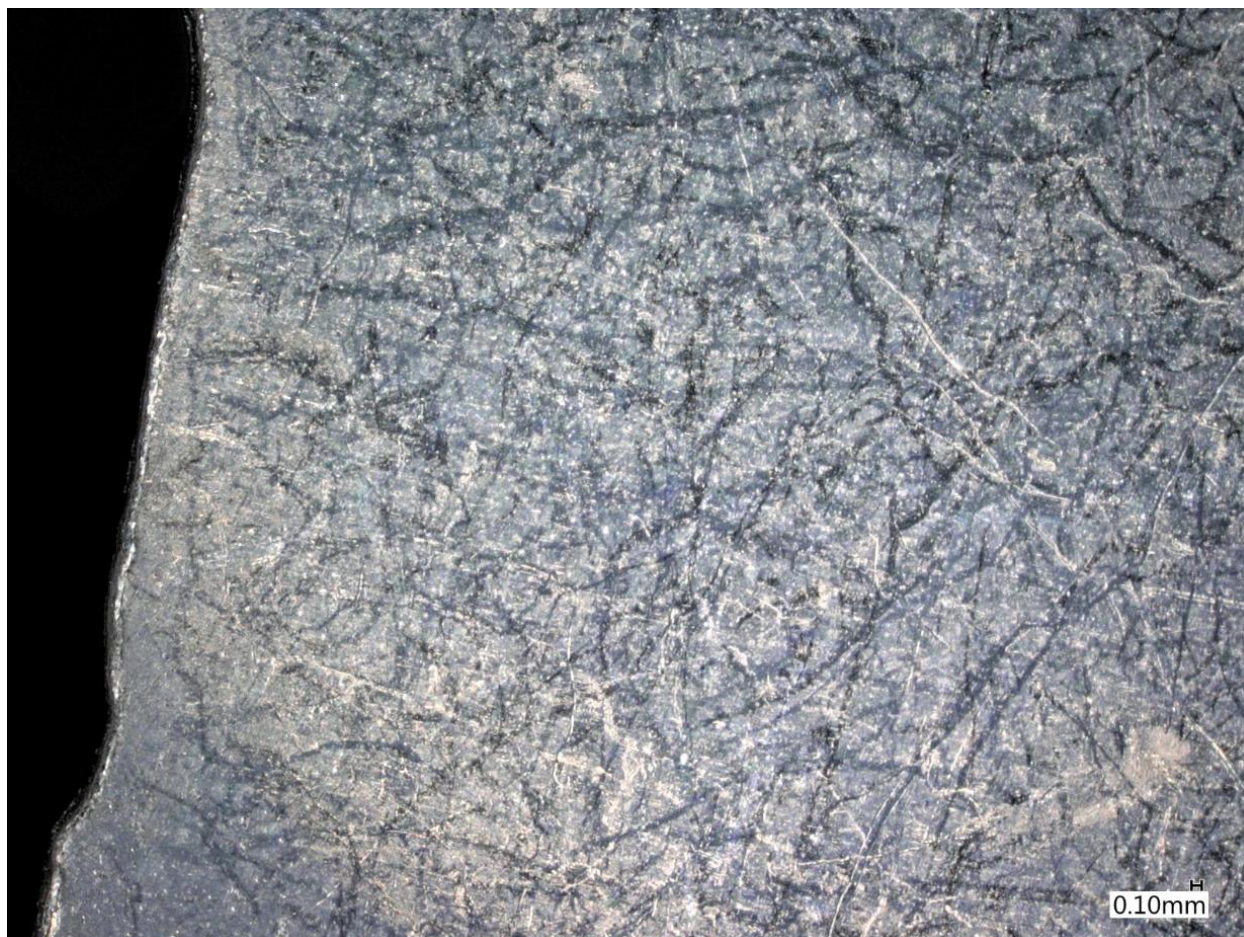
Picture 9: Picture of sample 4 after testing



