

ISO 23449:2020 (E)

Corrosion of metals and alloys — Multielectrode arrays for corrosion measurement

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Principle
4.1	Multielectrode arrays
4.2	Coupled multielectrode array (CMA)
4.3	Multielectrode array with closely packed electrodes for studying spatiotemporal behaviour of localized corrosion
4.4	Coupled multielectrode array sensor (CMAS)
4.4.1	CMAS for corrosion monitoring
4.4.2	CMAS used without polarization to measure corrosion rate at free corrosion potential
4.4.3	CMAS used to evaluate the effectiveness of cathodic protection and the effect of stray current
4.5	Multielectrode arrays for high throughput measurements
4.6	Multielectrode arrays for other applications
5	Instrumentation
5.1	Potential measurement
5.2	Coupling current measurement
5.3	Effective coupling of individual electrodes
5.3.1	Coupling with multichannel ZVA
5.3.2	Coupling with wires and measuring current with a single ZVA
6	Fabrication of multielectrode array
6.1	Electrode preparation
6.2	Number of electrodes
6.3	Mounting of electrodes
6.4	Surface coating on electrodes for preventing crevice corrosion
6.5	Electrode configuration
6.6	Size of electrodes
6.7	Spacing of electrodes for spatiotemporal studies
6.8	Spacing of electrodes for corrosion monitoring in oil and gas application
6.9	Size and spacing of the electrodes for high throughput studies
7	Test procedure
8	Test report
Annex A	(informative) Typical results from multielectrode array with closely packed electrodes for studying spatiotemporal behaviour of localized corrosion
Annex B	(informative) Typical results from a CMAS for corrosion monitoring
B.1	Typical response of the CMAS to different environments
B.2	Typical results from CMAS under cathodic protection conditions
Annex C	(informative) Example reports