



**Leeder
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Attn: Simon Lansell

REPORT NUMBER: L220054

Your Reference: **Corrosion Testing**

Order No:

Date: **2nd April 2022**

CERTIFICATE OF ANALYSIS

SAMPLES: One liquid sample were received for metal corrosion coupon analysis

DATE SAMPLES RECEIVED: 14th February 2022

DATE ANALYSIS REQUESTED: 14th February 2022

METHOD: ASTM G31 Laboratory Immersion Corrosion Testing of Metals

ASTM G1 Preparing, Cleaning & Evaluating Corrosion Test

RESULTS:

Please refer to attached pages for the results.

Results are based on the samples received and analysed by Leeder Analytical

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REPORT BY:

Dr John F Leeder (BAppSci, MBA, PhD, FRACI, CCHEM)

Principal

1. INTRODUCTION

Leeder Analytical were requested to carry out Immersion Corrosion Testing of metals (See Appendix 1). One test sample (S-Complex) was received on the 14th February 2022. The sample was labelled S-Complex (See sample photos in Appendix 2). As requested, the product was tested as a neat solutions and also as a 0.8% v/v aqueous solution.

The solution was tested using two different metal coupons. The first one was 1018 mild steel and the second test material was 6060 aircraft grade aluminium. All test coupons were clean and bright. The immersion corrosion testing was carried out at 30°C and also 60°C over a four-day period. Each day the test pieces (metal coupons) were exposed to air for several minutes and the re-immersed in the solutions. Each test was carried out in duplicate.

After the four-day period the test pieces were removed and washed in hot water. As per the ASTM method the mild steel coupons were then cleaned in sodium hydroxide containing zinc granules and the aluminium coupons in nitric acid to remove any corrosion or scale layers. Once the cleaning process had been completed the test pieces were dried in an air oven to constant weight at 104°C to remove any adsorbed moisture.

The test coupons were then weighed on a five-figure analytical balance and any mass loss during the test period (4 days) is used as the principal measure of corrosion.

The specimen preparation, cleaning and evaluation was carried out in accordance with ASTM Method G1.

2. TEST RESULTS

Test Solution	Aluminium 6060 Wt loss mg	Aluminium dup 6060 Wt loss mg	Mild steel 1018 Wt loss mg	Mild steel dup 1018 Wt loss mg
S-Complex 0.8% v/v	0	0	0	0
S-Complex Neat	0	0	0	0
Control Air	0	0	0	0

Table 1. Test Coupons Seven Day Weight Loss (mg) at 30°C

Test Solution	Aluminium 6060 Wt loss mg	Aluminium dup 6060 Wt loss mg	Mild steel 1018 Wt loss mg	Mild steel dup 1018 Wt loss mg
S-Complex 0.8% v/v	0	0	0	0
S-Complex Neat	0	0	0	0
Control Air	0	0	0	0

Table 2. Test Coupons Seven Day Weight Loss (mg) at 60°C

3. CONCLUSION

The corrosivity of the test liquid sample was calculated from the blank correct weight loss results over the 4-day test period at 30°C and also at 60°C. There was no corrosivity of the test samples detected over the four-day test period at both 30°C and at 60°C. No pitting or scale formation was observed with mild-steel or aluminium.

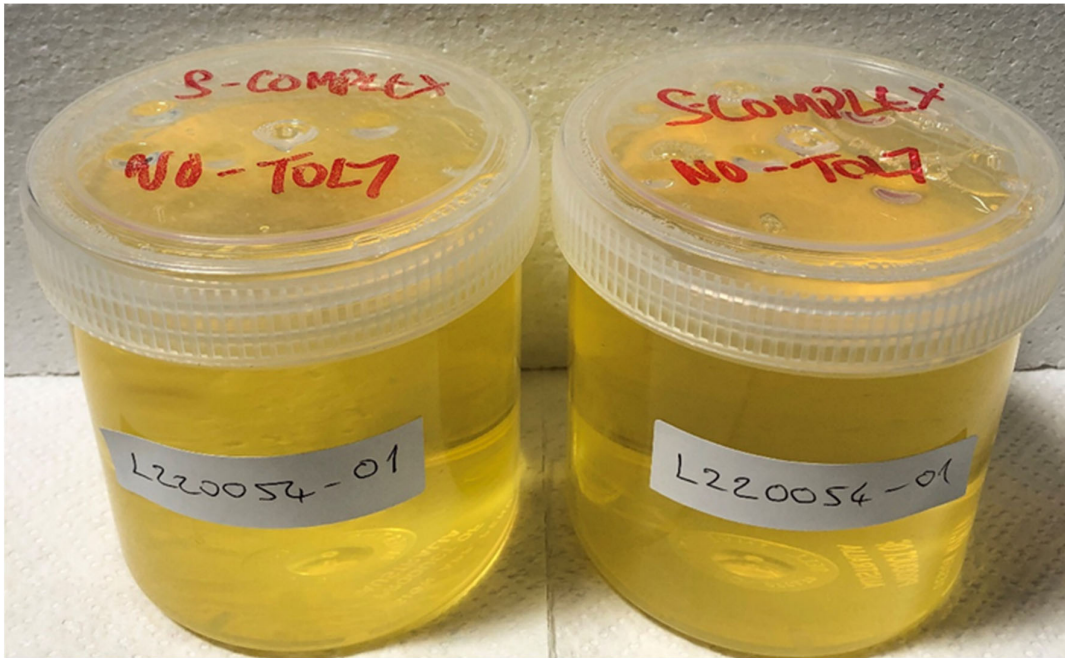
	Aluminium	Mild steel
Test Sample	6060	1018
S-Complex 0.8% at 30 and 60°C	<0.001	<0.001
S-Complex Neat at 30 and 60°C	<0.001	<0.001

Table 3. Corrosivity of test liquids in grams per square meter per hour (gm/m².h)



APPENDIX 1 – CHAIN OF CUSTODY & REQUEST FOR ANALYSIS

APPENDIX 2 - PHOTOS



Received Samples for testing