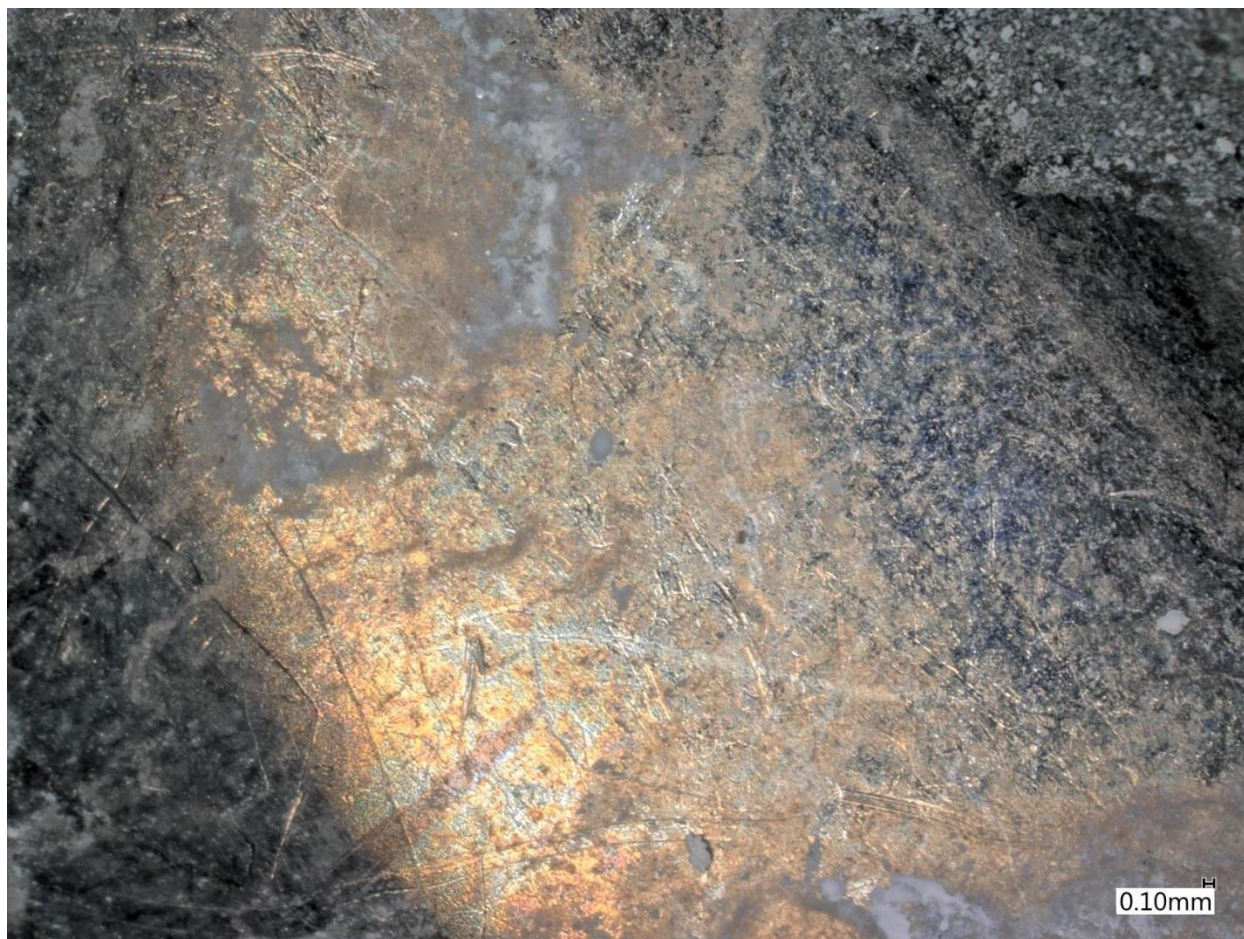
Picture 10: Microscope picture of sample 1 as received



