



Your Ref:

Our Ref: MM 3488/WKW

Date: 01/06/2005

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Introduction : Two pieces of galvanized steel sample were sent to Setsco Laboratory on 25 May 2005 to:

- 1) Determine the corrosion rate of the supplied samples in distilled water with Ion-Matrix.
- 2) Determine the corrosion rate of the supplied samples in distilled water with tablet for condensate drain pan cleaning

Tested for : HYDROEMISSION CORPORATION PTE LTD
65A Jalan Tenteram
#05-04 St' Michael Industrial Estate
Singapore 328958

Attn: Miss Gene Chew

Date & Place of Test : 30 – 31 May 2005 at Setsco Laboratory

Method of Test :

- 1) Tafel Extrapolation
- 2) Cyclic Potentiodynamic Polarization
- 3) Applicable Reference Standards:
 - ASTM standard (ASTM G3-89) "Standard Practice for Conventions Applicable to Electrochemical Measurements in Corrosion Testing"
 - ASTM standard (ASTM G61-86) "Conducting Cyclic Potentiodynamic Polarization Measurements for Localized Corrosion Susceptibility of Iron-, Nickel-, or Cobalt-Based Alloys"

Description of the sample :

- 1) Two (02) pieces of galvanized steel rectangular plate
- 2) Ion Matrix – Sample A
- 3) Tablet for condensate drain pan cleaning – Sample B

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Results and Interpretation :

- 1) Determine the corrosion rate of the supplied stainless steel sample in the supplied solution at 25°C.

The results of cathodic and anodic polarization were plotted in Figures 1a to 1b attached.

The corrosion rate of the galvanized steel plate in the supplied solution is calculated to be:

- a) 0.685 mm per year (26.96 mils/year) with Sample A in solution.
 - b) 1.137 mm per year (44.78 mils/year) with Sample B in solution.
- 2) Assess the relative localized corrosion susceptibility of the galvanized steel sample in the supplied solution:

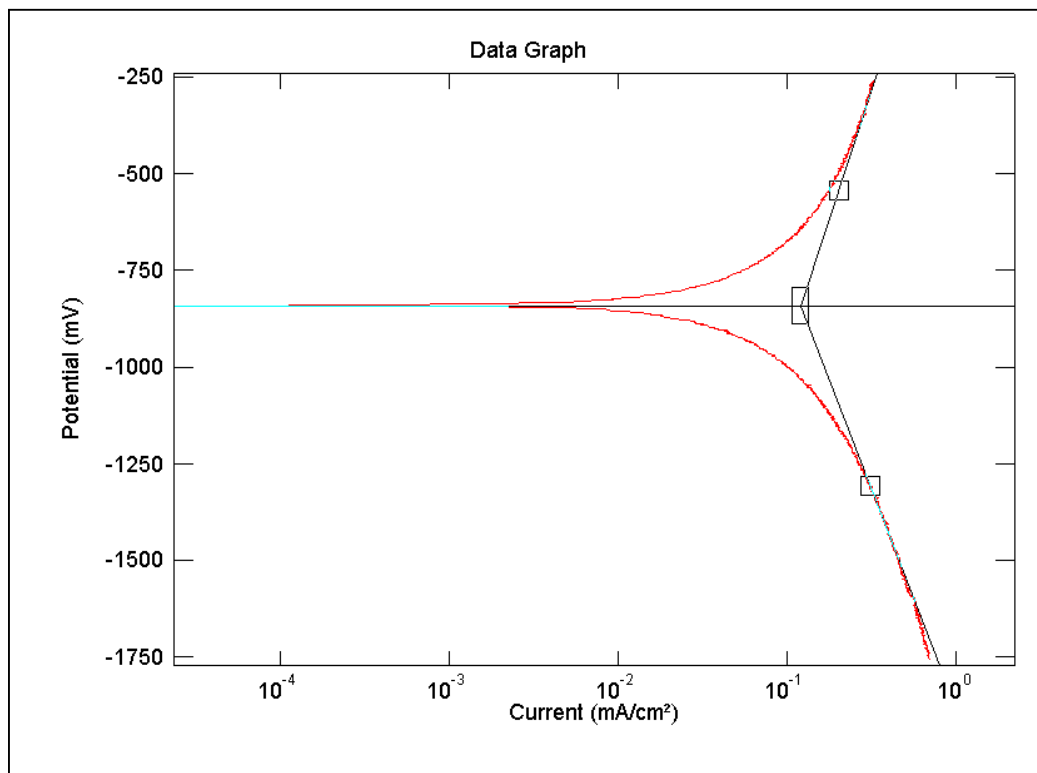
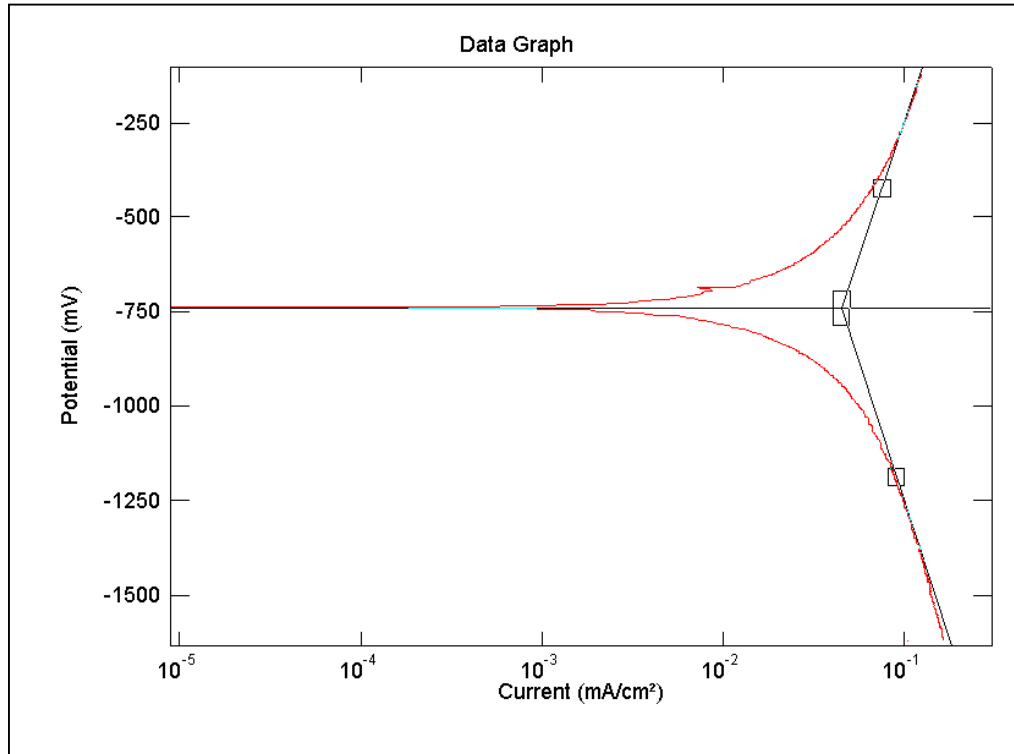
For easy comparison, the obtained cyclic potentiodynamic polarization curves a and b were superimposed for the same temperature in Figure 2 (as attached):

