

Subject Index

A

- Aggregate properties
 - porosity, 71
 - quality ratings, 5, 47, 121
 - volume changes, 47
 - water absorption, 5
- Aggregate testing techniques
 - fluorescent impregnation, 71
 - gel morphology, 71, 93
 - osmotic cell, 93
 - sulfate soundness, 32
 - quartz staining, 145
 - x-ray diffraction, 47, 145
- Aggregate types
 - course, 5, 106, 121, 129
 - fine, 5, 106, 121, 129
 - opal-coated, 121
 - polycrystalline, 71, 145
 - pozzolanic materials, 93, 194
 - quartz crystals, 145, 171
 - shale, 171
 - slag, 5, 171
 - volcanic rock, 71, 93
- Alkali reactivity
 - expansive reactions, 55, 93, 106, 121, 159
 - history of, 32
 - leaching, 121, 159
 - magnesia, 182
 - types defined, 5, 93, 171
- Analysis sites
 - Argentina, 145, 159
 - Canada, 5
 - Elk Creek Dam, WA, 47
 - Friant Dam, CA, 93
 - Hoover Dam, CO, 32
 - Libby Dam, WA, 47
 - Lower Monumental Dam, WA, 47
 - Parker Dam, CA, 32, 93
 - Rock Island Dam, WA, 121
- ASTM standards
 - C 33 - Specification for Concrete Aggregates, 121
 - C 85 - Test Method for Cement Content of Hardened Portland Cement Concrete, 171
 - C 114 - Method for Chemical Analysis of Hydraulic Cement, 171

- C 150 - Specification for Portland Cement, 106, 182
 - C 227 - Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations, 121, 145
 - C 289 - Test Method for Potential Reactivity of Aggregates, 121, 145
 - C 295 - Practice for Petrographic Examination of Aggregates for Concrete, 32, 121, 145
 - C 311 - Method for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete, 159
 - C 457 - Practice for Microscopical Determination of Air-Void Content and Parameters of the Air-Void System in Hardened Concrete, 55, 182
 - C 856 - Practice for Petrographic Examination of Hardened Concrete, 5, 55, 171, 182
- Atomic emission spectroscopy, 106

C

- Calcium carbonate analysis, 71
- Calcium hydroxide crystal analysis, 55, 71, 159, 171
- Cement paste, 129
- Concrete core analyses
 - bridges, 55
 - dams, 32, 47, 55, 93, 106, 121
 - electrical tower supports, 106
 - jetties, 71
 - roadways, 5, 71

Concrete deterioration
 characteristics
 aging, 55
 chemical reactions, 93, 106,
 159, 171, 194
 faulting, 55, 106, 171
 freezing/thawing, 32, 171,
 182
 geothermal grouts, 55
 shrinking, 171
 slump loss, 47
 textural fissuring, 55, 106,
 182, 194
 water damage, 55
 Concrete properties
 compressive strength, 5, 93,
 129, 159, 171
 color, 5
 elasticity, 93, 106, 121,
 efflorescent minerals, 5,
 145, 182
 expansion, 129, 159, 182
 Concrete testing techniques
 atomic emission
 spectroscopy, 106
 osmotic cells, 93
 shakers, 47
 thin sectioning, 55, 71, 194
 x-ray diffraction, 47, 145
 Construction material
 evaluations, 5, 32, 47,
 194
 Contaminants, 47, 71, 106

E

Epoxy resin adhesives, 55

F

Fluorescent impregnation
 technique, 71
 Fly ash, 159, 194

G

Gel morphology, 71, 93
 (see also Aggregate
 testing techniques)
 Government Agencies
 Canadian Ministry of
 Transportation, 5

U.S. Army Corps of
 Engineers, 47
 U.S. Bureau of
 Reclamation, 32, 92

M

Magnesia reactivity, 182
 Maleic acid, 194
 Methylene blue adsorption,
 47
 Methylene blue staining, 47
 Microscopical evaluations,
 171
 Mortar bar, 92

O

Osmotic cell testing, 93

P

Petrographic laboratory
 history, 5
 Petrographic number rating
 system, 5
 Portland cement, 106, 159,
 171, 182
 Pumicite, 93

S

Shaker testing, 5
 Slag, 5, 171
 Slump loss, 5
 Sulfate analysis, 32

T

Thin sectioning microscopy,
 55, 71, 194 (see also
 Concrete testing
 techniques)

W-X

Water resources development
 projects, 32
 X-Ray diffraction, 47, 145