
TECHNICAL REPORT

SEA TO SKY INNOVATIONS AS

TESTING THE EFFICIENCY OF SPC 203 SURFACE
PREPARATION COMPOUND

REPORT No. BGN-R2702066

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TECHNICAL REPORT

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Summary:

Det Norske Veritas, Section for Materials and Inspection Technology in Bergen, was employed by Sea to Sky Innovation to test their paint remover, SPC Surface Preparation Compound.

The testing encompassed evaluation of the efficiency of the product. This included detection of possible SPC Surface Preparation Compound residuals on a surface which had been treated with the product and then washed with water. Further it included a condensation chamber test. In this test SPC 203 Surface Preparation Compound was applied on 2 epoxy coated panels and left for approximately 1 day for the product to remove the paint from the panel surface. The panels were then washed with water, dried and coated with a ballast tank epoxy coating.

The coated panels were exposed in a condensation chamber for 6 months. A visual inspection was carried out every second month.

Element analyses, carried out by means of a scanning electron microscope, showed no traces of SPC Surface Preparation Compound on the surface of the panels after cleaning and water hosing.

Blisters developed on the surface of one of the condensation chamber test panels during the exposure period. No blisters developed on the other test panel.

The panel with blisters was covered with corrosion products after paint removal and before application of new paint. It is assumed that the blistering has been initiated and developed due to these corrosion products.

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Indexing terms

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1 INTRODUCTION

Det Norske Veritas, Section for Materials and Inspection Technology in Bergen, was employed by Sea to Sky Innovation to test their paint remover, SPC 203 Surface Preparation Compound with regard to cleaning efficiency.

SPC 203 Surface Preparation Compound is according to the producer an environmental friendly water based product. The use of it is meant to be an alternative cleaning method (removal of degraded paint) in connection with paint maintenance work.

2 SCOPE OF WORK

- Detection of possible SPC 203 residuals on a surface which had been treated with the product and then washed with water.
- Condensation chamber test to evaluate the performance of a coating applied to a steel surface that had been treated with SPC 203 Surface Preparation Compound.

3 PROCEDURE

3.1 Panel preparation

SPC 203 Surface Preparation Compound was applied on 3 panels coated with an exposed epoxy coating with blisters. The panels were marked 5B, 6B and 3.

After an induction time sufficient enough to loosen the paint (approximately 1 day) the panels were flushed with cold tap water and air dried. Corrosion products on the surface of panel no. 5B appeared after the treatment.

Test panels nos. 5B and 6B were then coated with approximately 200 micrometer (μ m) epoxy ballast tank coating while panel no. 3 was left uncoated for later analyses. A blast cleaned panel was coated with the same epoxy coating system and used as a reference panel in the later testing. This panel was marked Ref. 1.

3.2 Detection of possible SPC 203 Surface Preparation Compound residuals

The surface of test panel no. 3 was analysed for determination of eventual residual elements from the SPC 203 compound. A blast cleaned steel panel, flushed with cold tap water, was used as a reference. This panel was marked Ref. 2.

The analyses were performed as qualitative analyses by means of a JEOL JSM 5800 scanning electron microscope.

3.3 Condensation chamber test

Test panels nos. 5B and 6B and the reference panel, marked Ref. 1 were placed in a condensation chamber and exposed for six months. Every second month the panels were visually examined for evaluation of development of blisters and rust

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The test was carried out according to ISO 6270.

4 RESULTS

4.1 Results from the element analyses

The results showed no difference between the elements detected on test panel 3 and those detected on the reference panel, Ref. 2 This indicates that no SPC 203 Surface Preparation Compound residuals were left on the test panel's surface as a result of the performed paint removal. However, the used analysis method does not detect elements with an atom number lower than 6. Any elements with atom numbers lower than 6 that may be present on the panel surface will therefore not be detected.

4.2 Results from the condensation chamber test

Blisters developed on test panel 5B during the exposure period. The size and density are given in table 4-1 below. Pictures of the panels are given in Appendix A.

Table°4-1

Panel no	Exposure time	Blister size / density	Exposure time	Blister size / density	Exposure time	Blister size / density
5B	2 months:	3/3	4 months:	4/3	6 months:	4/3
6B	2 months:	No blisters	4 months:	No blisters	6 months:	No blisters
Ref.	2 months:	No blisters	4 months:	No blisters	6 months:	No blisters

5 COMMENTS / CONCLUSION

No residuals of SPC 203 Surface Preparation Compound could be detected as result of the element analyses.

Blisters developed on the condensation chamber test panel no. 5B during the test. No blisters could be detected on panel no. 6B after termination of the test. The blistering on the 5B panel have probably been initiated and developed due to the corrosion products present on the panel surface before the ballast tank coating was applied.

APPENDIX

A

PHOTO DOCUMENTATION

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