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
ejflorescent minerals, 5, 145, 182
expansion, 129, 159, 182
Concrete testing techniques
atomic emission spectrometry, 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
Epox y resin adhesives, 55
Fluorescent impregnation technique, 71
Fly ash, 159, 194
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, 33
Magnesia reactivity, 182
Maleic acid, 194
Methylene blue adsorption, 47
Methylene blue staining, 47
Microscopical evaluations, 17
Mortar bar, 93
Osmotic cell testing, 93
Petrographic laboratory history, 5
Petrographic number rating system, 5
Portland cement, 106, 159, 171, 182
Pumice, 93
Shaker testing, 5
Slag, 5, 171
Slump loss, 5
Sulfate analysis, 32
Thin sectioning microscopy, 55, 71, 194 (see also Concrete testing techniques)
Water resources development projects, 32
X-Ray diffraction, 47, 145