Clays and Clay Minerals, Vol. 35, No. 6, 485–512, 1987.

COMPREHENSIVE SUBJECT, AUTHOR, TITLE INDEX[1] VOLUME 35, 1987

V. A. COLTEN-BRADLEY AND F. A. MUMPTON

A

Acid
- oxalic, effect of, on dissolution of goethite 347
- sites on hydroxy-Al pillared beidellite 251

Adsorption (see also Sorption)
- alcohols on Al-, Cr-, Fe^{3+}-exchanged montmorillonite, kinetics 336
- alcohols on Al-, Cr-, Fe^{3+}-exchanged montmorillonite, diffusion coefficients, basal spacings kinetics 336
- amino acids on montmorillonite-Cu-l-lysine complex 391
- cyclic ethers on montmorillonite, kinetics, diffusion coefficients 343
- EGME on montmorillonite, ATR, surface area, molecular configuration, diffuse-reflectance IR-Fourier transform spectroscopy 60
- 1,4-dioxan on Al-, Cr-exchanged montmorillonite 343
- quinoline on montmorillonite 121
- tetrahydrofluran on Al-, Cr-exchanged montmorillonite 343
- tetrahydropan on Al-, Cr-exchanged montmorillonite 343
- thiophenes on Cu^{2+}-, Fe^{3+}-montmorillonite, Raman spectroscopy, IR 53
- thiophenes on Cu^{2+}-, Fe^{3+}-montmorillonite, polymerization in interlayer 53

AEM (see Analytical electron microscopy)

Aggregation (see Flocculation)

AINSWORTH, C. C. (with J. M. ZACHARA and R. L. SCHMIDT), Quinoline Sorption on Na-Montmorillonite: Contributions of the Protonated and Neutral Species 121

Alcohol
- adsorption on montmorillonite, kinetics, diffusion coefficients 336
- basal spacings of Al-, Cr-, Fe^{3+}-montmorillonite in presence of 336
- vapor-phase adsorption on montmorillonite, kinetics 336

Alkylammonium
- -beidellite, basal spacings 232, 440
- -hectorite, basal spacings 440
- -montmorillonite, basal spacings 232, 440
- -nontronite, basal spacings 232, 440
- -saponite, basal spacings 440
- -vermiculite, basal spacings 440

Allophane
- chemical analysis, TEM, morphology 29

ALPEROVITCH, N. (with I. SHAINBERG and R. KEREN), Charge Density and Na-K-Ca Exchange on Smectites 68

ALPEROVITCH, N. (with I. SHAINBERG, R. KEREN, and D. GOLDSTEIN), Effect of Exchangeable Potassium on the Hydraulic Conductivity of Smectite-Sand Mixtures 305

Alteration (see also Hydrothermal, Diagenesis)
- hydrothermal, smectite-to-illite conversion 111
- of tuffs, zeolites formation by 89
- silicic ash, diagenesis in saline lake, zeolite formation 449

Alteration of Phlogopite to Corrensite at Sharbot Lake, Ontario, by C. R. De Kimpe, N. Miles, H. Kodama, and J. Dejou 150

Aluminum
- hydroxide, noncrystalline, reaction with phosphates, effect of RH 228
- hydroxy-Al-pillared montmorillonite, NMR, XRD, CEC, basal spacings, surface area, IR 251
- hydroxy-Al pillaring in beidellite 251
- -montmorillonite, alcohol adsorption rates, basal spacings 336
- -montmorillonite, cyclic ether adsorption rates, basal spacings 343
- oxide, effect of flocculation of kaolinite, montmorillonite 220
- oxyhydroxides, synthesis 220, 228
- -polyhydroxypolymers, pillaring of, with smectites 81
- -substituted tobermorite, CEC, basal spacings, morphology 385
- substitution in goethite, effect of photochemical dissolution kinetics 347
- substitution in goethite, effect on unit-cell volume 297

Alunite
- structural formula 196
- traces in hydrothermal Sasso kaolin deposit 321
- unit-cell dimensions 196

[1] Items are indexed to the first page of the journal article in which they appear.

Copyright © 1987, The Clay Minerals Society

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Amino acid
-Cu-l-lysine complex, structure 391
optical isomers, resolution by adsorption on montmorillonite-Cu-l-lysine complex using HPLC 391
Ammonium
-Na exchange for clinoptilolite determination in soils 463
-Na exchange on clinoptilolite, selectivity coefficient 463
-tert-butyl exchange, for quantitative determination of clinoptilolite in soils 463
Analcime
chemical composition, electron microprobe analysis 89
in altered tuffs 89
-rich tuff, alteration of, petrography 449
Analytical electron microscope (AEM)
goethite in weathered olivine 418
halloysite in weathered olivine 418
iddingsite 418
illite/smectite, hydrothermal 111
olivine, weathered 418
smectite in weathered olivine 418
Anilinium
intercalate with vermiculite, crystal structure, electron microprobe analysis, unit-cell parameters 177
intercalation with vermiculite 177
Anions
carbonate-sulfate, in interlayer of hydrotalcite-manasseite group 401
effect on synthesis of magadiite, kenyaite 318
oxalate, effect on dissolution kinetics of goethite 347
Announcement
Euroclay '87 meeting 239
Proceedings of the International Clay Conference, Denver, 1985, publication of 160
24th annual meeting, The Clay Minerals Society 240
Apatite
fluor-, mineralogy in Excello black shale 262
Asbestos
chrysotile formation in debris flow by replacement of lizardite 43
Atomic coordinates
clinochlore, ferroan 129
hydrogen in kaolinite 237
nontronite 363
ATR (see Attenuated total reflectance spectroscopy)
Attapulgite (see Palygorskite)
Attenuated total reflectance spectroscopy (ATR) (see also Infrared spectroscopy) EGME-montmorillonite complex 60
Authigenesis
chlorite, replacement of kaolinite 291
chrysotile, replacement of lizardite in debris flows 43
illite/smectite, source of iron for chlorite 291
kaolinite formation, Gulf Coast sediments 291
pseudoboehmite, with chrysotile in debris flow 43
Authigenesis of Kaolinite and Chlorite in Texas Gulf Coast Sediments, by J. H. Burton, D. H. Krinsley, and K. Pye 291
Authigenic Chrysotile Formation in the Matrix of Quaternary Debris Flows, Northern Southland, New Zealand, by D. Craw, C. A. Landis, and P. I. Kelsey 43

B

Back-scattered electron imaging (see Scanning electron microscopy)
BAILEY, S. W. (with A. C. RULE), Refinement of the Crystal Structure of a Monoclinic Ferroan Clinochlore 129
BARRON, P. F. (with J. G. THOMPSON), Further Consideration of the ^{29}Si Nuclear Magnetic Resonance Spectrum of Kaolinite 38
BARRON, P. F. (with M. RAUPACH and J. G. THOMPSON), Nuclear Magnetic Resonance, Infrared, and X-ray Powder Diffraction Study of Dimethylsulfoxide and Dimethylselenoxide Intercalates with Kaolinite 208
Basal spacings
beidellite, exchanged with alkylammonium 232
beidellite, K-, Li-, Mg-saturated 232
beidellite, hydroxy-Al pillared 81, 251
CO_3-hydrotalcite 401
CO_3-manasseite 401
CO_3-SO_4-hydrotalcite 401
corrensite 150
fluorhectorite, hydroxy-SiAl pillared 429
hectorite, alkylammonium exchanged 440
montmorillonite 81, 232, 251, 336, 343, 440, 429
montmorillonite, Al-, exposed to cyclic ether vapors 343
montmorillonite, Al-, exposed to water, alcohol vapors 336
montmorillonite, alkylammonium exchanged 232, 440
montmorillonite-Cu-l-lysine complex 391
montmorillonite, Cr-, exposed to cyclic ether vapors 343
montmorillonite, Cr-, exposed to water, alcohol vapors 336
montmorillonite, exchanged with alkyl-, hexyl-, dodecylammonium 232
montmorillonite, Fe-, exposed to water, alcohol vapors 336
montmorillonite, hydroxy-Al pillared 81
montmorillonite, hydroxy-SiAl pillared 429
montmorillonite, Li-, K-, Mg-saturated 232

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

montmorillonite, Na-, in water 336
nontronite, alkylammonium exchanged 232, 440
nontronite, Li-, Mg, K-saturated 232
saponite, alkylammonium exchanged 440
saponite, effect of interlayer cation, RH 353
smectite 429, 440
smectite, cross-linked, effect of heat on 429
SO_4-hydrotalcite 401
SO_4-manasseite 401
tobermorite, synthetic 385
vermiculite 353, 440
vermiculite, alkylammonium exchanged 440
vermiculite, effect of interlayer cation, RH, layer charge 353

Basalt
chemical composition, electron microprobe analysis 161
core-stone, composition of smectite in 161
hydrothermal alteration to illite/smectite, illite/chlorite 241
hydrothermal alteration to wairakite 241
immiscible glass, TEM 241
mineralogy 161
natroalunite in laterite profile over 196
olivine in, replacement by goethite, saponite, halloysite, iddingsite 418
weathered, laterite profile on 196
weathered, smectite, halloysite, goethite in 161
weathering of 161, 196, 418

Beidellite (see also Smectite, Montmorillonite)
Al, Fe overgrowths on illite, smectite 189
alkylammonium exchange 232
Cr-, chemical composition 139
differentiation from montmorillonite, problems 232
H^+-, NMR 251
hydroxy-Al pillared, XRD, CEC, basal spacings, IR, surface area, porosity, acid sites 81, 251
identification, problems of, Greene-Kelly test, 232
iron-rich, in vertisols, structural formula, sediment volume, optical density, UV adsorption 311
layer charge 232
Li-saturated, exchanged with alkyl-, hexyl-, dodecylammonium ions, basal spacings 232
pillared with Al-polyhydroxypolymer 81
synthesis 81, 251

BEN-DOR, EYAL (with ARIEH SINGER), Optical Density of Vertisol Clay Suspensions in Relation to Sediment Volumes and Dithionite-Citrate-Bicarbonate-Extractable Iron 311

Bentonite (see also Montmorillonite, Smectite)
analcime, clinoptilolite replacement of 449
hydrothermal alteration to wairakite 241
smectite in, SEM, EXD, TEM, XRD 241
stability under hydrothermal conditions 241

Benzidinium
-vermiculite intercalate, Mössbauer spectroscopy 203

Berthierine
/illite, EDX, TEM 241
/illite, formation by hydrothermal alteration of illite 241

BIBBY, D. M. (with R. A. FLETCHER), Synthesis of Kenyaite and Magadiite in the Presence of Various Anions 318

BIGHAM, J. M. (with W. F. JAYNES), Charge Reduction, Octahedral Charge, and Lithium Retention in Heated, Li-Saturated Smectites 440

Birnessite
hydrothermal transformation to buserite, manganite, todorokite 271
saturated with various cations, XRD, TEM, IR, electron diffraction pattern 271
(7-Å manganite), space group, unit-cell parameters, structural formula 271
synthetic, SEM, TEM, chemical analysis 271
transformation to buserite, cryptomelane, hollandite, todorokite 271
unit-cell dimensions, 7-Å manganite, synthetic 271

BISH, D. L. (with D. E. BROXTON and R. G. WARREN), Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada 89

Black shale
Excello, petrology, mineralogy, stratigraphy, XRD 262
limestone concretions in, formation of 262
organic carbon content 262
phosphate nodules in, diagenetic formation of 262

Boehmite
pseudo-, authigenic, in debris flows with chrysotile 43
pseudo-, authigenic, IR, DTA, electron microprobe analysis 43

Bond lengths (see also Interatomic distances)
in kaolinite : DMSeO intercalate 208
in kaolinite : DMSO intercalate 208
interlayer atoms and surface oxygens in the vermiculite-anilinium intercalate 179
Si. . .H distances in kaolinite 38
Si–O in kaolinite 38

Book review
Clay in Engineering Geology, 2nd ed., by J. E. Gillott 477
Clay Microstructure, by R. H. Bennett and M. H. Hulbert 400
The Chemistry of Weathering, edited by J. I. Drever 80
Thermodynamic Values at Low Temperature for Natural Inorganic Materials, by T. L. Woods and R. M. Garrels 159

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

BREEN, C. (with A. T. DEANE and J. J. FLYNN), Vapor-Phase Sorption Kinetics for Tetrahydrofluran, Tetrahydropan, and 1,4-Dioxan by Al^{3+}- and Cr^{3+}-Exchanged Montmorillonite 343
BREEN, C. (with A. T. DEANE, J. J. FLYNN, and D. REYNOLDS), Vapor-Phase Sorption Kinetics for Methanol, Propan-2-ol, and 2-Methylpropan-2-ol on Al^{3+}-, Cr^{3+}-, and Fe^{3+}-Exchanged Montmorillonite 336
BREVAL, ELSE (with SRIDHAR KOMARNENI, MICHIHIRO MIYAKE, and RUSTUM ROY), Cation-Exchange Properties of (Al + Na)-Substituted Synthetic Tobermorites 385
BROXTON, D. E. (with D. L. BISH and R. G. WARREN), Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada 89
BURTON, J. H. (with D. H. KRINSLEY and K. PYE), Authigenesis of Kaolinite and Chlorite in Texas Gulf Coast Sediments 291
Buserite
transformation of birnessite to 271

