DIN EN ISO 11782-2:2024-10 (E)

Corrosion of metals and alloys - Corrosion fatigue testing - Part 2: Crack propagation testing using precracked specimens (ISO 11782-2:1998 + Amd 1:2024) (includes Amendment A1:2024)

Contents

Page

Foreword 4

〖A1〉 European foreword to Amendment A1 〈A1〗 5

Foreword 6

〖A1〉 Foreword to Amendment A1 〈A1〗 7

Introduction 8

1 Scope 9

2 Normative references 9

3 Terms and definitions 9

4 Test 11
4.1 Principle of corrosion fatigue crack propagation testing 11
4.2 Specimens for corrosion fatigue crack propagation testing 12
4.2.1 General 12
4.2.2 Specimen design 13
4.2.3 Stress intensity factor considerations 13
4.2.4 Specimen preparation 22
4.2.5 Specimen identification 22

5 Apparatus 22
5.1 Environmental chamber 22
5.2 Crack length measurement 22

6 Fatigue precracking 23
6.1 General 23
6.2 Precracking procedure 23
6.3 Precracking for low crack growth rates or ΔK_{th} determination 23

7 Test conditions 24
7.1 Environmental considerations 24
7.2 Stressing considerations 25
7.2.1 Cyclic frequency 25
7.2.2 Stress ratio 25
7.2.3 Waveform 25
7.2.4 Crack tip shielding (closure) effects 25

8 Test procedure 26
8.1 General 26
8.2 Starting procedure 26
8.3 Environmental control and monitoring 26
8.4 Determination of corrosion fatigue crack propagation rates 26
8.4.1 Length of crack 26
8.4.2 Growth rate of crack 27
8.5 Determination of corrosion fatigue threshold stress intensity factor range 28

9 Test report 28

Annex A (informative) Information on methods for measuring crack lengths 30
A.1 Visual methods 30
A.2 Electrical resistance measurement methods 30

A.2.1 DC potential drop method 30
A.2.2 AC potential drop methods 31
A.3 Compliance methods 31
[A1⟩ Bibliography ⟨A1] 38