

Index

A

Acker, Robert F., 3–21
 Agricultural land plaster, 106
 American Cyanamid Company, 107
 Anhydrite
 Analysis
 Microscopic, 29, 33, 35, 43, 47
 X-ray fluorescent, 73, 76, 82
 Anhydrite II, 115
 Anhydrite III, 60
 in Stucco, 93
 Natural, 40, 41, 43, 47
 Soluble, 40, 86, 94, 95
 ASTM C 471, 22, 67–71, 123, 130
 ASTM C 472, 88
 ASTM C 473, 4–6, 14
 ASTM D 2333, 123
 ASTM D 2907, 123
 Atomic absorption, 74, 143

B

Becke test, 24, 26, 27
 Birefringence, 28, 29, 32, 34, 37–39, 43
 Bound water, *see* water of hydration
 Bounini, Larbi, 48–56
 BPG, *see* byproduct gypsum
 Bureau of Mines, 106, 114, 115, 118, 140, 141
 Byproduct gypsum, 34, 105–115

C

Calcite, 35–37, 73, 93
 Calcium sulfate
 Hydrates, 51
 Phases, 50, 51
 Cargille liquids, 23, 27, 35, 37, 41
 Cellular gypsum, 114
 Chandra, D., 67–71
 Chemical equilibrium, 53
 Chemical gypsum, *see* byproduct gypsum
 Citric acid, 97–104
 Claissé fluxer, 74, 76, 78
 Combined water, *see* water of hydration
 Constant strain tester, 5, 8, 12–14, 16, 18, 21
 Constant stress tester, 5, 8, 12, 16, 18

D

Deadburned gypsum, 40
 DeJongh model, 79
 Desulfogypsum, 105, 110, 111, 113, 114
 Differential thermal analysis, 60, 73, 74, 79, 82
 Dihydrate, 98, 99, 103, 104, 141
 DIN Standard 1168, 87, 98
 Dispersion staining, 26, 27, 31, 32, 37, 39, 40
 Dolomite, 36, 37, 73, 93

Drying, 49, 50, 53, 63

DTA, *see* differential thermal analysis

E

Emission spectrographic analysis, 118,
121, 123, 133, 135, 137

Energy conservation, 85

Environmental Protection Agency, 117,
118, 123, 134, 135, 138, 141,
144, 149

EPA, *see* Environmental Protection
Agency

Extinction angle, 34, 42

F

Flexural strength, 5, 12, 20

Flexure test, 4, 6, 8, 12, 13

Florida Institute of Phosphate Re-
search, 119, 138, 158

Flue gas desulfurization, 108, 160

Flue gas gypsum

Agglomeration, 161–173

Calcination, 161, 163–165

Combined water, 161, 163

Compaction, 167–172

Drying, 161–164, 172

Extrusion, 167

Pelletization, 165

Surface water, 161, 163

Thixotropy, 161, 171

Use in cement, 165

Fluorogypsum, 105, 111

Foamed gypsum, *see* cellular gypsum

Free water, 50, 53

Fusion techniques, 73

G

Goswami, S., 67–71

Gravimetric analysis, 67–71

Green, George W., 22–47

Gypsum

Analysis, 72

Calcination, 85, 86, 93–95

Cement retarder, 106, 111, 113

Dehydration, 63, 64

Determination, 63, 64

Impurities, 28, 29, 34, 43

in Road construction, 115

Morphology, 23

Supply and demand, 106

Wallboard, 3, 8, 12, 16, 21, 106,
111–114

Water of hydration, 50, 53

H

Hardness tests, 3, 5, 18, 20, 21

Heat of hydration, 57

Hemihydrate

Analysis, 38–40, 49

from Flue gas desulfurization, 165–
171

from Phosphoric acid manufacture,
119, 121

α -Hemihydrate

Analysis, 39, 45

Physical characteristics, 50

β -Hemihydrate

Analysis, 39, 44, 53, 55

Physical characteristics, 50

Physical characteristics, 50

Hydrated plaster, 64, 65

Hydration, 50, 57, 59, 64–66, 100

Hydration ratio, 57–66

Hydrology, 152

I

Image analysis, 98, 102

K

Karmazsin, Etienne, 57–66

Kettle Stucco, *see* stucco

Kocman, Vladimir, 72–83
 Koslowski, Thomas, 97–104
 Kuntze, Richard A., editor, i, 84–96,
 173–176