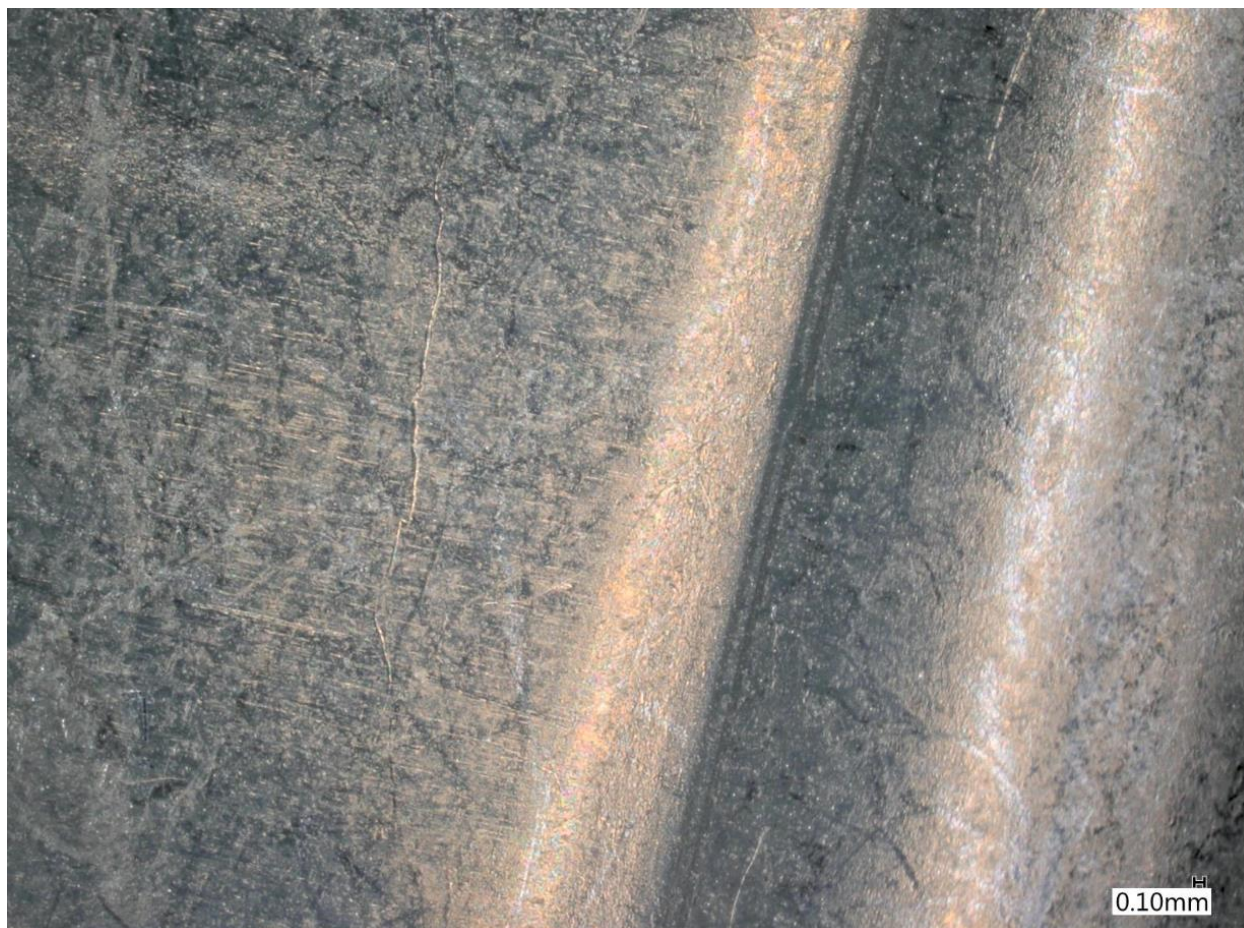
Picture 11: Microscope picture of sample 1 after testing