C

Calcium
-Na^+ exchange on clinoptilolite, selectivity coefficient 458
Carbonate
anion, effect of, on synthesis of kenyaite, magadiite318
-hydrotalcite, XRD, structural formula, unit-cell parameters, density, nomenclature 401
-manasseite, XRD, unit-cell parameters, chemical composition, structure 401
-SO_4-hydrotalcite, XRD, structural formula, unit-cell parameters, structure, nomenclature 401
systems, magadiite, kenyaite synthesis in 318
CARDILE, C. M. (with J. H. JOHNSTON), Iron Substitution in Montmorillonite, Illite, and Glauconite by ^{57}Fe Mössbauer Spectroscopy 170
CARDILE, C. M. (with P. G. SLADE), Structural Study of a Benzidine-Vermiculite Intercalate having a High Tetrahedral-Iron Content by ^{57}Fe Mössbauer Spectroscopy 203
CARLSON, L. (with U. SCHWERTMANN and E. MURAD), Properties of Iron Oxides in Two Finnish Lakes in Relation to the Environment of their Formation 297
Cation exchange
Ca-Na, Na-NH_4, on clinoptilolite, selectivity coefficient 458
K-Ca on smectite, effect of layer charge density, selectivity coefficients 68
K-Na on smectite, effect of layer charge density, selectivity coefficients 68
Na, on smectite, Gapon's constant 305
Na-Ca on smectite, effect of layer charge density, selectivity coefficients 68
Na-Cs on Al-, Na-substituted tobermorite 379
quinoline-Na exchange on montmorillonite 121
selectivity coefficient, Gapon's constant, Na, K on smectites 305
Cation-exchange capacity (CEC)
clinoptilolite 469
clinoptilolite, quantitative mineralogy of, in soils 463
hydroxy-Al beidellite 251
reduction of, Li-retention in smectites, Hofmann-Klemen effect, octahedral layer charge 440
smectites 68, 305
tobermorite, synthetic Al-, Na-substituted tobermorite 385
vertisols 311
Cation Properties of (Al + Na)-Substituted Synthetic Tobermorites, by Sridhar Komarneni, Else Breval, Michihiro Miyake, and Rustum Roy 385
CEC (see Cation-exchange capacity)
Celadonite
IR spectroscopy 363
iron octahedral distribution 363
Mössbauer spectroscopy, computer simulation of, electric field gradient calculations 363
structural formula 363
Cesium
-Na exchange on tobermorite, selectivity coefficient 385
Characterization of Overgrowth Structures Formed around Individual Clay Particles during Early Diagenesis, by Michel Steinberg, Thierry Holtzapffel, and Michel Rautureau 189
Charge balance
tetrahedral substitution in ferroan clinochlore, order-disorder 129
Charge density
effects on Na-K-Ca exchange on smectites, swelling 68
smectites, effect on exchangeable K, hydraulic conductivity 305
Charge Density and Na-K-Ca Exchange on Smectites, by I. Shainberg, N. I. Alperovitch, and R. Keren 68
Charge Reduction, Octahedral Charge, and Lithium Retention in Heated, Li-Saturated Smectites, by W. F. Jaynes and J. M. Bigham 440
Chemical analysis (see also Chemical composition)
allophane 29
basalt core-stones 161
birnessite, percent Mn, Mn oxidation state 271
chrysotile, electron microprobe, Al-Fe-Mg composition 43
cordierite, weathered 29
corrensite, from hydrothermally altered phlogopite 150
ferrihydrite 29
hisingerite 29

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

lateritic pisolite 29
limburgite glass 29
lizardite, electron microprobe analysis, Al-Fe-Mg composition 43
noncrystalline Fe-Si-Al oxyhydroxide gels 29
phlogopite, electron microprobe analysis 150
pseudoboehmite, electron microprobe analysis 43
todorokite, percent Mn, Mn oxidation state 271
Chemical and Morphological Evidence for the Conversion of Smectite to Illite, by Atsuyuki Inoue, Norihiko Kohyama, Ryuji Kitawaga, and Takashi Watanabe 111
Chemical composition
analcime in altered tuff, electron microprobe analysis 89
basalt, weathered 161
beidellite, chromian 139
chrysotile, lizardite in debris flow, Al, Fe, Mg 43
clinochlore, ferroan, electron microprobe analysis129
clinoptilolite in altered tuff, electron microprobe analysis 89
CO_3-hydrotalcite 401
CO_3-manasseite 401
feldspar in altered tuff, electron microprobe analysis 89
hydroxy-SiAl cross-linked montmorillonite 429
illite, Muloorine, Australia 170
illite/smectite from hydrothermally altered volcanic glass, electron microprobe analysis 111
iron oxide lake sediments 297
kaolinite, Georgia 38
kaolinite, St. Austell 38
kenyaite 318
limburgite 29
magadiite 318
manasseite 401
montmorillonite, chromian 139
montmorillonite, Drayton, Australia 170
natroalunite 196
nontronite, chromian 139
olivine, weathered, Al-Mg-Fe by electron microprobe, EXD, AEM 418
overgrowth on illite and smectite 189
pisolite, laterite 29
smectite, iron-rich beidellite in vertisols, structural formula 311
smectitic clay, from weathered pyroxenite, electron microprobe analysis 1
SO_4-hydrotalcite 401
tuff, bulk-rock 89
vertisol clay 311
volkonskoite 139
CHEN, C. C. (with D. C. GOLDEN and J. B. DIXON), Transformation of Birnessite to Buserite, Todorokite, and Manganite under Mild Hydrothermal Treatment 271
CHERKASHIN, V. I. (with V. A. DRITS, T. N. SOKOLOVA, and G. V. SOKOLOVA), New Members of the Hydrotalcite-Manasseite Group 401
CHITALE, D. V. (with NECIP GÜVEN), Natroalunite in a Laterite Profile over Deccan Trap Basalts at Matanumad, Kutch, India 196
Chlorite
berthierine, distribution in Excello black shale 262
berthierine, hydrothermal alteration of illite, TEM, EDX 262
clinochlore, ferroan, crystal structure, atomic positions, interatomic distances, interlayer octahedra, chemical composition, space group 129
corrensite, XRD, DTA, DTG, electron microprobe analysis, IR, structural formula 150
Cr-bearing, as distinguished from volkonskoite 139
/illite, hydrothermal alteration of basalt and bentonite, TEM, EDX, XRD 241
iron-rich, authigenic, Gulf Coast sediments, TEM, EDX, SAD, back-scattered electron image 291
morphology, TEM 291
pseudomorphous after kaolinite, SEM 291
/smectite, alteration of phlogopite to 150
structure, II*b*2 polytype 129
Chromium
chlorite, montmorillonite, volkonskoite nomenclature problem 139
-exchanged montmorillonite, 1,4-dioxane, tetrahydrofuran, tetrahydropyran adsorption on 343
-exchanged montmorillonite, vapor-phase adsorption of alcohols on 336
-montmorillonite, alcohol, cyclic ether adsorption rates 336
-montmorillonite, basal spacings 336
-smectite, volkonskoite, chemical composition, TGA, XRD, Mössbauer spectroscopy, nomenclature 139
Chrysotile
asbestos fiber formation in debris flows 43
authigenic, chemical analysis 43
authigenic, petrography, XRD, electron microprobe analysis, DTA, IR, TEM 43
authigenic, replacement of lizardite, petrography 43
Clay Minerals Society, The
annual meeting, 24th, announcement 240
Clinochlore
ferroan, crystal structure, atomic coordinates, chemical composition, space group 129
Clinoptilolite
CEC 463, 469

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

chemical composition 89
electron microprobe analysis 89, 281
formation by replacement of volcanic glass 281
in fossilized root, in altered tuff interbedded with lignite 281
Na-NH_4 exchange, Na-tertbutylammonium exchange 463
Na-Ca, Na-NH_4 exchange, selectivity coefficient 458
quantitative determination in soils 463
-rich altered tuff, petrography 89, 449
SEM 281, 458
SEM, EDX, XRD, petrography, morphology 281
separation from soils, specific gravity 469
structural formula 469
XRD 281, 469

COLIN, F. (with A. DECARREAU, A. HERBILLON, A. MANCEAU, D. NAHON, H. PAQUET, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1

Collophane
diagenetic, Excello black shale 262

Composition and Structural Variations in the Size Fractions of a Sedimentary and a Hydrothermal Kaolin, by Gianni Lombardi, J. D. Russell, and W. D. Keller 321

Computer simulation
Mössbauer spectra, nontronite, celadonite, Fe-octahedron orientation, electric field gradient calculations 363

Concretions
limestone, formation, Excello black shale 262

Conditional equilibrium constant (see Vaneslow selectivity)

Copper
Cu-l-lysine-montmorillonite complex, amino acid adsorption on 391
-montmorillonite, polymerization of thiophene in interlayer region, Raman spectroscopy, IR 53

Cordierite
alteration to halloysite, TEM 29
weathered, noncrystalline Fe-Si-Al oxyhydroxides, chemical analysis 29

Core-stone
basalt, chemical composition of smectite in 161

CORNELL, R. M. (with R. GIOVANOLI), Effect of Manganese on the Transformation of Ferrihydrite into Goethite and Jacobsite in Alkaline Media 11

CORNELL, R. M. (with R. GIOVANOLI and P. W. SCHINDLER), Effect of Silicate Species on the Transformation of Ferrihydrite into Goethite and Hematite in Alkaline Media 21

CORNELL, R. M. (with P. W. SCHINDLER), Photochemical Dissolution of Goethite in Acid/Oxalate Solution 347

Corrensite
hydrothermal alteration of phlogopite 150
smectite/chlorite, XRD, TGA, IR, DTA, SEM, electron microprobe analysis, structural formula 150

COSCA, M. A. (with Y.-C. YAU, D. R. PEACOR, E. J. ESSENE, J. H. LEE, and L.-C. KUO), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241

CRAW, D. (with C. A. LANDIS and P. I. KELSEY), Authigenic Chrysotile Formation in the Matrix of Quaternary Debris Flows, Northern Southland, New Zealand 43

Critical coagulation concentration (CCC)
determination by percent transmittance 220
flocculation value 220
for kaolinite 220
for montmorillonite 220

Cross-linked smectite (CLS) (see also Pillared interlayer complex)
fluorhectorite, basal spacings, surface area, structure, thermal stability 429
montmorillonite, basal spacings, surface area, chemical composition, structural formula, thermal stability 429
synthesis, hydroxy-SiAl exchange 429

Cross-linked Smectites. V. Synthesis and Properties of Hydroxy-Silicoaluminum Montmorillonites and Fluorhectorites, by Johan Sterte and Joseph Shabtai 429

Cryptomelane
space group, structural formula, unit-cell parameters 271

Crystal growth
overgrowth structures on illite, smectite during early diagenesis 189

Crystal Structure of a Vermiculite-Anilinium Intercalate, by P. G. Slade, C. Dean, P. K. Schultz, and P. G. Self 177

Crystal structure
anilinium-intercalated vermiculite 177
chlorite, II*b*-2 polytype 129
clinochlore, ferroan, interlayer octahedra 129
CO_3-hydrotalcite 401
CO_3-manasseite 401
CO_3-SO_4-hydrotalcite 401
cross-linked fluorhectorite, hydroxy-SiAl oligocation 429
Cu-l-lysine-amino acid complex 391
DMSeO : kaolinite intercalate 208
hydroxy-Al polymers 251
hydroxy-SiAl oligocation 429
kaolinite, crystal, electron diffraction, XRD 237
palygorskite, micropore sites 473
position of ions in phyllosilicates by EXAFS 1

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

SO_4-hydrotalcite 401
vermiculite-anilinium intercalate 177
Crystallinity
goethite, effect of silica on 21
kaolinite, XRD 321
Cu-l-lysine
-amino acid complex, structure 391
-montmorillonite complex, use in HPLC to separate optical isomers of amino acids, basal spacings 391
Curie
constants, nontronite, unaltered and reduced 373
-Weiss temperatures, nontronites, unaltered and reduced 373
Cyclic ethers
adsorption on Al^{3+}- and Cr^{3+}-montmorillonite, kinetics, diffusion coefficients 343
1,4 dioxan, adsorption on Al^{3+}- and Cr^{3+}-montmorillonite 343
tetrahydrofuran, adsorption on Al^{3+}- and Cr^{3+}-montmorillonite 343
tetrahydropan, adsorption on Al^{3+}- and Cr^{3+}-montmorillonite 343

D

DAYNYAK, L. G. (with V. A. DRITS), Interpretation of Mössbauer Spectra of Nontronite, Celadonite, and Glauconite 363
DE KIMPE, C. R. (with N. MILES, H. KODAMA, and J. DEJOU), Alteration of Phlogopite to Corrensite at Sharbot Lake, Ontario 150
DEAN, C. (with P. G. SLADE, P. K. SCHULTZ, and P. G. SELF), Crystal Structure of a Vermiculite-Anilinium Intercalate 177
DEANE, A. T. (with C. BREEN and J. J. FLYNN), Vapor-Phase Sorption Kinetics for Tetrahydrofluran, Tetrahydropan, and 1,4-Dioxan by Al^{3+}- and Cr^{3+}-Exchanged Montmorillonite 343
DEANE, A. T. (with C. BREEN, J. J. FLYNN, and D. REYNOLDS), Vapor-Phase Sorption Kinetics for Methanol, Propan-2-ol, and 2-Methylpropan-2-ol on Al^{3+}-, Cr^{3+}-, and Fe^{3+}-Exchanged Montmorillonite 336
Debris flow
ophiolite melange, New Zealand, authigenic chrysotile, pseudoboehmite formation in 318
DECARREAU, A. (with F. COLIN, A. HERBILLON, A. MANCEAU, D. NAHON, H. PAQUET, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
DEJOU, J. (with C. R. DE KIMPE, N. MILES, and H. KODAMA), Alteration of Phlogopite to Corrensite at Sharbot Lake, Ontario 150
Density
CO_3-hydrotalcite 401
CO_3-manasseite 401
CO_3-SO_4-hydrotalcite 401
as a measure of weathering intensity 161
heavy liquid separation of clinoptilolite from soil 469
related to element mobility during weathering of basalt 161
SO_4-hydrotalcite 401
Diagenesis
beidellite overgrowths on illite, smectite, TEM, chemical analysis 189
collophane formation in Excello black shale 262
phosphate replacement of limestone nodules in black shale 262
silicification of clays 189
smectite-to-illite conversion, dissolution-reprecipitation mechanism, morphological evidence 111
tuff, in open hydrologic system, Yucca Mountain, Nevada 89
zeolite formation in tuff 89, 449
Diagenetic Alteration of Silica Ash in Searles Lake, California, by R. L. Hay and S. G. Guldman 449
Dickite
in hydrothermal kaolin 321
Differential thermal analysis (DTA)
chrysotile 43
corrensite 150
dehydroxylation of goethite 297
kaolin, hydrothermal, different particle sizes 321
kaolin, sedimentary, different particle sizes 321
pseudoboehmite 43
Differential thermogravimetric analysis (DTGA) (see Thermal gravimetric analysis)
Differential X-ray powder diffraction (DXRD)
ferrihydrite 297
goethite 297
iron oxide identification 297
Diffuse-reflectance infrared Fourier transform spectroscopy (see Infrared spectroscopy)
Diffusion
coefficients for sorption of alcohols on montmorillonite 336
coefficients for sorption of cyclic ethers on montmorillonite 343
Dimethylselenoxide (DMSeO)
intercalate with kaolinite, NMR, IR, XRD 208
intercalate with kaolinite, unit-cell dimensions, bond lengths, orientation of organic molecule 208
Dimethylsulfoxide (DMSO)
intercalate with kaolinite, NMR, IR, XRD 208
intercalate with kaolinite, unit-cell dimensions, bond lengths, orientation of organic molecule 208
Dispersion
flocculation-, of kaolinite, montmorillonite, effect of oxides on 220