L

Lime-limestone process, 110
 Limestone, 36, 37, 43
 Lithium fluoride flux, 73–76
 Lithium tetraborate flux, 73–75
 Luckevich, Lydia M., 84–96
 Ludwig, Udo, 97–104

M

May, Alexander, 116–159
 Mettler thermoanalyzer, 82
 Michel-Levy chart, 29
 Microscopic analysis, 22–47
 Microwave drying, 52, 53, 55
 Mortars
 Brinell hardness, 102
 Compressive strength, 102
 Creep, 98, 103, 104
 Elastic deformation, 104
 Grain size and shape, 100, 101, 104
 Microstructure, 97, 100, 101, 102
 Porosity, 98, 102
 Properties, 97, 102–104
 Setting, 97, 98, 102
 Strength, 98, 103, 104
 Volume change, 98, 104
 Workability, 98, 102

N

Nail pull resistance, 3, 5, 6, 16, 18,
 20, 21
 National Bureau of Standards, 143
 Neutron activation analysis, 143, 152,
 153
 Nuclei formation, 99, 104

O

Oak Ridge National Laboratories, 143,
 148, 149

P

Phase analysis, 48, 53
 Phosphate rock, 106, 109, 110, 115,
 118, 141, 145, 150
 Phosphogypsum
 Environmental impact, 116
 Hazardous and toxic wastes in, 118,
 143, 144, 150, 157
 Heavy metals in, 113
 Leaching characteristics, 140, 152,
 157, 158
 Particle size distribution, 123, 128,
 135
 Permeability, 154
 Production, 118, 119
 Radioactivity, 118, 123
 Radium in
 Data analysis, 148–151
 Leachability, 141, 155–158
 Quantitative analysis, 129, 131,
 134–136
 Stockpiles, 117, 118
 Test procedures, 121, 123, 143
 Thorium in 121, 123, 129, 132, 135
 Trace elements in
 Data analysis, 137, 138, 145, 148
 Leachability, 141, 155–157
 Test procedures, 123, 143
 Phosphoric acid, 106, 116, 118, 119,
 140, 141
 Plaster, 97–99, 111, 113, 161, 165
 Prayon process, 119, 121, 141
 Pressler, Jean W., 105

Q

Quartz, 26, 30, 36, 42

R

Refractive index, 23–25, 31, 34–36, 38
 Relative humidity, 102–104
 Research-Cottrell Incorporated, 107
 Retarding mechanism, 98–100
 Rousseau, Dr. Richard, 78

S

Sag resistance, 3, 4
 Scanning Electron Microscope, 98
 SEM, *see* Scanning Electron Microscope
 Shale, 43
 Shot-bucket test, 4, 8, 12, 16
 Silica, *see* quartz
 Sodium tetraborate flux, 74–76
 Spectroflux 200®, 78
 Stress-strain curve, 12, 13, 16, 18, 21
 Stucco
 Aging, 85, 86, 90, 93, 95
 Analysis, 35, 38
 Consistency, 85–87, 90, 91, 93, 95
 Disintegration, 85, 87–95
 Hydration, 85, 87
 Particle size analysis, 90, 91, 95
 Sulfur trioxide determination, 67–71
 Superphosphates, 106
 Surface active agents, 85, 93, 95
 Surfactants, *see* surface active agents
 Sweeney, John W., 116–159
 Synthetic gypsum, *see* byproduct gypsum

T

Tampa Electric Company, 108
 Terra Alba, 85, 90, 92, 93
 Testing machines, 4, 8
 TGA, *see* thermogravimetric analysis
 Thermal flow, 65
 Thermodynamic equilibria, 53
 Thermogravimetric analysis, 60, 73–75, 79, 82
 Titanogypsum, 105, 111
 Turk, Danica H., 48–56

U

United States Gypsum Company, 4, 56, 76, 82, 108

V

Vicat apparatus, 88
 Viscosity, 89, 91
 VISICALC® program, 76, 78

W

Wall board, *see* gypsum wallboard
 Water of hydration, 50, 53, 161, 163
 Water demand, 85, 92–95
 Wirsching, Franz, 160–174

X

X-ray diffraction analysis, 98, 102, 121, 123, 130, 143, 152, 155
 X-ray fluorescence spectroscopy, 72–83