

Subject Index

A

Aircraft, 89
 skin, 74
 Alclad 2024-T3, 74
 Aluminum alloy, 18, 74, 89
 American Society for Mechanical
 Engineers, 135, 232, 247,
 267, 282

C

Chloride environments, 3, 61
 sodium chloride, 18
 Conductivity, electric, 120
 Corrosion cracking, stress, 34,
 107, 150, 167, 182, 189
 Corrosion current, 120
 Corrosion fatigue, 3, 34, 232,
 267
 aluminum alloy, 74, 89
 carbon steel, 267
 crack growth, 18
 Corrosion pitting, 89
 Crevice growth, 150
 Cyclic-frequency effect, 18
 Cyclic straining, 120

D

Defect growth rate, 3
 Degradation, fatigue, 216
 Dormancy, 34, 107

E

Electrode
 bare surface, kinetics, 61
 scanning reference, 3
 Environmental effect correction
 factor, 282
 Environmentally assisted
 cracking, 61, 120
 Exponential distribution, 150

F

Fatigue
 corrosion, 18, 74, 182, 232,
 267
 crack growth resistance, 89
 crack initiation, 135, 247
 crack nucleation, 18
 crack propagation, 89
 cracks, short, 3
 damage, 89, 267
 degradation, 216
 environmental, 216
 life, 247, 267, 282
 precrack, 61, 167
 strength, 3
 threshold, 18
 Film rupture, 61
 Fracture toughness, 89

G

Gas transmission piping, 34

H

Hematite, 182
 Hydrogen
 embrittlement, 74, 167
 sulfide, 182
 uptake, 61

I

Ion separation, 182

L

Life prediction method, 267
 Load control, 135
 Load frequency, 189
 Loading, 247
 cyclic, 74

302 THE INITIATION OF CRACK GROWTH

M

Magnetite, 182
Microstructural fracture mechanics, 3
Modeling, 3
 crack initiation life, 120
 molecular, 182
 process, crack initiation, 150
 stress corrosion cracking, 34

N

Nickel steel, 107
Nitrate solution, 107
Notch radius, 61

O

Oxygen, dissolved, 216, 232, 247, 282

P

Piping, gas transmission, 34
Pitting, 3, 74, 135
 corrosion, 18, 89
 growth, 150
Poissonian stochastic process, 150

R

Reactor, 189
 boiling water, 150
 light water, 216, 232, 247, 282

S

Salt water, 74
Scanning reference electrode, 3
Sodium chloride, 18, 61
Steel, 107, 150, 167, 182
 A533B, 189
 carbon, 216, 232, 247, 267
 low alloy, 120, 135, 232, 247
Strain aging, 189
Strain amplitude, 232
Strain energy density, 167
Strain rate, 107, 247, 282
 change, 216
Strain tests, 107, 267
 cyclic, 120
 slow strain rate, 189
Stress corrosion, 3
 cracking, 34, 107, 150, 167, 182, 189
Stress intensity, 135
 factor, 18, 34, 167
Sulfur, 247
Sulfuric acid, 135
Surface film breakdown, 3

T

Tapered tension test, 34
Titanium, 61

W

Water, high temperature, 135, 216
Water reactor, boiling, 150