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
cemental 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, 33
M
Magnesia reactivity, 182
Maleic acid, 194
Methylene blue adsorption, 47
Methylene blue staining, 47
Microscopical evaluations, 17
Mortar bar, 32
O
Osmotic cell testing, 93
P
Petrographic laboratory history, 5
Petrographic number rating system, 5
Portland cement, 106, 159, 171, 182
Pumice, 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