

## APPENDIX-1

### POTENTIOSTAT / GALVANOSTAT FORMAT

The following formats are available for potentiostat / Galvanostat studies.

1. Linear Polarization
2. Tafel
3. Cyclic polarization
4. Potentiostatic Studies
5. Reactivation
6.  $E_{\text{corr}}$  Vs Time
7. Galvanostatic
8. Galvanic Corrosion

## APPENDIX-II

### POTENTIAL DYNAMIC STUDY PARAMETERS

| S.No. | Parameters             | Used in Experiment  |
|-------|------------------------|---------------------|
| 1.    | Comment (Title)        | As per sample       |
| 2.    | Conditioning time      | 00 sec              |
| 3.    | Conditioning potential | (-) 1.000V.         |
| 4.    | Initial Delay          | 120 Sec.            |
| 5.    | Scan Rate              | 2 mv/sec            |
| 6.    | Specific Gravity       | depends on material |
| 7.    | Initial potential      | (-) 250 Mv          |
| 8.    | Final Potential        | (+) 1400mv.         |
| 9.    | Scan Increment         | 1 Mv                |
| 10.   | Equivalent Weight      | as per material     |
| 11.   | Working Electrode      | Solid               |
| 12.   | Reference Electrode    | SCE                 |
| 13.   | Scan Increase          | 1.000 Mv            |
| 14.   | Density                | as per material     |

### APPENDIX-III

#### AC IMPEDENCE FORMATS

The variety which can be used in AC impedance test are :

1. Bode/ Z
2. Bode/phase
3. Bode/Z<sub>re</sub>
4. Bode/Z<sub>im</sub>
5. Nyquist (Z<sub>im</sub> Vs Z<sub>re</sub>)
6. Admittance (Y<sub>im</sub> Vs C<sub>re</sub>)
7. Z<sub>re</sub> Vs WZ<sub>im</sub>
8. Z<sub>re</sub> Vs WZ<sub>im</sub>
9. Warburg Z<sub>re</sub> (Z<sub>re</sub> Vs W<sup>1/2</sup>)
10. Y Vs X
11. AUX Vs T
12. AUX Vs I
13. AUX Vs E

### APPENDIX-IV

#### PARAMETERS TO BE SET : AC IMPEDENCE

- | S.No. | Parameters             | Set for this study   |
|-------|------------------------|----------------------|
| 1.    | Conditioning time      | 60 Sec.              |
| 2.    | Conditioning Potential | (-) 1.000V.          |
| 3.    | Initial Delay          | 120 Sec.             |
| 4.    | Equivalent Time        | 0 Sec.               |
| 5.    | Data Quality           | 4                    |
| 6.    | Working electrode      | Solid                |
| 7.    | Electrode Area         | 0.25 cm <sup>2</sup> |
| 8.    | Initial Frequency      | 100mHz               |
| 9.    | Final Frequency        | 10 kHz               |
| 10.   | Reference Electrode    | SCE                  |

Quality control and acceptance test for satisfactory heat treatment. Nitric Acid-Hydrofluoric Acid test

For stainless steel weldments [14]. Boiling phosphoric acid test ( Ebling and Schiel)  
42%MgCl<sub>2</sub> Solution (ASTM method for SCC)

Note : All the other standard laboratory corrosion tests used for the materials and conditions are given in Appendix - 5.