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

flocculation-, of kaolinite, montmorillonite, effect of pH on 220
swelling, difference between 305
Dissolution
goethite, effect of Al substitution 297, 347
goethite, photochemical effects of oxalate concentration, pH, surface area 347
kinetics, lepidocrocite, goethite 347
mechanism, reduced Fe in goethite 347
photochemical, goethite in acid/oxalate solutions 347
Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada, by D. E. Broxton, D. L. Bish, and R. G. Warren 89
DIXON, J. B. (with D. C. GOLDEN and C. C. CHEN), Transformation of Birnessite to Buserite, Todorokite, and Manganite under Mild Hydrothermal Treatment 271
DIXON, J. B. (with D. W. MING), Quantitative Determination of Clinoptilolite in Soils by a Cation-Exchange Capacity Method 463
DIXON, J. B. (with D. W. MING), Technique for the Separation of Clinoptilolite from Soils 469
DIXON, J. B. (with A. L. SENKAYI, D. W. MING, and L. R. HOSSNER), Kaolinite, Opal-CT, and Clinoptilolite in Altered Tuffs Interbedded with Lignite in the Jackson Group, Texas 281
DMSeO (see Dimethylselenoxide)
DMSO (see Dimethylsulfoxide)
Dodecylammonium
exchanged montmorillonite, basal spacings 232
Domain
segregation of, in Ni-Fe-Mg-smectites from weathered pyroxenite 1
Domain Segregation in Ni-Fe-Mg-Smectites, by A. Decarreau, F. Colin, A. Herbillon, A. Manceau, D. Nahon, H. Paquet, D. Trauth-Badaud, and J. J. Trescases 1
DOUGLAS, L. A. (with P. M. MALLA), Problems in Identification of Montmorillonite and Beidellite 232
DRITS, V. A. (with L. G. DAYNYAK), Interpretation of Mössbauer Spectra of Nontronite, Celadonite, and Glauconite 363
DRITS, V. A. (with T. N. SOKOLOVA, G. V. SOKOLOVA, and V. I. CHERKASHIN), New Members of the Hydrotalcite-Manasseite Group 401
DTA (see Differential thermal analysis)
DTGA (see Differential thermal gravimetric analysis)
DXRD (see Differential X-ray powder diffraction)

E

ECE, O. I., Petrology of the Desmoinesian Excello Shale of the Midcontinent Region of the United States 262
EDX (see Energy-dispersive X-ray analysis)
Effect of Exchangeable Potassium on the Hydraulic Conductivity of Smectite-Sand Mixtures, by I. Shainberg, R. Keren, N. Alperovitch, and D. Goldstein 305
Effect of Manganese on the Transformation of Ferrihydrite into Goethite and Jacobsite in Alkaline Media, by R. M. Cornell and R. Giovanoli 11
Effect of Saturating Cation, pH, and Aluminum and Iron Oxide on the Flocculation of Kaolinite and Montmorillonite, by Sabine Goldberg and R. A. Glaubig 220
Effect of Silicate Species on the Transformation of Ferrihydrite into Goethite and Hematite in Alkaline Media, by R. M. Cornell, R. Giovanoli, and P. W. Schindler 21
EG (see Ethylene glycol)
EGGLETON, R. A., Noncrystalline Fe-Si-Al-Oxyhydroxides 29
EGGLETON, R. A. (with CHRIS FOUDOULIS and DANE VARKEVISSER), Weathering of Basalt: Changes in Rock Chemistry and Mineralogy 161
EGGLETON, R. A. (with K. L. SMITH and A. R. MILNES), Weathering of Basalt: Formation of Iddingsite 418
EGME (see Ethylene glycol monoethylether)
Electric field gradient
use of, in computer simulation of Mössbauer spectra 363
Electron diffraction (see also Selected-area electron diffraction)
birnessite, saturated with Ca, Ni, Mg, Co, La, Na 271
chlorite, authigenic in Gulf Coast sediments 291
Electron microprobe analysis
analcime, in altered tuff 89
chrysotile, authigenic in debris flow, for Al, Fe, Mg 43
clinochlore, ferroan 129
clinoptilolite 89, 281
clinoptilolite in lignite 281
feldspar, authigenic, in altered tuff 89
iddingsite, Al, Fe, Mg composition 418
illite/smectite, hydrothermal, in altered volcanic glass 111
lizardite, Al, Fe, Mg composition 43
marcasite, in fossilized plant root, in lignite 281
olivine, Al, Fe, Mg composition 418
opal-CT in lignite, 281
pseudoboehmite 43
pyrite, in lignite 281
smectite clay from weathered pyroxenite 1
vermiculite: anilinium intercalate 177
vermiculite, Llano 177
volcanic glass 89
Element mobilization
as related to density in weathered basalt 161
Energy-dispersive X-ray analysis (EDX)

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

bentonite, smectite 241
berthierine 241
chlorite 241, 291
clinoptilolite 281
iddingsite, in weathered olivine 418
illite 241
kaolinite, authigenic 291
marcasite 281
natroalunite 196
opal-CT 181
ESSENE, E. J. (with Y.-C. YAU, D. R. PEACOR, J. H. LEE, L.-C. KUO, and M. A. COSCA), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241
Ethylene glycol monoethyl ether (EGME)
in micropores of expandable palygorskite 473
in montmorillonite, molecular conformation, orientation in interlayer region, surface area 60
-montmorillonite complex, ATR, IR 60
Expandable layers
of palygorskite, EGME positions in micropores 473
percentage in illite/smectite as function of fixed K 111
Expandable Palygorskite from the Cretaceous-Tertiary Boundary, Mangyshlak Peninsula, U.S.S.R., by J. D. Jeffers and R. C. Reynolds, Jr. 473
Extended X-ray absorption fine-structure spectroscopy (EXAFS)
Ni-talc, from weathered pyroxenite 1
nontronite, from weathered pyroxenite 1
smectite, from weathered pyroxenite 1
structural positions of ions in phyllosilicates by 1

F

Fabric (see also Texture)
book review, *Clay Microstructure,* by R. H. Bennett and M. H. Hulbert 400
tactoid, particle arrangement in vertisol clay suspensions 311
Feldspar (see also individual minerals)
in altered tuffs, electron microprobe analysis 89
Ferrihydrite
in lake sediments, DXRD, Mössbauer spectroscopy 297
Mn-containing, synthesis 11
Mn-containing, transformation to Mn-goethite, jacobsite, Mn-hematite, phyllomanganate 11
noncrystalline Fe-Si-Al oxyhydroxides, chemical analysis, TEM, morphology 29
transformation to goethite, hematite, effect of silicate species in solution 21
Ferromagnetic coupling
associated with intervalence electron transfer, mechanism 373
Fiber
chrysotile, authigenic, formation in debris flows 43
chrysotile, authigenic, DTA, IR, TEM, XRD, electron microprobe analysis 43
imogolite, morphology by TEM 379
FLETCHER, R. A. (with D. M. BIBBY), Synthesis of Kenyaite and Magadiite in the Presence of Various Anions 318
Flocculation
critical coagulation concentration 220
dispersion of noncrystalline Al, Fe oxides, kaolinite, montmorillonite, effect of pH 220
kaolinite, effect of cation, pH, Al, Fe oxides 220
montmorillonite, effect of cation, pH, Al, Fe oxides 220
Fluorapatite (see Apatite)
Fluorhectorite (see Hectorite)
FLYNN, J. J. (with C. BREEN and A. T. DEANE), Vapor-Phase Sorption Kinetics for Tetrahydrofluran, Tetrahydropan, and 1,4-Dioxan by Al^{3+}- and Cr^{3+}-Exchanged Montmorillonite 343
FLYNN, J. J. (with C. BREEN, A. T. DEANE, and D. REYNOLDS), Vapor-Phase Sorption Kinetics for Methanol, Propan-2-ol, and 2-Methylpropan-2-ol on Al^{3+}-, Cr^{3+}-, and Fe^{3+}-Exchanged Montmorillonite 336
FOORD, E. E. (with H. C. STARKEY, J. E. TAGGERT, JR., and D. R. SHAWE), Reassessment of the Vokonskoite-Chromian Smectite Nomenclature Problem 139
FOUDOULIS, CHRIS (with R. A. EGGLETON and DANE VARKEVISSER), Weathering of Basalt: Changes in Rock Chemistry and Mineralogy 161
Fourier analysis
corrensite, one-dimensional 150
difference, vermiculite-anilinium intercalate 177
Fourier-Transform Infrared Study of Ethylene Glycol Monoethyl Ether Adsorbed on Montmorillonite: Implications for Surface Area Measurements of Clays, by T. T. Nguyen, M. Raupach, and L. J. Janik 60
FRIPIAT, J. J. (with D. PLEE and L. GATINEAU), Pillaring Processes of Smectites With and Without Tetrahedral Substitution 81
FRIPIAT, J. J. (with A. SCHUTZ, W. E. E. STONE, and G. PONCELOT), Preparation and Characterization of Bidimensional Zeolitic Structures Obtained from Synthetic Beidellite and Hydroxy-Aluminum Solutions 251
Fundamental Nature of Illite/Smectite Mixed-Layer Clay Particles, The: A Comment on Papers by P. H. Nadeau and Coworkers, by I. D. R. Mackinnon 74
Fundamental Nature of Interstratified Illite/Smectite Clay Particles, The: A Reply, by P. H. Nadeau, M. J. Wilson, W. J. McHardy, and J. M. Tait 77

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Fundamental particles
illite/smectite, interpretation of, XRD, TEM 74, 77
Further Consideration of the ^{29}Si Nuclear Magnetic Resonance Spectrum of Kaolinite, by J. G. Thompson and P. F. Barron 38
FURUKAWA, YUKIO (with YUKO SOMA, MITSUYUKI SOMA, and ISSEI HARADA), Reactions of Thiophene and Methylthiophenes in the Interlayer of Transition-Metal Ion-Exchanged Montmorillonite Studied by Resonance Raman Spectroscopy 53

G

Gaines-Thomas selectivity coefficient
Na-K-Ca exchange on smectite 68
Gapon selectivity coefficient
effect of exchangeable K on hydraulic conductivity of smectite-sand mixtures 305
Na-K-Ca exchange on smectite 68
GATINEAU, L. (with D. PLEE and J. J. FRIPIAT), Pillaring Processes of Smectites With and Without Tetrahedral Substitution 81
Gels
Fe-Si-Al oxyhydroxide, noncrystalline, morphology, TEM, chemical analysis 29
Gibbsite
associated with imogolite synthesis 379
morphology, TEM 379
GIOVANOLI, R. (with R. M. CORNELL), Effect of Manganese on the Transformation of Ferrihydrite into Goethite and Jacobsite in Alkaline Media 11
GIOVANOLI, R. (with R. M. CORNELL and P. W. SCHINDLER), Effect of Silicate Species on the Transformation of Ferrihydrite into Goethite and Hematite in Alkaline Media 21
Glass (see also Volcanic ash)
basaltic, hydrothermal alteration to smectite 241
limburgitic, noncrystalline Fe-Si-Al oxyhydroxides in, chemical analysis 29
GLAUBIG, R. A. (with SABINE GOLDBERG), Effect of Saturating Cation, pH, and Aluminum and Iron Oxide on the Flocculation of Kaolinite and Montmorillonite 220
Glauconite
Fiji, Francosia, composition 170
iron substitution in 170
Mössbauer spectroscopy 170, 363
Mössbauer spectroscopy, computer simulation of 363
structural formula 363
Goethite
crystallinity, effect of silica on 21
formation from ferrihydrite, effect of silicate species in solution 21
in lake sediments, Al-substitution, iron content, dissolution rate, IR, DTA, Mössbauer spectroscopy 297
in lake sediments, DXRD, unit-cell parameters 297
in weathered basalt 161
in weathered olivine, TEM, AEM, oxidation of iron, SEM, morphology 418
Mn-containing, from Mn-ferrihydrite, XRD, TEM 11
photochemical dissolution, effects of oxalate concentration, pH, Al substitution, surface area 347
synthetic, formed from ferrihydrite, TEM, SEM 21
TEM 11, 21
GOLDBERG, SABINE (with R. A. GLAUBIG), Effect of Saturating Cation, pH, and Aluminum and Iron Oxide on the Flocculation of Kaolinite and Montmorillonite 220
GOLDEN, D. C. (with C. C. CHEN and J. B. DIXON), Transformation of Birnessite to Buserite, Todorokite, and Manganite under Mild Hydrothermal Treatment 271
GOLDSTEIN, D. (with I. SHAINBERG, R. KEREN, and N. ALPEROVITCH), Effect of Exchangeable Potassium on the Hydraulic Conductivity of Smectite-Sand Mixtures 305
Greene-Kelly test
identification of montmorillonite and beidellite, problems 232
GULDMAN, S. G. (with R. L. HAY), Diagenetic Alteration of Silica Ash in Searles Lake, California 449
GÜVEN, NECIP (with D. V. CHITALE), Natroalunite in a Laterite Profile over Deccan Trap Basalts at Matanumad, Kutch, India 196

H

Halloysite
in hydrothermal kaolin deposit, morphology, SEM, XRD 321
in weathered basalt 161
in weathered cordierite, TEM 29
in weathered olivine, SEM, TEM, AEM, morphology 418
HARADA, ISSEI (with YUKO SOMA, MITSUYUKI SOMA, and YUKIO FURAKAWA), Reactions of Thiophene and Methylthiophenes in the Interlayer of Transition-Metal Ion-Exchanged Montmorillonite Studied by Resonance Raman Spectroscopy 53
HAY, R. L. (with S. G. GULDMAN), Diagenetic Alteration of Silica Ash in Searles Lake, California 449
Heavy liquid separation
clinoptilolite in soils 469
Hectorite
cross-linked, exchange with hydroxy-SiAl, synthesis, basal spacings, surface area, structure, thermal stability 429