Picture 12: Microscope picture of sample 1 as received



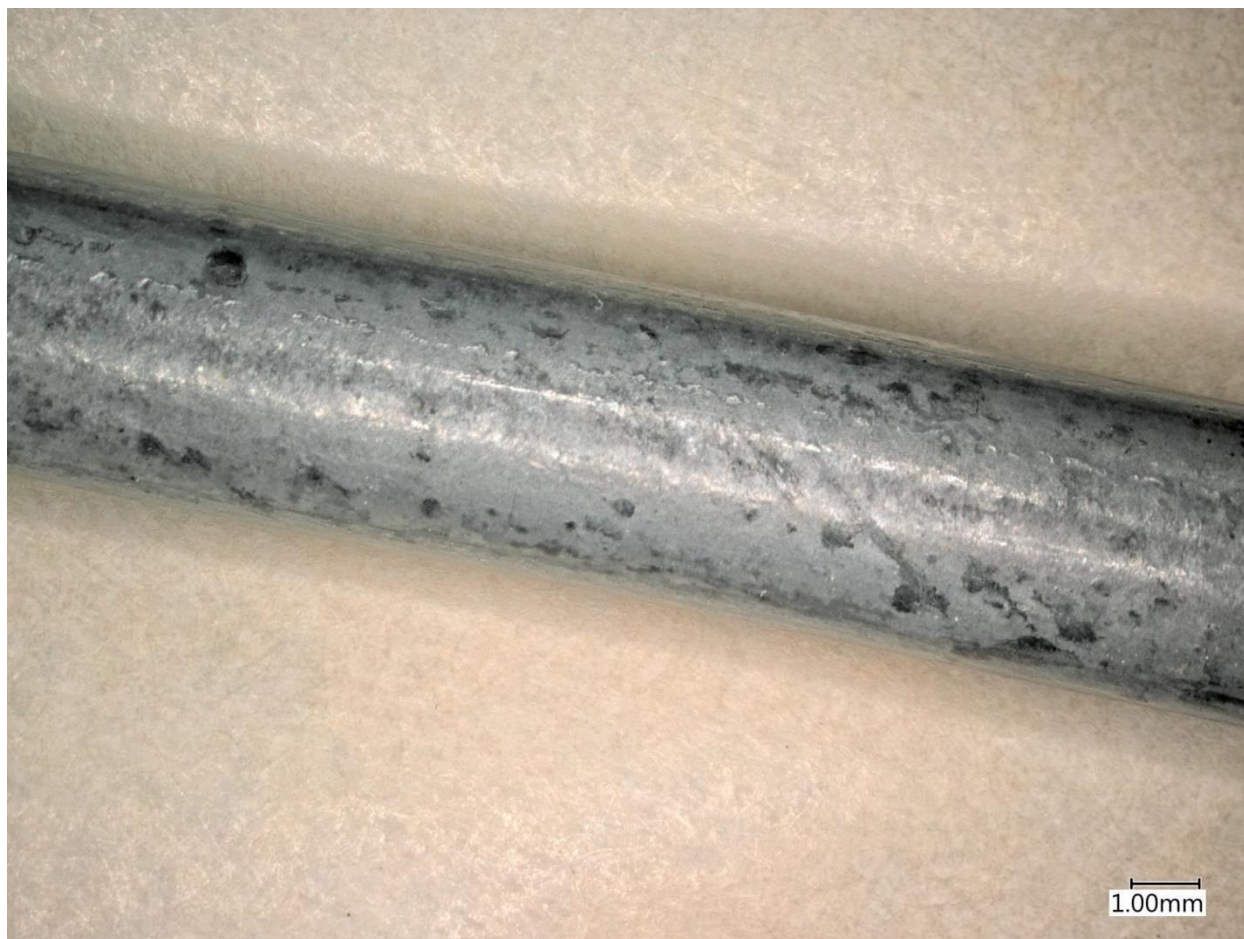
Picture 13: Microscope picture of sample 1 after testing



