

Subject Index

A

Airflow simulations, 19
 Air temperature, 103
 Alternating current impedance technique, 171
 Aluminum, 3, 59
 aluminum coating, 284
 aluminum-zinc alloy-coated steel, 284
 aluminum-zinc coated steel, 157
 coatings, 329
 Aqueous adlayer, 127
 ASTM G01.04 Atmospheric Test Program, 277, 284
 ASTM standards
 D 1654, 157
 G 84, 48
 G 101, 292
 Atacamite, 245
 Atmospheric corrosivity classification, 109

B

Bioavailability, 185
 Bridges, weathering steel performance, 301
 Brochantite, 245
 Bronze, 34

C

Calcium, 139
 California, G01.04 test site, 277, 284
 Canada, 34
 Carbon, 292
 Carbonic acid, 245
 Carbon steel, 34, 48, 103, 139
 low, 358
 MICAT program, 59
 CEN, 109
 Cerussite, 265
 Chalking, 329

Change of temperature, 200
 Chemical speciation, 185
 China, 358, 368
 Chloride concentration, air, 103
 Chloride deposition, 3, 59, 73
 rate, 103
 Chloride environment, 149
 Chromium, 149, 185, 292, 358
 Classification system, atmospheric corrosivity, 73, 109
 Coatings, 109
 aluminum-zinc, 157, 284
 anodized, 329
 inorganic, 157
 paint, 329
 terne-coated stainless steel, 316
 Copper, 34, 48, 292
 alloy steel, 368
 aqueous adlayer, 127
 cupric ion, 230
 environmental effects, risk assessment of, 185
 ISO CORRAG program, 3, 59
 runoff rates, 230, 245
 Corrosion index, 292
 Creep, paint, 157
 Cuprite, 245
 Cyclic corrosion test, 139

D

De-iced highway, 19
 Deposition, 245, 265
 chloride, 3, 59, 73
 dry, 34, 73, 358
 effects, acid, 34
 rate, chloride, 103
 rate, salt, 19
 sulfur dioxide, 3, 34, 59
 Diffusion tubes, 88
 Discoloration, 316
 Dissolution rates, corrosion film, 265
 Dose-response functions, 73, 109

382 OUTDOOR ATMOSPHERIC CORROSION

E

Ecotoxicity, 185
Edge creep, 157
Electrochemical impedance spectroscopy, 329
Electrolyte film, 149
Environmental effects
 lead runoff, 265
 zinc runoff, 200, 216, 245
Epoxy resin, 171

F

Filiform corrosion, 329
First flush region, 216
Fungi staining, 329

G

Galvalume, 157
Galvanized steel, 216, 284
Gloss, 329, 343
Goethite, 149
Gravimetric impedance spectroscopy, 329

H

Highway, de-iced, 19
Humidity chambers, 171
Humidity, relative, 48, 103, 171
Hydrocerussite, 265

I

Ibero-America
 MICAT program, 59
 PATINA project, 329
Immersion accelerated corrosion tests, 368
Impedance technique, alternating current, 171
INCOLOY alloy, 277
INCONEL alloy, 277
Indoor corrosivity, 109
Industrial atmospheres, 277, 284, 316, 358
Infrared reflection absorption spectroscopy, 127
Intensity, rain, 216

International Cooperative Programme on Effects on Materials
 including Historic and Cultural Monuments, 34
International Organization for Standardization (ISO)
 CORRAG program, 3, 59, 109
 ISO 9223, 48, 59, 73, 109
Ion species, 149
Iron, 127, 139
Israel, 34

K

Kopisty, long-term field exposure results, 34

L

Lap joints, 301
LaQue Center for Corrosion Technology, 277, 284, 316, 343
Lead, 265
 oxide, 316
Limestone, 34
Linear regression equation, 103
Loss predictions, 3
Luster, 343

M

Marine atmospheres, 19, 48, 139, 343
 alloying effects on steel in, 368
 carbon steel in, 103
 effect on metallic-coated steel sheet, 284
 impedance technique, 171
 runoff from copper panels, 245
 runoff from lead, 265
 stainless steel in, 358
 terne coated stainless steel, 316
Material stability, 88
Mechanical properties, 277
Metal retention, 200
Metal temperature, 48
MICAT project, 59

Microbial activity, 200
 Minerals weathering, 200
 Models and modeling, 73
 corrosion, 245
 Molybdenum, 292, 358
 MONEL, 277
 Monolayer sensitivity, 127
 Morphology, corrosion product,
 48
 Moscow, long-term field
 exposure results, 34
 Mossbauer experiments, 139, 149