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

SHCa-1, alkylammonium exchanged, CEC reduction, Li-retention 440
SHCa-1, structural formula, basal spacings, layer charge 440
structural formula 429
synthesis 429
Hematite
ellipsoidal, TEM 21
Mn-containing, synthesis from Mn-ferrihydrite, TEM 11
synthetic, from ferrihydrite, effect of silicate species in solution 21
Herbicide
quinoline adsorption on montmorillonite 121
HERBILLON, A. (with A. DECARREAU, F. COLIN, A. MANCEAU, D. NAHON, H. PAQUET, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
Heulandite
in altered tuff 89
Hexylammonium
-exchanged montmorillonite, basal spacing 232
High-pressure liquid chromatography (HPLC)
resolution of amino acid optical isomers using montmorillonite-Cu-l-lysine complex 391
High-resolution transmission electron microscopy (HRTEM)
noncrystalline Fe-Si-Al oxyhydroxides, morphology 29
todorokite, natural, Montenegro Mine, Cuba 271
Hisingerite
chemical analysis, TEM, morphology 29
Hofmann-Klemen effect
reduction of octahedral layer charge, Li retention in smectite 440
Hollandite
space group, structural formula, unit-cell parameters 271
HOLTZAPFFEL, THIERRY (with MICHEL STEINBERG and MICHEL RAUTUREAU), Characterization of Overgrowth Structures Formed around Individual Clay Particles during Early Diagenesis 189
HOSSNER, L. R. (with A. L. SENKAYI, D. W. MING, and J. B. DIXON), Kaolinite, Opal-CT, and Clinoptilolite in Altered Tuffs Interbedded with Lignite in the Jackson Group, Texas 281
HPLC (see High-pressure liquid chromatography)
HRTEM (see High-resolution transmission electron microscopy)
HULBERT, M. H., Sodium, Calcium, and Ammonium Exchange on Clinoptilolite from the Fort LaClede Deposit, Sweetwater County, Wyoming 458
Hydraulic conductivity
charge density, effects of 305
Hydrazine
adsorbed on kaolinite, XRD, NMR 38
smectite-sand mixtures, effect of salinity, exchangeable Na, K 305
Hydrogen
bonding in kaolinite, NMR, effects of stacking faults 38
position in kaolinite 237
. . .Si distances in kaolinite 38
Hydrotalcite
CO_3-, XRD, density, unit-cell parameters, structural formula, SEM, nomenclature 401
CO_3-SO_4-, unit-cell parameters, nomenclature 401
-manasseite group, nomenclature, SEM 401
SO_4-, XRD, density, unit-cell parameters, structural formula, SEM, nomenclature, structure 401
Hydrothermal
alteration, birnessite, transformation to buserite, todorokite, manganite 271
alteration, corrensite, formation from phlogopite 150
alteration, illite/berthierine, formation from illite 241
alteration, illite/chlorite, formation from basalt and bentonite, TEM 241
alteration, illite/smectite, formation from basalt 241
alteration, stability of smectite, illite 241
alteration, wairakite, formation from basalt and bentonite 241
Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals, by Y.-C. Yau, D. R. Peacor, E. J. Essene, J. H. Lee, L.-C. Kuo, and M. A. Cosca 241
Hydroxides
Al, Fe, noncrystalline 228
Hydroxy-Al
beidellite, pillared with, IR, NMR, basal spacings, surface area, CEC, acid sites 251
pillaring of smectites 81, 251
silico-, oligocations in cross-linked smectites, synthesis, structure, thermal stability 429
structure 251
Hydroxyl
interatomic distances, angles in clinochlore 129

I

Iddingsite
olivine, weathering of, petrography, chemical composition, SEM, TEM, EDX, AEM 418
Identification
chlorite, kaolinite, use of back-scattered electron images, EDX, crystal morphology 291
iron oxides, use of DXRD 297

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

montmorillonite and beidellite, problems with the Greene-Kelly test 232
Illite
beidellite overgrowths on, during early diagenesis, TEM, EDX, XRD 189
berthierine, hydrothermal alteration of basalt, bentonite to, TEM, EDX 241
/chlorite, hydrothermal alteration of basalt, bentonite to, TEM, EDX 241
distribution Excello black shale 262
hydrothermal alteration 124
iron substitution in 170
mechanism of formation 111
Mössbauer spectra 170
stability under hydrothermal conditions 241
Illite/smectite
by hydrothermal alteration of basalt 241
errors associated with particle thickness determination by TEM 74, 77
fundamental particles 74, 77
in hydrothermal kaolin, morphology, SEM, XRD 321
in hydrothermally altered volcanic glass, TEM, XRD, AEM, chemical composition 111
source of iron for chlorite authigenesis, Gulf Coast sediments 291
underclays in Pennsylvanian Excello black shale sequence 262
Imogolite
fibrous morphology, TEM, IR 379
synthesis 379
Imogolite Synthesis at 25°C, by Shin-ichiro Wada 379
Influence of Relative Humidity on the Reaction Products of Phosphates and Noncrystalline Hydroxides of Aluminum and Iron, by M. Nanzyo 228
Infrared spectroscopy (IR)
beidellite, hydroxy-Al pillared 251
birnessite, saturated with Ca, Mg, Co, Ni 271
celadonite 363
chrysotile, authigenic 43
corrensite 150
diffuse-reflectance, of phosphates 228
EGME 60
EGME-montmorillonite complex, ATR, transmission IR, diffuse-reflectance IR-Fourier transform spectroscopy 60
goethite, in lake sediments 297
hydroxy-Al pillared beidellite 251
imogolite, synthetic, natural 379
kaolin, hydrothermal, different particle sizes 321
kaolin, sedimentary, different particle sizes 321
kaolinite 203, 321
kaolinite : DMSO intercalate 208
kaolinite : DMSeO intercalate 208
pseudoboehmite 43
smectite, function of dehydroxylation, dehydration, 1
thiophenes adsorbed on Cu,Fe-montmorillonite 53
todorokite, natural 271
INOUE, ATSUYUKI (with NORIHIKO KOHYAMA, RYUJI KITAWAGA, and TAKASHI WATANABE), Chemical and Morphological Evidence for the Conversion of Smectite to Illite 111
Interatomic distances
clinochlore, ferroan, hydroxyls in 129
interlayer atoms, surface oxygen in kaolinite: DMSO intercalate 208
interlayer atoms, surface oxygen in kaolinite: DMSeO intercalate 208
vermiculite, silicate-layer atoms 177
Intercalation
Al-polyhydroxypolymers with smectites 81
anilinium ions with vermiculite 177
beidellite, hydroxy-Al with 251
benzidine, with vermiculite 203
DMSO, DMSeO with kaolinite 208
kaolinite : hydrazine, induced-stacking faults, XRD, NMR 38
Interlayer
cation, effect on flocculation of kaolinite, montmorillonite 220
cation, effect of basal spacing, layer stacking of vermiculite and saponite 353
EGME, configuration in montmorillonite 60
hydrotalcite, carbonate, sulfate in 401
manasseite, carbonate in 401
octahedra, structure in ferroan clinochlore 129
thiophenes, polymerization in Cu,Fe-montmorillonite, IR, Raman spectroscopy 53
water, in vermiculite : anilinium intercalate 177
International Clay Conference
Denver 1985, proceedings, publication of 160
Interpretation of Mössbauer Spectra of Nontronite, Celadonite, and Glauconite, by L. G. Daynyak and V. A. Drits 363
Interstratification
CO_3-SO_4-hydrotalcite, unit-cell parameters, basal spacings, XRD 401
corrensite, XRD, DTA, TGA, SEM, electron microprobe analysis, structural formula, IR 150
determination of, by XRD 111
illite/berthierine, by hydrothermally alteration of illite, TEM, EDX 241
illite/chlorite, by hydrothermal alteration of basalt and bentonite, TEM 241
illite/smectite determination by TEM, XRD 74, 77
illite/smectite, by hydrothermal alteration of basalt 241
illite/smectite in hydrothermal alteration zones 111

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

illite/smectite, nature of fundamental particles of 74, 77
smectite/chlorite, by hydrothermal alteration of phlogopite 150
Intervalence Electron Transfer and Magnetic Exchange in Reduced Nontronite, by P. R. Lear and J. W. Stucki 373
Intervalence electron transfer
ferromagnetic coupling mechanism 373
iron in nontronite, UV-visible spectroscopy 373
IR (see Infrared spectroscopy)
Iron
distribution in phyllosilicates 170
distribution in vermiculite 203
extractable, effects on clay tactoid volume, optical density of vertisol clay suspensions 311
ferrihydrite, lake sediments, DXRD, Mössbauer spectroscopy 297
ferromagnetic coupling mechanism 373
goethite, Al-substituted, lake sediments, DXRD, Mössbauer spectroscopy, unit-cell parameters, DTA 297
hydroxide, noncrystalline, reaction with phosphates, effect of RH 228
-montmorillonite, alcohol adsorption rates, basal spacings 336
-montmorillonite, polymerization of thiophene in interlayer region 53
Mössbauer spectroscopy 170, 203, 297, 363
nontronite, reduced, magnetic susceptibility, Curie constant, Curie-Weiss temperature, UV-VIS spectroscopy 373
octahedral distribution in nontronite, celadonite, glauconite 363
oxidation during weathering of olivine, formation of goethite 418
oxidation state, effect on intervalence electron transfer of nontronite 373
oxide, effect on flocculation of kaolinite, montmorillonite 220
oxide, lake sediments, chemical composition, DXRD, Mössbauer spectroscopy, unit-cell parameters, volume, particle size, DTA 297
oxyhydroxide, dissolution rates, effects of surface area, pH, oxalate concentration, Al substitution 347
reduced, mechanism of dissolution in oxalate solution 347
-rich beidellite in vertisols, structural formula, sediment volume, optical density, UV adsorption 311
-rich chlorite, TEM, EDX, electron diffraction, back-scattered electron image 291
-Si-Al oxyhydroxides, noncrystalline, chemical analysis, TEM, morphology 29
sources, for authigenic chlorite in Gulf Coast sediments 291
substitution in montmorillonite, illite, glauconite 170
Iron Substitution in Montmorillonite, Illite, and Glauconite by ^{57}Fe Mössbauer Spectroscopy, by J. H. Johnston and C. M. Cardile 170
Isomers (see also Optically active ligands)
optical, amino acid, adsorption on montmorillonite-Cu-l-lysine complex 391
resolution by HPLC 391
Isotherm
adsorption, quinoline on Na-montmorillonite 121

J

Jacobsite
Mn-containing, from Mn-ferrihydrite, synthesis, TEM, XRD 11
JANIK, L. J. (with T. T. NGUYEN and M. RAUPACH), Fourier-Transform Infrared Study of Ethylene Glycol Monoethyl Ether Adsorbed on Montmorillonite: Implications for Surface Area Measurements of Clays 60
JAYNES, W. F. (with J. M. BIGHAM), Charge Reduction, Octahedral Charge, and Lithium Retention in Heated, Li-Saturated Smectites 440
JEFFERS, J. D. (with R. C. REYNOLDS, JR.), Expandable Palygorskite from the Cretaceous-Tertiary Boundary, Mangyshlak Peninsula, U.S.S.R. 473
JOHNSTON, J. H. (with C. M. CARDILE), Iron Substitution in Montmorillonite, Illite, and Glauconite by ^{57}Fe Mössbauer Spectroscopy 170

K

K-feldspar
alteration of volcanic ash to 449
K-fixation
in illite/smectite, effect on expandable layers 111
Kaolin (see also Kaolinite)
alunite in 321
dickite in 321
halloysite in, morphology, SEM 321
hydrothermal, SEM, XRD, IR, DTA, semiquantitative mineralogy 321
illite/smectite in, morphology, SEM 321
kaolinite crystal in, morphology, different particle sizes 321
mineralogy, semiquantitative 321
sedimentary, SEM, XRD, IR, DTA 321
thermal analysis 429
Kaolinite (see also Kaolin)
altered volcanic tuff, XRD, petrology 281
authigenic, Gulf Coast sediments, replacement by chlorite 291
bond lengths, angles 33
chemical composition 38
critical coagulation concentration 220
crystal structure 237

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

crystallinity 321
distribution, Excello black shale 262
: DMSeO intercalate, XRD, IR, NMR, unit-cell dimensions, synthesis, structure 203
: DMSO intercalate, XRD, IR, NMR, unit-cell dimensions, synthesis, structure 203
flocculation-dispersion behavior, effect of pH, cation, Al, Fe oxides 220
hydrazine-treated, XRD, NMR 38
hydrogen bonding in 38
hydrothermal, sedimentary, XRD, SEM 321
in saprolites 196
intercalate with DMSO, DMSeO 208
morphology 291, 321
NMR 38
position of hydrogen in 237
replacement of, by natroalunite, SEM 196
SAD 237
SEM, morphology 196, 321
stacking faults, NMR, XRD 38
XRD 38, 281, 321
Kaolinite, Opal-CT, and Clinoptilolite in Altered Tuffs Interbedded with Lignite in the Jackson Group, Texas, by A. L. Senkayi, D. W. Ming, J. B. Dixon, and L. R. Hossner 281
KELLER, W. D. (with GIANNI LOMBARDI and J. D. RUSSELL), Composition and Structural Variations in the Size Fractions of a Sedimentary and a Hydrothermal Kaolin 321
KELSEY, P. I. (with D. CRAW and C. A. LANDIS), Authigenic Chrysotile Formation in the Matrix of Quaternary Debris Flows, Northern Southland, New Zealand 43
Kenyaite
chemical composition, XRD 318
conversion to quartz 318
-magadiite stability field diagram 318
synthesis, effect of anions 318
KEREN, R. (with I. SHAINBERG and N. I. ALPEROVITCH), Charge Density and Na-K-Ca Exchange on Smectites 68
KEREN, R. (with I. SHAINBERG, N. ALPEROVITCH, and D. GOLDSTEIN), Effect of Exchangeable Potassium on the Hydraulic Conductivity of Smectite-Sand Mixtures 305
Kinetics
goethite, photochemical dissolution, effects of pH, oxalate concentration, Al-substitution, surface area 347
lepidocrocite, dissolution 347
rate of alcohol sorption on montmorillonite, effects of temperature, particle size, interlayer cation 336
sorption of cyclic ethers on montmorillonite, effects of cation 343
KITAWAGA, RYUJI (with ATSUYUKI INOUE, NORIHIKO KOHYAMA, and TAKASHI WATANABE), Chemical and Morphological Evidence for the Conversion of Smectite to Illite 111
KODAMA, H. (with C. R. DE KIMPE, N. MILES, and J. DEJOU), Alteration of Phlogopite to Corrensite at Sharbot Lake, Ontario 150
KOHYAMA, NORIHIKO (with ATSUYUKI INOUE, RYUJI KITAWAGA, and TAKASHI WATANABE), Chemical and Morphological Evidence for the Conversion of Smectite to Illite 111
KOMARNENI, SRIDHAR (with ELSE BREVAL, MICHIHIRO MIYAKE, and RUSTUM ROY), Cation-Exchange Properties of (Al + Na)-Substituted Synthetic Tobermorites 385
KRINSLEY, D. H. (with J. H. BURTON and K. PYE), Authigenesis of Kaolinite and Chlorite in Texas Gulf Coast Sediments 291
KUO, L.-C. (with Y.-C. YAU, D. R. PEACOR, E. J. ESSENE, J. H. LEE, and M. A. COSCA), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241