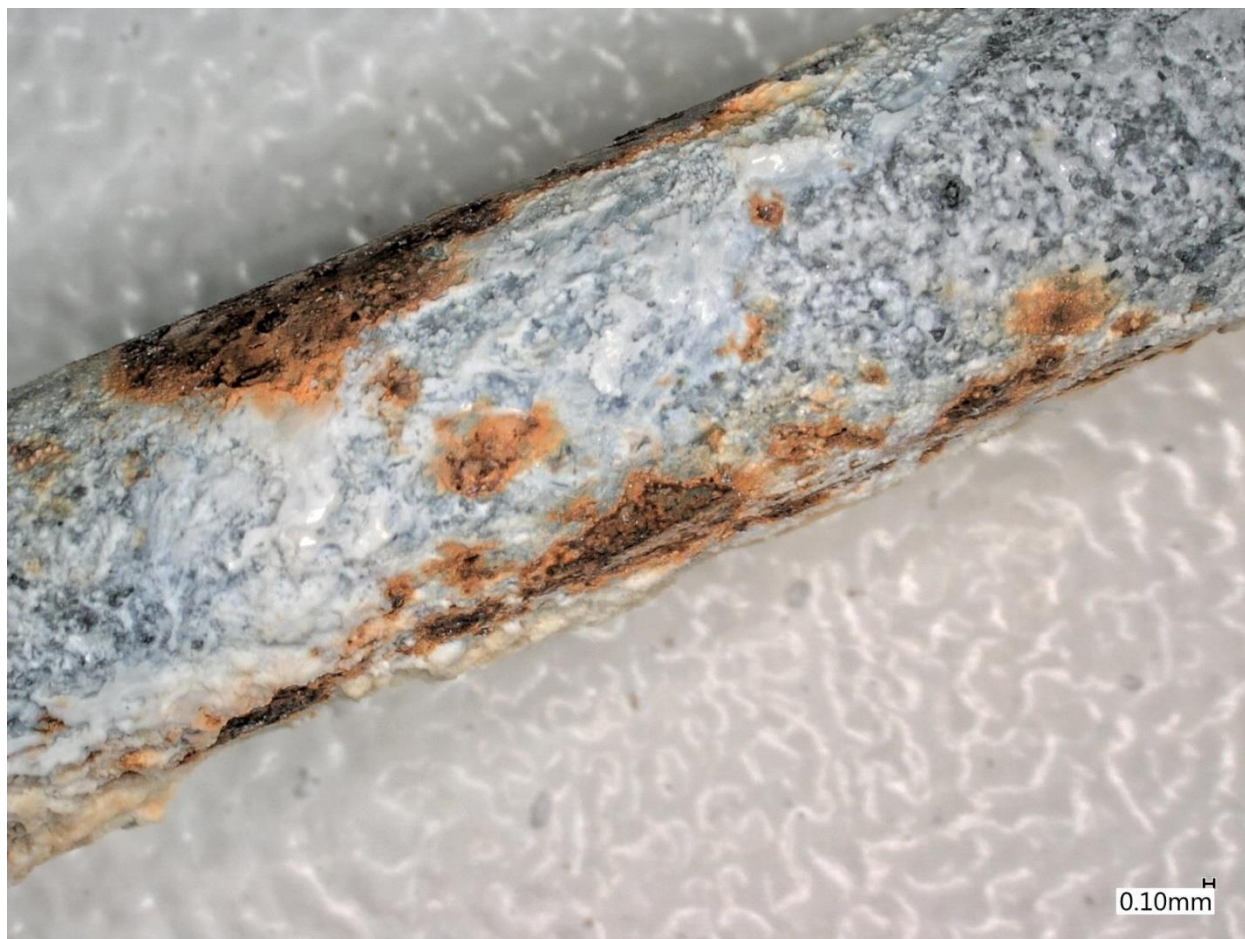
Picture 14: Microscope picture of sample 1 as received



