

Report Date: April 13, 2015
Report #: 1714-17947-13-04-2015
Client: Haemo-Sol, Inc.
7301 York Road
Baltimore, MD, 21204
Test: UN Manual of Tests and Criteria, Part III, Section 37.1 - Corrosion to metals
Sample: Haemo-Sol Regular 026-050
Dell Tech Lab Code#: 15-0057

Procedure:

Three mild steel specimens SAE 1020 steel (area 22.85 cm², density 7.87 g/cm³) and three 7075-T6 non-clad Aluminum (area 22.85 cm², density 2.80 g/cm³) with 120 grit finish specimens are subjected to the procedure. For each test one metal specimen is totally immersed in the solution at least 10 mm below the surface, one is immersed only halfway and one is suspended in the vapor phase.

The Aluminum and Steel specimens are tested in separate containers of the test substance.

Each container held a volume of 1.5 L of test solution. The temperature of the solution was maintained at 55 °C for the entire test duration. The test was conducted for a period of 168 hours.

Metal specimens were rectangular metal coupons having dimensions of 20 mm x 50 mm x 2 mm with a 3 mm through hole.

Prior to initial weighing and after testing, the coupons were washed with alcohol and degreased with acetone. After the specimens were allowed to dry the weight loss, if any, was noted.

The corrosion rate is calculated assuming that all weight loss is due to general corrosion and not to localized corrosion. The corrosion rate expressed as millimeters per year (mmpy) is:

$$\text{mmpy} = \text{wt loss} \times 87600 \div \text{area} \div \text{time} \div \text{metal density}$$

where weight loss is in grams (g), area in cm² of metal surface exposed, and time is hours exposed.



Results:**1) SAE 1020 steel**

Observations: Vapor phase coupon shows slight localised scaling and tarnish.

Table of Results

Specimen #	Immersion time (hours)	Mass loss (g)	Apparent Corrosion rate (mm/y)
Completely immersed	168	0.0000	0.00
Halfway immersed	168	0.0000	0.00
Vapor phase	168	0.0047	0.01

2) 7075-T6 non-clad Aluminum

Observations: Immersed coupon is completely covered in white scale. Half immersed coupon shows white scale on the immersed part of the coupon. Vapor phase coupon is tarnished brown..

Table of Results

Specimen #	Immersion time (hours)	Mass loss (g)	Apparent Corrosion rate (mm/y)
Completely immersed	168	0.3825	3.12
Halfway immersed	168	0.1245	1.01
Vapor phase	168	0.0002	0.00

Conclusion:

The greatest corrosion rate observed on SAE 1020 steel for Haemo-Sol Regular 026-050 is 0.01 millimetres per year.

The greatest corrosion rate observed on 7075-T6 non-clad Aluminum for Haemo-Sol Regular 026-050 is 3.12 millimetres per year.

Haemo-Sol Regular 026-050 is not corrosive to metals for DOT/TDG/HCS 2012/WHMIS 2015 criteria.

Tested by _____

Approved by _____



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