L

LANDIS, C. A. (with D. CRAW and P. I. KELSEY), Authigenic Chrysotile Formation in the Matrix of Quaternary Debris Flows, Northern Southland, New Zealand 43
Laterite
formed from pyroxenite, phyllosilicates in 1
mineral distribution in 1, 196
natroalunite in, replacement of, by kaolinite 196
natroalunite in, SEM, EDX, chemical composition 196
profiles above weathered basalt 196
Layer charge
beidellite 232, 440
effect on interlayer space structure, layer stacking 353
montmorillonite 232, 440
nontronite 232, 440
octahedral, reduction in smectites by Li-uptake, Hofmann-Klemen effect 440
saponite, effect on layer stacking 353
vermiculite, effect on layer stacking 353
Layer stacking
saponite, effects of interlayer cation, RH 353
vermiculite, effects of interlayer cation, RH, layer charge 353
LEAR, P. R. (with J. W. STUCKI), Intervalence Electron Transfer and Magnetic Exchange in Reduced Nontronite 373
LEE, J. H. (with Y.-C. YAU, D. R. PEACOR, E. J. ESSENE, L.-C. KUO, and M. A. COSCA), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Lepidocrocite
dissolution, rate 347
Lignite
fossilized plant roots in, SEM, electron microprobe analysis 281
stratigraphy, interbedded with volcanic tuff 281
Limburgite glass
noncrystalline Fe-Si-Al oxyhydroxides in, chemical analysis 29
Limestone
concretions in Excello black shale 262
Lithium
retention by smectites, Hofmann-Klemen effect, octahedral layer charge, CEC reduction 440
saturation of smectite in the Greene-Kelly test, swelling 232, 440
Lizardite
Al-Fe-Mg composition, electron microprobe analysis 43
replacement by chrysotile, petrography 43
XRD 43
Llano vermiculite
CMS source clay VTx-1 177, 440
electron microprobe analysis 177
LOMBARDI, GIANNI (with J. D. RUSSELL and W. D. KELLER), Composition and Structural Variations in the Size Fractions of a Sedimentary and a Hydrothermal Kaolin 321

M

MACKINNON, I. D. R., Fundamental Nature of Illite/Smectite Mixed-Layer Clay Particles, The: A Comment on Papers by P. H. Nadeau and Coworkers 74
Magadiite
-kenyaite, stability field diagram 318
synthesis, effect of anions 318
XRD 318
Magnetic susceptibility
nontronite, unaltered and reduced, Curie-Weiss temperatures, Curie constants 373
MALLA, P. M. (with L. A. DOUGLAS), Problems in Identification of Montmorillonite and Beidellite 232
Manasseite
CO_3-, XRD, unit-cell parameters, chemical composition, structure, nomenclature 401
chemical composition, XRD, density, structural formula, unit-cell parameters 401
-hydrotalcite group, SEM, nomenclature 401
MANCEAU, A. (with A. DECARREAU, F. COLIN, A. HERBILLON, D. NAHON, H. PAQUET, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
Manganese
birnessite, chemical analysis, structural formula, synthesis 271
birnessite, space group, formula, unit-cell parameters, electron diffraction, IR, XRD, TEM 271
cryptomelane, space group, structural formula, unit-cell parameters 271
effect on Mn on transformation of ferrihydrite to Mn-goethite, Mn-hematite, jacobsite 11
ferrihydrite, Mn-, synthesis 11
hollandite, space group, structural formula, unit-cell parameters 271
manganite, space group, structural formula, unit-cell parameters 271
7-Å manganite, space group, formula, unit-cell parameters, electron diffraction, IR, XRD, TEM 271
7-Å manganite, chemical analysis, structural formula, synthesis 271
synthesis of birnessite, 7-Å manganite 271
synthesis of Mn-ferrihydrite 11
todorokite, IR, chemical analysis, structural formula, space group, unit-cell parameters, HRTEM 271
Manganite
hydrothermal transformation of birnessite to 271
7-Å (birnessite), space group, unit-cell parameters, SEM, TEM, IR, XRD, electron diffraction 271
7-Å (birnessite), synthesis, chemical analysis, structural formula 271
space group, structural formula, unit-cell parameters 271
Marcasite
EDX spectrum 281
in fossilized root, interbedded lignite/altered tuff, SEM, electron microprobe 281
MARTIN, R. T., book review, *Clay in Engineering Geology*, 2nd ed., by J. E. Gillott 477
Mass transfer
sorption of alcohols on montmorillonite, effects of particle size, temperature, cation 336
MCHARDY, W. J. (with P. H. NADEAU, M. J. WILSON, and J. M. TAIT), Fundamental Nature of Interstratified Illite/Smectite Clay Particles, The: A Reply 77
Meeting announcement
Euroclay '87 239
24th annual meeting, The Clay Minerals Society 240
Merlinoite
in tuff, alteration of 449
Micropores
expandable palygorskite, sites in, EGME positions in 473
MILES, N. (with C. R. DE KIMPE, H. KODAMA, and J. DEJOU), Alteration of Phlogopite to Corrensite at Sharbot Lake, Ontario 150
MILNES, A. R. (with K. L. SMITH and R. A. EGGLETON),

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Weathering of Basalt: Formation of Iddingsite 418
Mineralogy
altered tuff, Jackson Group, Texas, XRD 281
black shale, clay distribution 262
diagenetic, Yucca Mountain tuffs 89
iron oxide, lake sediments, DXRD, chemical composition 297
kaolin, sedimentary, XRD 321
phosphate nodules, Excello black shale 262
semi-quantitative, XRD, hydrothermal kaolin 321
silicate, of altered volcanic ash 449
soils, quantitative determination of clinoptilolite in, CEC, Na^+-tertbutyl-ammonium exchange 463
vertisols, clay in 311
vertisols, Fe-beidellite-rich 305
MING, D. W. (with J. B. DIXON), Quantitative Determination of Clinoptilolite in Soils by a Cation-Exchange Capacity Method 463
MING, D. W. (with J. B. DIXON), Technique for the Separation of Clinoptilolite from Soils 469
MING, D. W. (with A. L. SENKAYI, J. B. DIXON, and L. R. HOSSNER), Kaolinite, Opal-CT, and Clinoptilolite in Altered Tuffs Interbedded with Lignite in the Jackson Group, Texas 281
MINGELGRIN, URI (with FAINA TSVETKOV), Optically Selective Adsorption of α-Amino Acids on Montmorillonite-Cu-l-Lysine Complexes in High-Pressure Liquid Chromatography 391
Mixed-layering (see also Interstratification)
hydrotalcite-manasseite group, nomenclature, structural formulae 401
MIYAKE, MICHIHIRO (with SRIDHAR KOMARNENI, ELSE BREVAL, and RUSTUM ROY), Cation-Exchange Properties of (Al + Na)-Substituted Synthetic Tobermorites 385
Mössbauer spectroscopy
bendzidine-vermiculite intercalate 203
celadonite, computer simulation of 363
ferrihydrite, in lake sediments 297
glauconite 170, 363
glauconite, computer simulation of 363
goethite, in lake sediments 297
illite 170
iron oxides in lake sediments 297
montmorillonite 70
nontronite, computer simulation of 363
smectite, Ni-Fe-Mg-containing, from weathered pyroxenite 1
vermiculite-benzidine intercalate 203
volkonskoite, chromian smectites 139
Molecular configuration
EGME, liquid 60
EGME on montmorillonite, surface area 60
Montmorillonite (see also Bentonite, Smectite)
adsorption of quinoline on 121
Al-, Cr-, cyclic ether adsorption rates, basal spacing 343
Al-, Cr-, Fe-, alcohol adsorption rates, basal spacing 336
basal spacing, alkylammonium exchanged 440
beidellite, overgrowths on, TEM, chemical analysis 189
CEC reduction, Li-retention 440
chemical composition 139
chromian, XRD, chemical composition 139
critical coagulation concentration 220
cross-linked, hydroxy-SiAl complex, basal spacings, chemical composition, surface area, synthesis, structural formula 429
Cu^{2+}-Fe^{3+}-, adsorption of thiophene and polymerization in the interlayer region, IR, Raman spectroscopy 53
-Cu-l-lysine complex, use in HPLC to separate optical isomers of amino acids, basal spacing 391
differentiation from beidellite, Greene-Kelly test, alkylammonium exchange 232
EGME complex, IR, ATR, diffuse-reflectance IR-Fourier transform spectroscopy 60
flocculation-dispersion behavior, effect of cation, pH, Al, Fe oxides 220
hydroxy-Al pillared, XRD, basal spacings, surface area, porosity 81
identification, problems, Greene-Kelly test 232
iron substitution in 170
layer charge 440
Li-saturated, exchanged with alkyl-, hexyl-, dodecylammonium ions, basal spacings 232
Mössbauer spectra 170
pillared, hydroxy-SiAl complex 429
structural formula 440
Mordenite
in altered tuffs, Yucca Mountain, Nevada 89
Morphology
allophane, TEM 29
chrysotile, authigenic, fibers, TEM 43
clinoptilolite, coffin-shaped, altered volcanic tuff 281
epidermal cells of fossilized plant root 281
ferrihydrite, TEM 21
gibbsite, platy hexagonal, TEM 379
goethite, diamond, TEM 418
goethite, formed from ferrihydrite, psuedo hexagonal, rod-shaped, TEM 21
goethite, Mn-containing 11
goethite, TEM 11, 21, 418
halloysite, hemisphere, SEM 418
halloysite, SEM 321, 418
halloysite, spherical, TEM 29
hematite, ellipsodial, formed from ferrihydrite, TEM 21

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

hematite, Mn-containing, TEM 11
hisingerite, spherical, TEM 29
iddingsite, lamellar, TEM 418
illite/smectite, SEM 321
illite/smectite, TEM 111
imogolite, fibers 379
jacobsite, TEM 11
kaolinite, SEM 291, 321
kaolinite, vermicular, back-scattered electron image 291
noncrystalline Fe-Si-Al oxyhydroxides, spherical, TEM 29
opal-CT lepispheres, altered volcanic tuff 281
phosphate nodules, distribution in Excello black shale 262
pyrite, framboidal, back-scattered electron image 291
pyrite, octahedron, in lignite 281
tobermorite, TEM 385
MURAD, ENVER, book review, *The Chemistry of Weathering*, edited by J. I. Drever 80
MURAD, ENVER (with U. SCHWERTMANN and L. CARLSON), Properties of Iron Oxides in Two Finnish Lakes in Relation to the Environment of their Formation 297
Muscovite
red, Sagn, Norway, structural formula 363

N

NADEAU, P. H. (with M. J. WILSON, W. J. MCHARDY, and J. M. TAIT), Fundamental Nature of Interstratified Illite/Smectite Clay Particles, The: A Reply 77
NAHON, D. (with A. DECARREAU, F. COLIN, A. HERBILLON, A. MANCEAU, H. PAQUET, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
NANZYO, M., Influence of Relative Humidity on the Reaction Products of Phosphates and Noncrystalline Hydroxides of Aluminum and Iron 228
Natroalunite
replacement of kaolinite in laterite 196
XRD, unit-cell dimensions, EDX, structural formula, SEM 196
Natroalunite in a Laterite Profile over Deccan Trap Basalts at Matanumad, Kutch, India, by D. V. Chitale and Necip Güven 196
Natrolite
in saprolite, SEM, chemical composition, EDX 196
New Members of the Hydrotalcite-Manasseite Group, by V. A. Drits, T. N. Sokolova, G. V. Sokolova, and V. I. Cherkashin 401
NGUYEN, T. T. (with M. PAUPACH and L. J. JANIK), Fourier-Transform Infrared Study of Ethylene Glycol Monoethyl Ether Adsorbed on Montmorillonite: Implications for Surface Area Measurements of Clays 60
Nickle
-talc, EXAFS 1
-smectites, domain segregation in 1
NMR (see Nuclear magnetic resonance)
Nodules
phosphate, diagenetic replacement of limestone 262
phosphate, formation of, in Excello black shale 262
phosphate, morphology 262
Nomenclature
CO_3-hydrotalcite 401
CO_3-manasseite 401
CO_3-SO_4-hydrotalcite 401
hydrotalcite-manasseite group 401
montmorillonite, Cr- vs. volkonskoite 139
SO_4-hydrotalcite 401
volkonskoite, problems with 139
Noncrystalline
Al, Fe hydroxides, in preparation of Al phosphate 228
allophane, chemical analysis, TEM 29
cordierite, weathered, chemical analysis, TEM 29
Fe-Si-Al oxyhydroxides, morphology, chemical analysis, TEM 29
ferrihydrite, chemical analysis, TEM 29
hisingerite, chemical analysis, TEM 29
limburgite, chemical analysis 29
pisolite, lateritic, chemical analysis, TEM 29
plagioclase, weathered, TEM 29
Noncrystallione Fe-Si-Al-Oxyhydroxides, by R. A. Eggleton 29
Nontronite
alkylammonium exchanged, basal spacing 232
atomic positions in unit-cell 363
CEC reduction, Li-retention 440
chromian, chemical composition 139
CMS source clay, NG-1 440
CMS source clay, SWa-1 373, 440
EXAFS 1
layer charge 232, 440
magnetic susceptibility, Curie constant, Curie-Weiss temperature, UV-VIS spectroscopy 373
Mg-, K-, Li-saturated, basal spacing 232
Mössbauer spectroscopy, computer simulation of, electric field gradient calculations 363
octahedron distribution of Fe in 363
structural formula 363, 373, 440
Nuclear Magnetic Resonance, Infrared, and X-ray Powder Diffraction Study of Dimethylsulfoxide and Dimethylselenoxide Intercalates with Kaolinite, by M. Raupach, P. F. Barron, and J. G. Thompson 208

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Nuclear magnetic resonance (NMR)
beidellite, H- 251
beidellite, hydroxy-Al pillared 81, 251
kaolinite : DMSeO intercalate 208
kaolinite : DMSO intercalate 208
kaolinite : hydrazine complex, with stacking faults 38
pillared smectites 81, 251
Nuclear wastes
hydrothermal stability of smectite, illite, basalt, possible repository host materials 241
possible repository site, diagenetic mineral distribution, chemistry, Yucca Mountain, Nevada 89