Picture 15: Microscope picture of sample 1 after testing



Picture 16: Microscope picture of sample 2 as received



Picture 17: Microscope picture of sample 2 after testing



Picture 18: Microscope picture of sample 2 as received



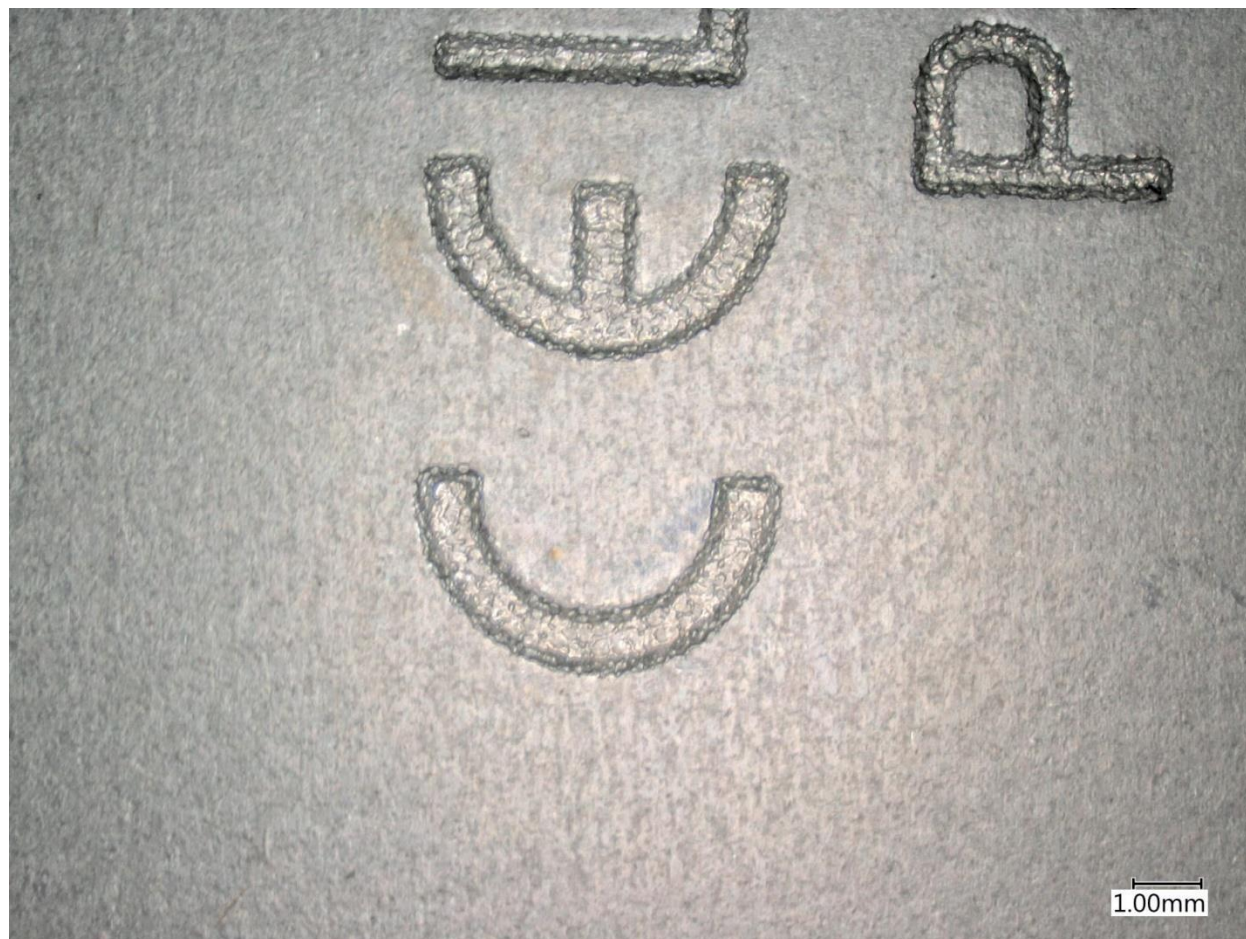
Picture 19: : Microscope picture of sample 2 after testing