No passive region was observed for all the curves. The corrosion behavior under this circumstance is active dissolution leading to uniform corrosion since no protective film will be formed.

Sample B in distilled water solution shows a greater electronegative potential as compared to Sample A in distilled water solution.

WONG KOK WAH
Testing Officer
Section)

Dixon Ng
Principal Engineer (Metallurgical
Mechanical Technology Division



**Figure 1: Tafel Plot of the supplied sample in the supplied solution.
(a): Ion Matrix (b): Tablet for Condensate Pan Cleaning**

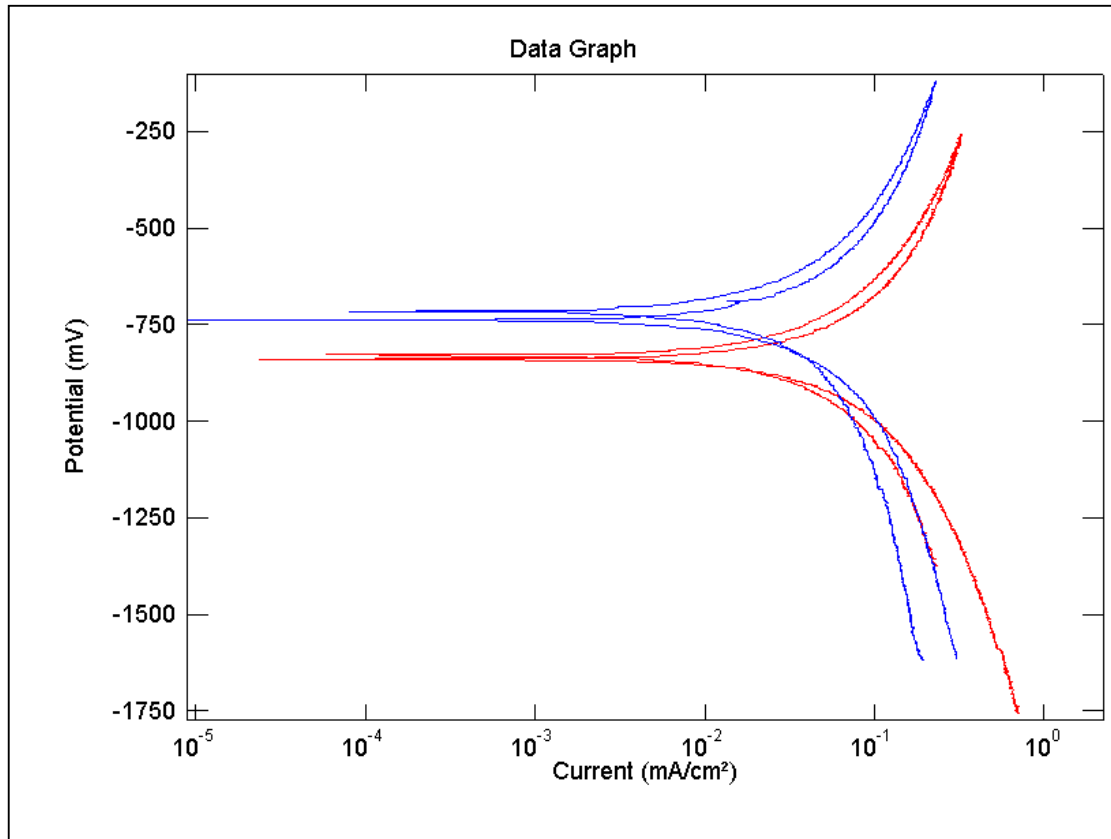


Figure 2: Cyclic Anodic Polarization of the supplied sample in the solution with Ion Matrix (Blue Line) and Tablet for Condensate Pan Cleaning (Red Line)