O

Octahedral
cation positions in ferroan clinochlore, order-disorder 129
layer charge, reduction in smectites, Li-retention, Hofmann-Klemen effect 440
Olivine
alteration to iddingsite, petrology, SEM, TEM 418
chemical composition, electron microprobe analysis, EDX, back-scattered electron image 418
iron oxidation, alteration to goethite 418
1, 4-Dioxan
adsorption on Al-, Cr-montmorillonite 343
Opal
alteration of volcanic ash to 449
-CT, in fossilized root, interbedded lignite, altered tuff, EDX, SEM, electron microprobe 281
-CT, lepisphere morphology 281
Open system
diagenesis of ash-flow tuffs, Yucca Mountain, Nevada 89
Optical absorption spectroscopy
pimelite, in weathered pyroxenite 1
smectite, in weathered pyroxenite 1
stevensite, in weathered pyroxebite 1
Optical Density of Vertisol Clay Suspensions in Relation to Sediment Volumes and Dithionite-Citrate-Bicarbonate-Extractable Iron, by Eyal Ben-Dor and Arieh Singer 311
Optical density
vertisol clay suspensions. effects of sediment volume and extractable iron on 311
Optically active ligands
amino acids, resolution by HPLC using Cu-l-lysine-montmorillonite 391
Optically Selective Adsorption of α-Amino Acids on Montmorillonite-Cu-l-Lysine Complexes in High-Pressure Liquid Chromatography, by Faina Tsvetkov and Uri Mingelgrin 391
Order-disorder
tetrahedral cations in clinochlore 129
trivalent octahedral cations in clinochlore 129
Organic carbon
content, Excello black shale 262
Overgrowths
on illite and smectite 189
Oxalate
anion, effect on goethite dissolution kinetics 347
anion, speciation in solution, effect of pH 347
Oxides
Al, Fe, effect of, on flocculation-dispersion behavior of clays 220
Oxygen
–Si bond lengths in kaolinite 38

P

Palygorskite
expandable, XRD, structure, micropore site, EGME position in 473
PAQUET, H. (with A. DECARREAU, F. COLIN, A. HERBILLON, A. MANCEAU, D. NAHON, D. TRAUTH-BADAUD, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
Parameters
octahedral, ferroan clinochlore 129
positional, kaolinite : DMSeO intercalate 208
positional, kaolinite : DMSO intercalate 208
positional, vermiculite : anilinium intercalate 177
tetrahedral, ferroan clinochlore 129
thermal, atoms in ferroan clinochlore 129
Parameters Influencing Layer Structure Types in Saponite and Vermiculite: A Review, by Helène Suquet and Henri Pézerat 353
Particle size
distributions for Na^+-, Fe^{3+}-, Cr^{3+}-, and Al^{3+}-montmorillonite 336
effect on alcohol adsorption on montmorillonite 336
effect on interlayer space structure of vermiculite and saponite 353
kaolin, effect on XRD crystallinity, SEM morphology, IR, DTA 321
PEACOR, D. R. (with Y.-C. YAU, E. J. ESSENE, J. H. LEE, L.-C. KUO, and M. A. COSCA), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241
Percent transmittance
use of, in determination of critical coagulation concentration 220
Permeability (see Hydraulic conductivity)
Petrography
altered tuff, Jackson Group, kaolin, clinoptilolite, opal-CT in 281

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

altered volcanic ash, smectite, clinoptilolite, analcime in 449
basalt, weathered 161, 418
black shale, textures, sedimentary structures 262
chrysotile, authigenic, replacement of lizardite in debris flow 43
clinoptilolite in altered tuff 89, 281
iddingsite in weathered olivine 418

Petrology of the Desmoinesian Excello Shale of the Midcontinent Region of the United States, by O. I. Ece 262

PÉZERAT, HENRI (with HELÈNE SUQUET), Parameters Influencing Layer Structure Types in Saponite and Vermiculite: A Review 353

pH
effect of quinoline adsorption on montmorillonite 121
effect on flocculation-dispersion behavior of kaolinite, montmorillonite 220
effect on goethite dissolution kinetics 347

Phillipsite
in altered tuff 449

Phlogopite
hydrothermal alteration to corrensite, XRTD, SEM, structural formula 150

Phosphate
Al, noncrystalline 228
Ca, dihydrate 228
Ca, monohydrate 228
diffuse reflectance IR spectroscopy of 228
Fe, noncrystalline 228
fluorapatite, diagenetic formation in black shale 262
Mg-, dihydrate, preparation 228
nodule, in black shale, morphology 262
noncrystalline Al- 228
noncrystalline Fe- 228
reactions with noncrystalline Al, Fe hydroxides, effect of RH 228

Photochemical dissolution
goethite, effects of oxalate concentration, pH, Al-substitution 347

Photochemical Dissolution of Goethite in Acid/Oxalate Solution, by R. M. Cornell and P. W. Schindler 347

Phyllomanganate
7-Å, from Mn-ferrihydrite, synthesis, XRD 11

PILC (see Pillared interlayered complex)

Pillared interlayered complex (PILC) (see also Cross-linked smectite)
hydrox-Al on beidellite, XRD, basal spacings, surface area, porosity 81, 251
hydroxy-Al on montmorillonite, XRD, basal spacings, surface area, porosity 81

Pillaring
as function of tetrahedral substitution 81
mechanisms 81

Pillaring Processes of Smectites With and Without Tetrahedral Substitution, by D. Plee, L. Gatineau, and J. J. Fripiat 81

Pimelite
optical absorption spectroscopy 1

Pisolite
laterite, noncrystalline Fe-Si-Al oxyhydroxide, chemical analysis, TEM, morphology 29

Plagioclase
weathered, noncrystalline Fe-Si-Al oxyhydroxide in, TEM, morphology 29

Plant roots
morphology, epidermal cells, SEM 281
replacement by marcasite, clinoptilolite, opal-CT, SEM, electron microprobe analysis 281

PLEE, D. (with L. GATINEAU and J. J. FRIPIAT), Pillaring Processes of Smectites With and Without Tetrahedral Substitution 81

Polymerization
thiophene, reactions in interlayer of Cu^{2+}-, Fe^{3+}-montmorillonite, IR, Raman spectroscopy 53

PONCELOT, G. (with A. SCHUTZ, W. E. E. STONE, and J. J. FRIPIAT), Preparation and Characterization of Bidimensional Zeolitic Structures Obtained from Synthetic Beidellite and Hydroxy-Aluminum Solutions 251

Porosity
beidellite, hydroxy-Al pillared 251
montmorillonite, hydroxy-Al pillared 81

Potassium
cation exchange on smectite, selectivity coefficient 305
exchangeable, effect on smectite swelling, hydraulic conductivity 305

Preparation and Characterization of Bidimensional Zeolitic Structures Obtained from Synthetic Beidellite and Hydroxy-Aluminum Solutions, by A. Schutz, W. E. E. Stone, G. Poncelot, and J. J. Fripiat 251

Problems in Identification of Montmorillonite and Beidellite, by P. M. Malla and L. A. Douglas 232

Properties of Iron Oxides in Two Finnish Lakes in Relation to the Environment of their Formation, by U. Schwertmann, L. Carlson, and E. Murad 297

Pseudoboehmite
authigenic, with chrysotile in debris-flow breccia, IR, DTA, chemical analysis 43

PYE, K. (with J. H. BURTON and D. H. KRINSLEY), Authigenesis of Kaolinite and Chlorite in Texas Gulf Coast Sediments 291

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Pyrene
adsorption on pillared smectites 81
Pyrite
associated with clinoptilolite in lignite, SEM, electron microprobe 281
framboidal, back-scattered electron image 291
Pyroxenite
weathered, alteration to nontronite, Ni-talc, smectite 1

Q

Quantitative Determination of Clinoptilolite in Soils by a Cation-Exchange Capacity Method, by D. W. Ming and J. B. Dixon 463
Quartz
conversion of kenyaite to 38
Quinoline
adsorption on montmorillonite 121
-Na exchange on montmorillonite 121
Quinoline Sorption on Na-Montmorillonite: Contributions of the Protonated and Neutral Species, by C. C. Ainsworth, J. M. Zachara, and R. L. Schmidt 121

R

Radioactive waste disposal (see Nuclear wastes)
Radiocarbon dates
debris flow, New Zealand 43
Raman spectroscopy
thiophene polymers on Cu^{2+}-, Fe^{3+}-montmorillonite 53
RAUPACH, M. (with P. F. BARRON and J. G. THOMPSON), Nuclear Magnetic Resonance, Infrared, and X-ray Powder Diffraction Study of Dimethylsulfoxide and Dimethylselenoxide Intercalates with Kaolinite 208
RAUPACH, M. (with T. T. NGUYEN and L. J. JANIK), Fourier-Transform Infrared Study of Ethylene Glycol Monoethyl Ether Adsorbed on Montmorillonite: Implications for Surface Area Measurements of Clays 60
RAUTUREAU, MICHEL (with MICHEL STEINBERG and THIERRY HOLTZAPFFEL), Characterization of Overgrowth Structures Formed around Individual Clay Particles during Early Diagenesis 189
Reactions of Thiophene and Methylthiophenes in the Interlayer of Transition-Metal Ion-Exchanged Montmorillonite Studied by Resonance Raman Spectroscopy, by Yuko Soma, Mitsuyuki Soma, Yukio Furukawa, and Issei Harada 53
Reassessment of the Volkonskoite-Chromian Smectite Nomenclature Problem, by E. E. Foord, H. C. Starkey, J. E. Taggert, Jr., and D. R. Shawe 139
Reduction
nontronite, iron, effect on magnetic susceptibility, UV-VIS spectra 373
Referees
technical, Volume 35, *Clays and Clay Minerals* 478
Refinement of the Crystal Structure of a Monoclinic Ferroan Clinochlore, by A. C. Rule and S. W. Bailey 129
Relative humidity (RH)
effect on layer stacking, basal spacings of vermiculite and saponite 353
effect on reaction of non-crystalline hydroxides with Ca, Mg phosphates 228
effect on water content of Ca, and Mg phosphates 228
REYNOLDS, D. (with C. BREEN, A. T. DEANE, and J. J. FLYNN), Vapor-Phase Sorption Kinetics for Methanol, Propan-2-ol, and 2-Methylpropan-2-ol on Al^{3+}-, Cr^{3+}-, and Fe^{3+}-Exchanged Montmorillonite 336
REYNOLDS, R C., JR. (with J. D. JEFFERS), Expandable Palygorskite from the Cretaceous-Tertiary Boundary, Mangyshlak Peninsula, U.S.S.R. 473
RH (see Relative humidity)
Rheology
book review, *Clay in Engineering Geology,* 2nd ed., by J. E. Gillott 477
charge density, Na-K-Ca exchange on smectites 68
kaolinite, effect of saturating cation, pH, Al, Fe oxides on flocculation of 220
montmorillonite, effect of saturating cation, pH, Al, Fe oxides on flocculation of 220
smectite-sand mixtures, effect of exchangeable K on hydraulic conductivity 305
ROY, RUSTUM (with SRIDHAR KOMARNENI, ELSE BREVAL, and MICHIHIRO MIYAKE), Cation-Exchange Properties of (Al + Na)-Substitued Synthetic Tobermorites 385
RULE, A. C. (with S. W. BAILEY), Refinement of the Crystal Structure of a Monoclinic Ferroan Clinochlore 129
RUSSELL, J. D. (with GIANNI LOMBARDI and W. D. KELLER), Composition and Structural Variations in the Size Fractions of a Sedimentary and a Hydrothermal Kaolin 321

S

SAD (see Selected-area electron diffraction)
Saline lake
alkaline, diagenesis of volcanic ash to zeolites in 449
Salinity
effect on hydraulic conductivity of smectite-sand mixture 305
Sand
-smectite mixtures, hydraulic conductivity 305

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Saponite (see also Montmorillonite, Smectite)
alkylammonium exchanged, basal spacings 440
Ba-, SAD 353
basal spacings, effects on interlayer cation, RH 353
CEC reduction, Li-retention 440
in weathered olivine, TEM, AEM 418
layer charge 353, 440
layer stacking, effects of interlayer cation, RH 353
source clay, CMS, SapCa-1 440
structural formula 353, 440
Saprolite
kaolinite in, SEM 196
natrolite in, SEM, chemical composition, EDX 196
Scanning electron microscopy (SEM)
birnessite, 7-Å manganite 271
buserite 271
chlorite, authigenic, Gulf Coast sediments 291
clay overgrowths, STEM 189
clinoptilolite 281, 458, 469
clinoptilolite, in soils 469
clinoptilolite, morphology 281
corrensite in hydrothermally altered phlogopite 150
fossilized plant root in lignite 281
goethite, synthetic 21
halloysite, in hydrothermal kaolin, morphology 321, 418
halloysite in weathered olivine, back-scattered electron image 418
hydrotalcite-manasseite 401
iddingsite, in weathered olivine 418
illite/smectite, morphology 321
kaolinite, morphology 321
natroalunite in saprolite 196
opal-CT, morphology 281
phlogopite 150
pyrite, framboidal, Gulf Coast sediments 291
pyrite, morphology 281
smectite, bentonite 241
smectite, Ni-Fe-Mg-, in weathered pyroxenite 1
SCHINDLER, P. W. (with R. M. CORNELL), Photochemical Dissolution of Goethite in Acid/Oxalate Solution 347
SCHINDLER, P. W. (with R. M. CORNELL and R. GIOVANOLI), Effect of Silicate Species on the Transformation of Ferrihydrite into Goethite and Hematite in Alkaline Media 21
SCHMIDT, R. L. (with C. C. AINSWORTH and J. M. ZACHARA), Quinoline Sorption on Na-Montmorillonite: Contributions of the Protonated and Neutral Species 121
SCHULTZ, P. K. (with P. G. SLADE, C. DEAN, and P. G. SELF), Crystal Structure of a Vermiculite-Anilinium Intercalate 177
SCHUTZ, A. (with W. E. E. STONE, G. PONCELOT, and J. J. FRIPIAT), Preparation and Characterization of Bidimensional Zeolitic Structures Obtained from Synthetic Beidellite and Hydroxy-Aluminum Solutions 251
SCHWERTMANN, U. (with L. CARLSON and E. MURAD), Properties of Iron Oxides in Two Finnish Lakes in Relation to the Environment of their Formation 297
Searlesite
in altered tuff, Searles Lake, California 449
Selected-area electron diffraction (SAD)
kaolinite 237
saponite, Ba- 353
smectite, from weathered pyroxenite 1
vermiculite, Ba- 353
Selectivity coefficient
effect of layer charge density on 68
Gaines-Thomas 68
Gapon 68, 305
K-Ca on smectite 68
K-Na on smectite 68, 305
Na-Ca on clinoptilolite 458
Na-Ca on smectite 68
Na-Cs on tobermorite 385
Na-NH_4, Na-Ca, on clinoptilolite 458
quinoline-Na, on montmorillonite 121
Vanselow 68
SELF, P. G. (with P. G. SLADE, C. DEAN, and P. K. SCHULTZ), Crystal Structure of a Vermiculite-Anilinium Intercalate 177
SEM (see Scanning electron microscopy)
SENKAYI, A. L. (with D. W. MING, J. B. DIXON, and L. R. HOSSNER), Kaolinite, Opal-CT, and Clinoptilolite in Altered Tuffs Interbedded with Lignite in the Jackson Group, Texas 281
Serpentine
asbestos formation in debris flow 43
lizardite, replacement by chrysotile, petrography, XRD 43
SHABTAI, JOSEPH (with JOHAN STERTE), Cross-linked Smectites. V. Synthesis and Properties of Hydroxy-Silicoaluminum Montmorillonites and Fluorhectorites 429
SHAINBERG, I. (with N. I. ALPEROVITCH and R. KEREN), Charge Density and Na-K-Ca Exchange on Smectites 68
SHAINBERG, I. (with R. KEREN, N. ALPEROVITCH, and D. GOLDSTEIN), Effect of Exchangeable Potassium on the Hydraulic Conductivity of Smectite-Sand Mixtures 305
Shale
Albian, overgrowth structures formed during diagenesis 189
black, Exello, petrography, mineralogy, diagenesis, XRD 262
collophane concretions in 262