Picture 20: Microscope picture of sample 2 as received



Picture 21: Microscope picture of sample 2 after testing



Picture 22: Microscope picture of sample 3 as received



Picture 23: Microscope picture of sample 3 after testing



Picture 24: Microscope picture of sample 3 as received



Picture 25: Microscope picture of sample 3 after testing



Picture 26: Microscope picture of sample 3 as received



Picture 27: Microscope picture of sample 3 after testing



Picture 28: Microscope picture of sample 4 as received



Picture 29: Microscope picture of sample 4 after testing



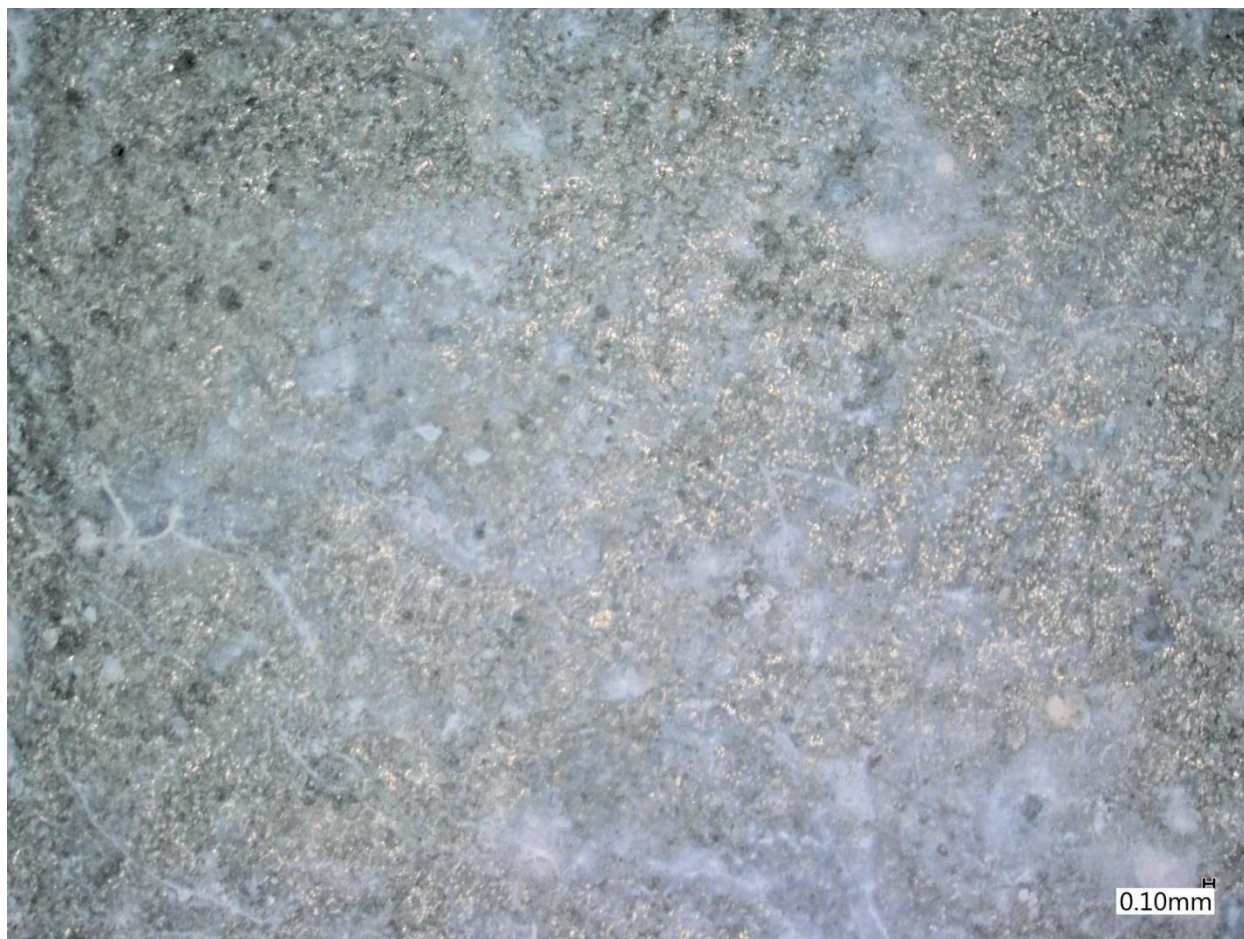
Picture 30: Microscope picture of sample 4 as received



Picture 31: Microscope picture of sample 4 after testing



Picture 32: Microscope picture of sample 4 as received



Picture 33: Microscope picture of sample 4 after testing



Outcome

Lightly visible rust on a part of sample 1 (picture 17). In general no more rust than 1% of the complete surface of sample 1. For samples 2 and 3 there were minimal rust (less than 0.5% of the surface). Sample 4 had no visible rust on the surface.





Appendix – Instrument reference list

All instruments calibrations are traceable to national normal.

Instrument reference list				
Instrument ID	Instrument type	Model	Calibration date	
			Last	Due
62952	Caliper - Digital	Electronic digital caliper WZ-SL150	2019-04	2020-04
155729	Corrosion Test Chamber Salt Fog	DCTC 1200 PN W EN50130-5 CL.18	NA	NA
126654	Stopwatch	Stopwatch CG-501	2019-01	2022-01
171466	pH Meter	Testo 206 pH1	NA	NA
64188	Inclinometer	Inclinometer Inclitronic Plus	2018-01	2021-01
86987	Calorimeter, Combustion, Microscale	Scale ALJ250-4AM	2018-08	2019-08

Table 11 "Instrument reference list"



Appendix – Product pictures



Picture 34: Picture of sample 1 – as received



Picture 35: Picture of sample 1 - as received



Picture 36: Picture of sample 1 - as received



Picture 37: Picture of sample 2 - as received



Picture 38: Picture of sample 2 - as received



Picture 39: Picture of sample 3 - as received



Picture 40: Picture of sample 3 - as received



Picture 41: Picture of sample 3 - as received



Picture 42: Picture of sample 4 - as received



Picture 43: Picture of sample 4 – as received

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