N

New Jersey, G01.04 test site,
 277, 284
 Nickel, 139, 277, 292
 alloys, marine corrosion
 resistance, 343
 environmental effects, risk
 assessment of, 185
 G01.04 nickel alloy panel
 test results, 277
 Nitrogen dioxide, 88
 North Carolina, Kure Beach,
 316, 343
 G01.04 test site, 277, 284

O

Oregon test sites
 precipitation runoff, copper
 panels, 245
 precipitation runoff, lead, 265
 Ozone, 127

P

Packout, 301
 Paint, screening, 157
 Panama Canal Zone, G01.04
 test site, 277, 284
 Patina, 230, 245
 PATINA project, 329
 Pennsylvania, State College,
 G01.04 test site, 277, 284
 PH, 216
 Phosphorus, 292, 368
 Pit depths, 277
 Pitting, 358
 Pollution measurements, 88

Prague, long-term field
 exposure results, 34
 Precipitation
 acidity, 216
 acid rain, 368
 artificial rain, 216
 rain runoff rate, copper, 230
 rain runoff rate, zinc, 216
 runoff, copper, 245
 runoff rate, lead, 265
 runoff, zinc, 200
 Pre-patination, 230

Q

Quartz crystal microbalance, 127

R

Reflectivity, 343
 Regression analysis, 3
 Risk assessment, 185
 Roofing materials
 atmospheric corrosion, 230
 copper runoff, 230, 245
 lead runoff, 265
 metal runoff, 185
 terne-coated stainless steel,
 316
 zinc runoff, 200, 216
 Runoff, 185, 245, 265
 artificial, 200
 lead, 265
 rate, 200, 216, 230
 zinc, 200, 216
 Rural atmosphere, corrosion
 testing, 48, 358
 metallic coated steel sheet,
 284
 nickel-alloy panels, 277
 precipitation runoff, lead, 265
 terne-coated stainless steel, 316
 Rust layer, 139, 149
 Rust stains, 301

S

Salt aerosols, 19
 Salt spray test environment, 157
 Scanning electron microscopy,
 48, 127

384 OUTDOOR ATMOSPHERIC CORROSION

Scanning vibrating electrode
 technique, 139, 149
Scribe creep, 157
Seawater, artificial, 171
Selection, materials, 109
Sensor, corrosion monitoring, 171
Silicon, 292
Singapore, runoff rate, 230
Soil, 200
Spectroscopy
 infrared reflection
 absorption, 127
 X-ray diffraction, 149
Staining, 329
Steel, 171, 284
 aluminum-zinc coated, 157
 carbon, 34, 59, 103, 368
 galvanized, 216, 284
 ISO CORRAG program, 3
 low carbon, 48
 simulated seaside corrosion
 resistance, 139
 stainless, 185, 358
 stainless, long-term marine
 corrosion, 343
 stainless, terne-coated, 316
 weathering, 149, 292, 301, 368
Stockholm, 216, 230
 long-term field exposure
 results, 34
Sulfate, 127, 316
 ion effects, 149
Sulfation, 3
Sulfur, 139, 292, 368
Sulfur dioxide, 103, 127, 245, 358
 deposition, 3, 34, 73
 emission reduction, 88
 MICAT project, 59
Surface defects, 358
Surface roughness, 343
Sweden, 34, 216, 230

T

Temperature, air, 103
Temperature-humidity
 complex, 48
Terne-coated stainless steel, 316
Thermodynamic analysis, 171
Time dependence, 34
Time exponent, 3

Time of wetness, 3, 48, 59,
 73, 103
Tin, 292
Tropical atmospheres, 48, 277,
 284
 subtropical, 358
Tubular structures, steel,
 301
Turbulence patterns, 19

U

United Nations Economic
 Commission for Europe
 International Cooperative
 Programme on Effects on
 Materials including
 Historic and Cultural
 Monuments, 34
Urban corrosion experiments,
 316
 runoff rates of copper, 230,
 245
Utility structures,
 301

V

Vietnam, 103

W

Washington, DC, 277
 precipitation runoff, copper
 panels, 245
Water film, 171
Weight loss method, 103
Wind velocity, 19
Wire-on-bolt coupons, 19

X

X-ray diffraction, 316
 spectroscopy, 149

Y

Yucatan Peninsula, Mexico, 48

Z

Zinc, 3, 34, 48, 59
corrosion products, 245
environmental effects, risk
assessment of, 185
ion, 200
runoff rates, 200, 216