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

SHAWE, D. R. (with E. E. FOORD, H. C. STARKEY, and J. E. TAGGERT, JR.), Reassessment of the Volkonskoite-Chromian Smectite Nomenclature Problem 139
Silica
loss during alteration of volcanic ash 449
silicate species in solution, effect on morphology of goethite, hematite formed from ferrihydrite 21
Silicate layer
Llano vermiculite, interatomic distances, angles 177
Llano vermiculite, structure 177
Silication
zeolites in interbedded lignite/volcanic tuff 281
Silicification
of illite and smectite, diagenesis 189
Silicon
clinoptilolite in lignite, electron microprobe dot map of 281
fossilized plant root, electron microprobe map of distribution 281
–O bond lengths, Si. . .H distances in kaolinite 38
SINGER, ARIEH (with EYAL BEN-DOR), Optical Density of Vertisol Clay Suspensions in Relation to Sediment Volumes and Dithionite-Citrate-Bicarbonate-Extractable Iron 311
SLADE, P. G. (with C. M. CARDILE), Structural Study of a Benzidine-Vermiculite Intercalate having a High Tetrahedral-iron Content by ^{57}Fe Mössbauer Specroscopy 203
SLADE, P. G. (with C. DEAN, P. K. SCHULTZ, and P. G. SELF), Crystal Structure of a Vermiculite-Anilinium Intercalate 177
Smectite (see also Bentonite, Montmorillonite)
alkylammonium exchanged, basal spacing 440
altered tuff, XRD 281
beidellite, chromian, chemical composition, XRD 139
beidellite, Fe-rich, in vertisols, structural formula, optical density, UV absorption, tactoid volume 311
bentonite, SEM, EDX, TEM 241
CEC reduction, Li-retention, Hofmann-Klemen effect 440
charge density, effect on swelling of 68, 305
/chlorite, XRD, TGA, IR, DTA, SEM, chemical analysis 150
chromian, volkonskoite nomenclature 139
conversion to illite, K-fixation, dissolution-precipitation mechanism 111
diagenetic, beidellite overgrowths on, TEM, chemical analysis 189
differentiation by the Greene-Kelly test 232
effect of variable states of collapse on illite/smectite particle thickness, TEM 74
EXAFS 1
exchangeable Li, effect on swelling of 305
fluorhectorite, hydroxy-SiAl cross-linked, basal spacings, surface area, structure, thermal stability 429
fluorhectorite, synthesis 429
hydrothermal alteration with basalt 241
hydroxy-SiAl cross-linked, basal spacings, chemical composition, surface area, synthesis, structural formula, thermal stability 429
/illite, hydrothermal alteration of bentonite, TEM, XRD 241
/illite, hydrothermal alteration of volcanic glass, AEM, TEM, XRD 111
/illite, in hydrothermal kaolin, morphology, SEM, XRD 321
/illite, interstratified, fundamental particles 74, 77
/illite, source of iron for chlorite authigenesis, Gulf Coast sediments 291
/illite, underclays in black shale sequence 262
in altered volcanic ash, petrography 418, 449
in vertisol clay suspensions, UV-VIS spectroscopy 311
in weathered basalts 161
layer charge 440
Na-K-Ca exchange, effect of 2:1 layer charge density 68
Ni-Fe-Mg-, in weathered pyroxenite, XRD, TEM, SEM, IR, electron microprobe analysis, optical absorption spectra, Mössbauer spectra 1
pillared, pyrene adsorption on 81
pillaring with aluminum-polyhydroxypolymers 81
quantitative determination in soils, CEC, Na^+-NH_4^+-tertbutylammonium exchange 463
saponite, in weathered olivine, TEM, SEM 418
stability, hydrothermal conditions 241
-to-illite transformation, mechanism 111
swelling, effect on hydraulic conductivity 305
volkonskoite, XRD, TGA, Mössbauer spectroscopy, chemical composition 139
SMITH, K. L. (with A. R. MILNES and R. A. EGGLETON), Weathering of Basalt: Formation of Iddingsite 418
Sodium
-Ca exchange on clinoptilolite, selectivity coefficient 458
-Cs exchange on tobermorite, exchange coefficient 385
exchangeable, effect on hydraulic conductivity of smectite-sand mixtures 305
-K exchange on smectite, selectivity coefficients 305
-NH_4^+ exchange on clinoptilolite, selectivity coefficient 458

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

-NH_4^+ exchange on clinoptilolite, in quantitative determination in soils 463
substitution in synthetic tobermorite, CEC, basal spacing, morphology 385
tertbutylammonium exchange on clinoptilolite 463

Sodium, Calcium, and Ammonium Exchange on Clinoptilolite from the Fort LaClede Deposit, Sweetwater County, Wyoming, by M. H. Hulbert 458

Soil
book review, *Clay in Engineering Geology,* 2nd ed., by J. E. Gillott 477
clinoptilolite in, quantitative analysis by CEC, XRD 463
heavy liquid separation of clinoptilolite in 463
vertisol clay suspensions, optical density, relation to sediment volume, extractable Fe 311

SOKOLOVA, G. V. (with V. A. DRITS, T. N. SOKOLOVA, and V. I. CHERKASHIN), New Members of the Hydrotalcite-Manasseite Group 401

SOKOLOVA, T. N. (with V. A. DRITS, G. V. SOKOLOVA, and V. I. CHERKASHIN), New Members of the Hydrotalcite-Manasseite Group 401

SOMA, MITSUYUKI (with YUKO SOMA, YUKIO FURUKAWA, and ISSEI HARADA), Reactions of Thiophene and Methylthiophenes in the Interlayer of Transition-Metal Ion-Exchanged Montmorillonite Studied by Resonance Raman Spectroscopy 53

SOMA, YUKO (with MITSUYUKI SOMA, YUKIO FURUKAWA, and ISSEI HARADA), Reactions of Thiophene and Methylthiophenes in the Interlayer of Transition-Metal Ion-Exchanged Montmorillonite Studied by Resonance Raman Spectroscopy 53

Sorption (see also Adsorption)
isotherms, quinoline on montmorillonite 121

Source clays, CMS
hectorite, SHCa-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440
kaolinite, KGa-1, flocculation of 220
montmorillonite, SAz-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange 440
montmorillonite, SAz-1, flocculation of 220
montmorillonite, SCa-2, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440
montmorillonite, STx-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440
montmorillonite, SWy-1, problems in differentiation from beidellite 232
montmorillonite, SWy-1, quinoline adsorption on 121
montmorillonite, SWy-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440
nontronite, NG-1, reduced, intervalence electron transfer, magnetic exchange 373
nontronite, NG-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 232, 440
nontronite, SWa-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 232, 440
nontronite, SWa-1, reduced, intervalence electron transfer, magnetic exchange 373
saponite, SapCa-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440
vermiculite, VTx-1, CEC, Li-retention, layer charge reduction, alkylammonium exchange, basal spacings 440

Space group
birnessite (7-Å manganite), synthetic 271
chlorite, ferroan, clinochlore 129
cryptomelane 271
ferroan clinochlore, ideal, refinement of ideal 129
hollandite 271
manganese oxides 271
manganite 271
todorokite (10-Å manganite) 271

Special clays, CMS (see Source clays, CMS)

Specific gravity (see Density)

Stability
diagram, kenyaite-magadiite 318
smectite, illite, under hydrothermal conditions 241

Stacking fault
in kaolinite: hydrazine intercalate, effects on NMR spectra, hydrogen bonding 38

STARKEY, H. C. (with E. E. FOORD, J. E. TAGGERT, JR., and D. R. SHAWE), Reassessment of the Volkonskoite-Chromian Smectite Nomenclature Problem 139

STEINBERG, MICHEL (with THIERRY HOLTZAPFFEL and MICHEL RAUTUREAU), Characterization of Overgrowth Structures Formed around Individual Clay Particles during Early Diagenesis 189

STERTE, JOHAN (with JOSEPH SHABTAI), Cross-linked Smectites. V. Synthesis and Properties of Hydroxy-Silicoaluminum Montmorillonites and Fluorhectorites 429

STOESSELL, R. K., book review, *Thermodynamic Values at Low Temperature for Natural Inorganic Materials: An Uncritical Survey,* by T. L. Woods and R. M. Garrels 160

STONE, W. E. E. (with A. SCHUTZ, G. PONCELOT, and J. J. FRIPIAT), Preparation and Characterization of Bidimensional Zeolitic Structures Obtained from

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

Synthetic Beidellite and Hydroxy-Aluminum Solutions 251

Stratigraphy
Excello black shale sequence 262
Jackson Group, interbedded lignite and volcanic tuffs 281
Searles Lake sediments 449
Yucca Mountain, Nevada, volcanics 89

Structural formula
alunite 196
beidellite, chromian 139
beidelllite, Fe-rich 311
birnessite (7-Å manganate) 271
celadonite 363
clinoptilolite 469
CO_3-hydrotalcite 401
CO_3-manasseite 401
CO_3-SO_4-hydrotalcite 401
corrensite 150
cryptomelane 271
fluorhectorite 429
glauconite 170, 363
hectorite, CMS source clay CHCa-1 440
hollandite 271
hydroxy-SiAl montmorillonite 429
illite 170
manasseite 401
manganite 271
montmorillonite 139, 170, 311, 363, 373, 440
montmorillonite, CMS source clay SAz-1 440
montmorillonite, CMS source clay SCa-2 440
montmorillonite, CMS source clay SWy-1 440
muscovite, red 363
natroalunite 196
nontronite 363, 373, 440
nontronite, CMS special clay SWa-1 373, 440
nontronite, NG-1 440
phlogopite 150
saponite 353, 440
saponite, CMS special clay SapCa-1 440
smectite, iron-rich beidellite, in vertisols 311
SO_4-hydrotalcite 401
tobormorite 385
todorokite 271
vermiculite 203, 353, 440
vermiculite, CMS special clay VTx-1 440
volkonskite 139

Structural Study of a Benzidine-Vermiculite Intercalate having a High Tetrahedral-Iron Content by ^{57}Fe Mössbauer Spectroscopy, by C. M. Cardile and P. G. Slade 203

Structure (see Crystal structure)

Stucki, J. W. (with P. R. Lear), Intervalence Electron Transfer and Magnetic Exchange in Reduced Nontronite 373

Sulfate
anion, in interlayer of hydrotalcite-manasseite, mixed-layer with carbonate 401
hydrotalcite, XRD, structural formula, unit-cell parameters, density, nomenclature, structure 401

Sulfur
fossilized plant root, electron microprobe dot map 281
pyrite in lignite, electron microprobe dot map 281

Suquet, Helène (with Henri Pézerat), Parameters Influencing Layer Structure Types in Saponite and Vermiculite: A Review 353

Surface area
cross-linked smectite 429
EGME adsorbed on montmorillonite 60
goethite, effect on photochemical dissolution kinetics 347
hydroxy-Al pillared beidellite 81, 251
hydroxy-Al pillared montmorillonite 81
hydroxy-SiAl fluorhectorite, effect of heat 429
hydroxy-SiAl montmorillonite, effect of heat 429
smectites 68, 305
vertisols 311

Swelling
dispersion, difference between 305
hydraulic conductivity, effect on 305
smectite, after Li-saturation 440
smectite, effect of 2:1 layer charge density 68, 305
smectite, effect of exchangeable potassium on 68, 305

Synthesis
Al hydroxide 228
Al oxide 220
beidellite, from gel 81, 251
birnessite, 7-Å-manganite 271
cross-linked smectite, hydroxy-silicoaluminum montmorillonite, fluorhectorite 429
Fe hydroxide 228
Fe oxide 220
ferrihydrite, Mn-containing 11
fluorhectorite 429
goethite, from ferrihydrite in presence of silicate species 21
goethite, Mn-containing, from ferrihydrite 11
hematite, from ferrihydrite in presence of silicate species 21
hematite, Mn-containing, from Mn-ferrihydrite 11
hydroxy-SiAl oligomers 429
imogolite 379
jacobsite, Mn-containing, from Mn-ferrihydrite 11
kaolinite : DMSeO intercalate 208
kaolinite : DMSO intercalate 208

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

kenyaite, effect of anions 318
magadiite, effect of anions 318
phyllomanganate, 7-Å-, from Mn-ferrihydrite 11
tobermorite, Al-, Na-substituted 385
Synthesis of Kenyaite and Magadiite in the Presence of Various Anions, by R. A. Fletcher and D. M. Bibby 318

