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TEST REPORT

Report

on

Immersion Testing of Metal Coupons

in Virusolve+ at 25°C

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Purchase Order Number: 6016

Test Report: 5120237A

F.a.o.
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1.0 Introduction

Amity UK Ltd has contracted Sheffield Testing Laboratories Ltd to conduct immersion corrosion testing on various metal coupons on "Virusolve+"cleaning solution. The work was undertaken to assess the corrosivity of a 5% solution of "Virusolve+" with respect to metal coupons at 25°C and in general accordance with ASTM G31-72(2004).

2.0 Test Solution

Amity provided a sample of the companies "Virusolve+" solution, the test solution used was a 5% solution by volume made up with deionised water.

3.0 Test Material

Five (5) test materials were used for the immersion tests. are given in table 1. Duplicate test coupons were cut from each material and prepared to a standard surface finish with all burred edges removed. The dimensions of the coupons varied depending on the test material. The test materials were given the STL test numbers M249 to M 253 and the individual coupons identified with a suffix of either A or B. The specimens were degreased with acetone and weighed.

4.0 Test Procedure

Coupons were tested in duplicate in individual test cells for each material. The coupons were placed in vertical position in a PTFE stand in the test cell. The coupons were then immersed in approximately 1 litre of test solution, giving a solution volume to surface area ratio greater than 0.2ml/mm^2.

The temperature of the test cells were maintained at 25°C ± 1°C for the duration of the test using a water bath. No solution aeration or agitation was used during the test. Each cell was regularly visually inspected for evidence of sample corrosion or other environmental changes.

After 24 hours on test the specimens were removed from the test solution. The specimens were initially examined with the naked eye, cleaned with liquid soap, degreased with acetone and re-weighed.

5.0 Results

Corrosion rates, calculated from the weight loss data in accordance with ASTM G1-03, are shown in Table 2.

6.0 Conclusion

The average corrosion rates measured for the five materials after exposure to a 5% solution of Virusolve+ for 24 hours were as follows:

316L stainless steel 0 mm/yr.
Carbon steel 0.05 mm/yr
Copper 0.079 mm/yr.
Aluminium 0 .28 mm/yr
Galvanised Steel 0.145 mm/yr

All the corrosion rates measured were below the 6.25 mm/yr value given in the Carriage of Dangerous Goods Regulations (ADR 2005) Class 8 as a Corrosive Substance.

Table 1 Test Materials

STL Test No.	BS 970 part 1 070M20	Grade
M249	316L Stainless Steel	UNS S30316
M250	Carbon Steel	BS 970 part 1 070M20
M251	Copper	BS EN 1057
M252	Aluminium	AA7075 T61
M253	Galvanised Steel	-

Table 2 Test Results at 25°C after 24 hours

Material	Test Coupon ID	Surface area (cm^2)	Initial mass (g)	Final mass (g)	Mass loss (g)	Corrosion rate (mm/yr)	Average corrosion rate (mm/yr)
316L stainless steel	M249A	10.93	7.6350	7.6349	0.0001	0	0.000
	M249B	9.46	6.9727	6.9727	0.0000	0	
Carbon Steel	M250A	12.67	25.1005	25.0990	0.0015	0.055	0.050
	M250B	12.27	24.0660	24.0648	0.0.0012	0.045	
Copper	M251A	10.05	2.5734	2.5715	0.0019	0.077	0.079
	M251B	11.12	3.3625	3.3603	0.0022	0.081	
Aluminium	M252A	36.67	22.3255	22.3180	0.0075	0.270	0.280
	M252B	36.67	24.6170	24.6089	0.0081	0.290	
Galvanised Steel	M253A	29.20	8.0535	8.0436	0.0099	0.150	0.145
	M253B	27.90	7.4249	7.4166	0.0083	0.140	