

**NATIONAL ACADEMY OF SCIENCES OF UKRAINE
CHUIKO INSTITUTE OF SURFACE CHEMISTRY**

**Control and analysis laboratory for testing materials corrosion
resistance**

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APPROVED by
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**PROTOCOL № 3/2019
coating corrosion resistance testing.**

Laboratory was qualified
for technical competence
and independence
by State Enterprise "Ukrmetrtesttantart"
Qualification certificate
ПТ -94/13

KYIV

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1. Samples from SONNEN METAL SM ST-4H solar panel mounting systems elements (remaining after industrial solar plant assembly) were chosen for testing. Samples contain minor chips and scratches sustained in process of construction.

1. D-LA Clamp – 3 pcs.
2. D-CC Clamp – 3 pcs.
3. D-CA Profile – 3 шт.
4. Male screw M 10x20 – 5 pcs.
5. Female screw M 10 – 5 pcs.
6. Washer M 10 – 5 pcs.

Samples № 1,2,3 were made from hot dip galvanized steel (HDGS). Samples № 4,5,6 were made from steel with Dacromet coating.

2. Purpose of testing: assessment of samples corrosion resistance in salt spray chamber. Tests were carried out in accordance with ASTM B117-03, GOST 9.308-85, DSTU ISO 9227:2015 (Corrosion tests in artificial atmospheres. Salt spray tests).

Temperature of chamber internal environment: 35°C+/-1.1-1.7°C. Solution concentration: 5%, solution pH level fluctuations within 6.5-7.2 range.

3. Tests commenced on 11.01.2019. Inspected after 72, 240, 480 and 720 hours of exposure to salt spray.

4. Test results are shown in the appendix.

Conclusion: after 240 hours of exposure to aggressive environment, samples № 1, 2, 3 exhibited minor zinc coating oxidation (white deposition) and samples № 4, 5, 6 remained unchanged. Surface of samples № 1, 2, 3 after 480 hours of exposure to salt spray, exhibited initial red corrosion and white oxidized surface area growth. Samples № 4,5,6 have passed the 720-hour exposure test, their surfaces remain completely unchanged and samples № 1,2,3 exhibited initial signs of red corrosion in areas with damaged protective coating and white deposition along the whole surface of these samples.

Manager of Control and Analytics
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