T

Tactoid
dimensions, effects of sediment volume and extractable Fe on 311
fabric, particle arrangement in vertisol clay suspensions 311
TAGGERT, J. E., JR. (with E. E. FOORD, H. C. STARKEY, and D. R. SHAWE), Reassessment of the Volkonskoite-Chromian Smectite Nomenclature Problem 139
TAIT, J. M. (with P. H. NADEAU, M. J. WILSON, and W. J. MCHARDY), Fundamental Nature of Interstratified Illite/Smectite Clay Particles, The: A Reply 77
Talc
Ni-, EXAFS 1
Technique for the Separation of Clinoptilolite from Soils, by D. W. Ming and J. B. Dixon 469
TEM (see Transmission electron microscopy)
Temperature
effect on alcohol adsorption rate on montmorillonite 336
Terbutylammonium
Na^+-exchange on clinoptilolite, for quantitative mineralogy 463
Tetrahedral
substitution effects on intercalation of smectites with Al polyhydroxypolymers 81
substitution in ferroan clinochlore 129
Tetrahydrofluran
adsorption on Al-, Cr-montmorillonite 343
Tetrahydropan
adsorption on Al-, Cr-montmorillonite 343
TGA (see Thermal gravimetric analysis)
hydroxy-SiAl gluorhectorite, surface area, basal spacing 429
hydroxy-SiAl montmorillonite, surface area, basal spacing 429
Thermal analysis (see Differential thermal analysis, Thermal gravimetric analysis)
Thermal stability
cross-linked smectics, changes in surface area, basal spacing 429
Thermodynamics
book review, *Thermodynamic Values at Low Temperature for Natural Inorganic Materials: An Uncritical Survey,* by T. L. Woods and R. M. Garrels 159
Thermogravimetric analysis (TGA)
corrensite 150
smectite, chromian 139
volkonskite 139
Thiophene
adsorption on Cu^{2+}-, Fe^{3+}-*montmorillonite* 53
polymerization in interlayer of montmorillonite, IR, Raman spectroscopy 53
THOMPSON, J. G. (with P. F. BARRON), Further Consideration of the ^{29}Si Nuclear Magnetic Resonance Spectrum of Kaolinite 38
THOMPSON, J. G. (with M. RAUPACH and P. F. BARRON), Nuclear Magnetic Resonance, Infrared, and X-ray Powder Diffraction Study of Dimethylsulfoxide and Dimethylselenoxide Intercalates with Kaolinite 208
THOMPSON, J. G. (with R. L. WITHERS), Transmission Electron Microscopy Contribution to the Structure of Kaolinite, A 239
Tobermorite
Al- and Na-substituted, synthesis, structural formula 385
basal spacing, TEM, XRD, CEC, Na-Cs exchange, TEM, morphology 385
Todorokite
hydrothermal transformation of birnessite 271
manganese oxide 271
space group, unit-cell parameters 271
structural formula 271
10-Å manganite, IR, chemical analysis 271
Transformation of Birnessite to Buserite, Todorokite, and Manganite under Mild Hydrothermal Treatment, by D. C. Golden, C. C. Chen, and J. B. Dixon 271
Transmission Electron Microscopy Contribution to the Structure of Kaolinite, A, by J. G. Thompson and R. L. Withers 239
Transmission electron microscopy (TEM)
allophane, noncrystalline Fe-Si-Al oxyhydroxides, spherical morphology 29
berthierine, hydrothermally altered illite 241
birnessite, saturated with Ca, Mg, Ni, Co, La 271
chlorite, authigenic, Fe-rich, in Gulf Coast sediments 291
chlorite, in hydrothermally altered basalt, bentonite 241
chrysotile, fibrous 43
cordierite, weathered 29
ferrihydrite, spherical morphology 29
gibbsite, platey hexagonal 379
gibbsite, platy morphology 379
goethite, formed from ferrihydrite, function of silicate species in solution 21
goethite, in weathered olivine 418
halloysite, hemispherical, in weathered olivine 418
halloysite, in weathered cordierite, spherical morphology 29

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

hematite, ellipsoidal, formed from ferrihydrite 21
hematite, Mn-, synthetic 11
hisingerite, spherical morphology 29
hydroxy-Al beidellite complex 251
iddingsite, lamellar in weathered olivine 418
illite/berthierine, in hydrothermally altered illite 241
illite/smectite, errors associated with particle thickness determination 74, 77
illite/smectite from hydrothermally altered volcanic glass 111
immiscible glass in basalt 241
imogolite, fibrous morphology 379
imogolite, synthetic 379
jacobsite, synthetic 11
lateritic pisolite, spherical morphology 29
overgrowth structures on illite and smectite 189
Mn-goethite, synthetic 11
noncrystalline Fe-Si-Al oxyhydroxides
plagioclase, weathered, spherical morphology 29
smectite, in bentonite 241
smectite, Mi-Fe-Mg-, from weathered pyroxenite 1
smectite, saponite, spherical, in weathered olivine 418
tobermorite, synthetic, crystal morphology 385
TRAUTH-BADAUD, D. (with A. DECARREAU, F. COLIN, A. HERBILLON, A. MANCEAU, D. NAHON, H. PAQUET, and J. J. TRESCASES), Domain Segregation in Ni-Fe-Mg-Smectites 1
TRESCASES, J. J. (with A. DECARREAU, F. COLIN, A. HERBILLON, A. MANCEAU, D. NAHON, H. PAQUET, and D. TRAUTH-BADAUD), Domain Segregation in Ni-Fe-Mg-Smectites 1
TSVETKOV, FAINA (with URI MINGELGRIN), Optically Selective Adsorption of α-Amino Acids on Montmorillonite-Cu-l-Lysine Complexes in High-Pressure Liquid Chromatography 391
Tuff
alteration to feldspar 89
alteration to opal-CT 281
alteration to zeolites 89, 281
altered, XRD, petrography, SEM 281
bulk-rock composition 89
kaolinite, clinoptilolite in, replacement of volcanic glass 281
silicate mineralogy of, Searles Lake, California 449
zeolitic, composition 89

U

Ultraviolet-visible spectroscopy (UV-VIS)
nontronite, effects of intervalence electron transfer 373
smectite, vertisol clay suspensions 311
Unit-cell
alunite 196
kaolinite 208
kaolinite : DMSeO intercalate 208
kaolinite : DMSO intercalate 208
natroalunite 196
nontronite 363
parameters, CO_3-hydrotalcite, XRD 401
parameters, CO_3-manasseite, XRD 401
parameters, CO_3-SO_4-hydrotalcite 401
parameters, SO_4-hydrotalcite, XRD 401
parameters, birnessite, 7-Å-manganite 271
parameters, cryptomelene 271
parameters, goethite in lake sediments 297
parameters, hollandite 271
parameters, manasseite, XRD 401
parameters, manganite 271
parameters, todorokite 271
parameters, vermiculite : anilinium intercalate 177
volume, goethite, effect of Al substitution on 297
UV-VIS (see Ultraviolet-visible spectroscopy)

V

Vaneslow selectivity
Na-Ca-K exchange on smectite 68
quinoline-Na exchange on montmorillonite 121
VAN OLPHEN, H., book review, *Clay Microstructure,* by R. H. Bennett and M. H. Hurlbut 400
Vapor
alcohol, adsorption on montmorillonite, kinetics, effects of particle size, cation, temperature 343
cyclic ether, adsorption on montmorillonite, kinetics, effects of cation, temperature 343
water, effect on basal spacings of Al-, Cr-, Fe^{3+}-exchanged montmorillonite 336
Vapor-Phase Sorption Kinetics for Methanol, Propan-2-ol, and 2-Methylpropan-2-ol on Al^{3+}-, Cr^{3+}-, and Fe^{3+}-Exchanged Montmorillonite, by C. Breen, A. T. Deane, J. J. Flynn, and D. Reynolds 336
Vapor-Phase Sorption Kinetics for Tetrahydrofluran, Tetrahydropan, and 1,4-Dioxan by Al^{3+}- and Cr^{3+}-Exchanged Montmorillonite, by C. Breen, A. T. Deane, and J. J. Flynn 343
VARKEVISSER, DANE (with R. A. EGGLETON and CHRIS FOUDOULIS), Weathering of Basalt: Changes in Rock Chemistry and Mineralogy 161
Vermiculite
alkylammonium exchanged, basal spacings 440
-anilinium intercalate, crystal structure, unit-cell parameters, electron microprobe analysis 177
Ba-, SAD 353
basal spacing, effects of layer charge, interlayer cation, RH 353
-benzidine intercalate, Mössbauer spectroscopy 203
CEC reduction, Li-retention 440

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

electron microprobe analysis 177
Fe distribution in 203
intercalation of anilinium on 177
intercalation with benzidinium ion 203
layer charge 353, 440
layer stacking, effects on interlayer cation, RH 353
source clay, CMS, VTx-1 440
structural formula 203, 353, 440
Vertisol
surfce area, CEC, chemical composition, mineralogy, UV-absorption spectroscopy 311
suspensions, optical density of, relation with extractable iron, tactoid volume 311
Volcanic ash
clinoptilolite, alteration to 281
diagenetic alteration in alkaline, saline lake 449
electron microprobe analysis 80
illite/smectite, hydrothermal alteration to 111
K-feldspar, alteration to 449
merlinoite, alteration to 449
phillipsite, alteration to 449
replacement by zeolites 89
searlesite, alteration to 449
smectite, alteration to 161, 449
tephra, alteration to zeolites and K-feldspar 449
zeolite formation in, in alkaline, saline lake deposits 449
Volkonskoite
Cr-bearing chlorite, relation to 139
Cr-bearing smectite, chemical composition, Mössbauer spectroscopy, structural formula, TGA, XRD 139
nomenclature problem 139

W

WADA, SHIN-ICHIRO, Imogolite Synthesis at 25°C 379
Wairakite
hydrothermal alteration of bentonite, basalt to, XRD 241
WARREN, R. G. (with D. E. BROXTON and D. L. BISH), Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada 89
WATANABE, TAKASHI (with ATSUYUKI INOUE, NORIHIKO KOHYAMA, and RYUJI KITAWAGA), Chemical and Morphological Evidence for the Conversion of Smectite to Illite 111
Water
vapor, effect on basal spacings of Al-, Cr-, Fe^{3+}-exchanged montmorillonite 336
Weathering
basalt 161, 196, 418
basalt, alteration to smectite, goethite, halloysite 161
book review, *The Chemistry of Weathering,* edited by J. I. Drever 80
cordierite, alteration to halloysite, noncrystalline Fe-Si-Al oxyhydroxides 29
density as measure of intensity 161
olivine in basalt, iron oxidation, alteration to goethite, smectite, iddingsite, halloysite 418
Weathering of Basalt: Changes in Rock Chemistry and Mineralogy, by R. A. Eggleton, Chris Foudoulis, and Dane Varkevisser 161
Weathering of Basalt: Formation of Iddingsite, by K. L. Smith, A. R. Milnes, and R. A. Eggleton 418
WILSON, M. J. (with P. H. NADEAU, W. J. MCHARDY, and J. M. TAIT), Fundamental Nature of Interstratified Illite/Smectite Clay Particles, The: A Reply 77
WITHERS, R. L. (with J. G. THOMPSON), Transmission Electron Microscopy Contribution to the Structure of Kaolinite, A 239

X

X-ray powder diffraction (XRD)
altered volcanic tuffs, kaolinite, smectite, clinoptilolite in 281
anilinium-vermiculite intercalate 177
beidellite 81, 139, 232, 251
beidellite, chromian 139
beidellite, exchanged with alkylammonium 232
beidellite, hydroxy-Al pillared, basal spacings 81, 251
beidellite, K-, Li-, Mg-saturated, basal spacings 232
birnessite, 7-Å manganite 271
black shale, Excello, clay mineralogy by 262
chlorite, hydrothermal alteration of basalt, bentonite 241
chrysotile, authigenic after lizardite 43
clinoptilolite 43, 463, 469
clinoptilolite in soil 469
clinoptilolite, quantitative determination 463
CO_3-hydrotalcite, unit-cell parameters, basal spacings 401
CO_3-manasseite, unit-cell parameters, basal spacings 401
CO_3-SO_4-hydrotalcite, basal spacings 401
corrensite, basal spacings, Fourier synthesis 150
goethite, Mn-containing 11
halloysite, in hydrothermal kaolin deposit 321
illite/chlorite, hydrothermal alteration of bentonite, basalt 241
illite/smectite, in hydrothermal kaolin deposit 321
illite/smectite, in hydrothermally altered volcanic glass 111
illite/smectite, interpretations of fundamental particle thickness 74, 77
jacobsite 11
kaolin, hydrothermal, different particle sizes,

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press

kaolinite crystallinity, semiquantitative mineralogy 321
kaolin, sedimentary, different particle sizes, kaolinite crystallinity 321
kaolinite 38, 208, 281
kaolinite, authigenic, in altered tuff 281
kaolinite, hydrazine-treated 38
kaolinite : DMSeO intercalate 208
kaolinite : DMSO intercalate 208
kenyaite 318
lizardite 43
magadiite 318
manasseite 401
mineralogy of Excello black shale by 262
monocalcium phosphate 228
montmorillonite 81, 139, 208, 232
montmorillonite, alkylammonium exchanged 232
montmorillonite, chromian 139
montmorillonite, hydroxy-Al pillared, basal spacings 81
montmorillonite, K-, Li-, Mg-saturated, basal spacings 232
natroalunite, unit-cell dimensions 196
nontronite, alkylammonium exchanged 232
nontronite, K-, Li-, Mg-saturated, basal spacings 232
palygorskite, expandable 473
phlogopite 150
phyllomanganate 11
smectite/chlorite 150
smectite, Ni-Fe-Mg-, from weathered pyroxenite 1
SO_4-hydrotalcite 401
tobermorite, synthetic, basal spacing 385
volkonskoite 139
wairakite, hydrothermal alteration of bentonite, basalt 241
XRD (see X-ray powder diffraction)

Y

YAU, Y.-C. (with D. R. PEACOR, E. J. ESSENE, J. H. LEE, L.-C. KUO, and M. A. COSCA), Hydrothermal Treatment of Smectite, Illite, and Basalt to 460°C: Comparison of Natural with Hydrothermally Formed Clay Minerals 241

Z

ZACHARA, J. M. (with C. C. AINSWORTH and R. L. SCHMIDT), Quinoline Sorption on Na-Montmorillonite: Contributions of the Protonated and Neutral Species 121
Zeolites (see also individual minerals)
analcime 89, 449
clinoptilolite 89, 449, 463, 469
clinoptilolite in altered tuff 89, 449
clinoptilolite in lignite, altered glass, EDX, morphology, SEM, electron microprobe 281
clinoptilolite, heavy liquid separation from soil, XRD, SEM, structural formula 469
clinoptilolite, Na-, Ca-, NH_4-exchange selectivity 458
clinoptilolite, quantitative determination in soils, CEC, XRD 463
diagenesis of volcanic glass 449
heulandite in altered tuff 89
in altered tuffs 89
merlinoite in altered tuff 449
mordenite in altered tuff 89
natrolite in saprolite 196
phillipsite in altered tuff 449
replacement of volcanic glass 89
silication of interbedded lignite/altered tuff 281
zeolitic structures, bidimensional, formation from beidellite and hydroxy-Al solutions 251

https://doi.org/10.1346/CCMN.1987.0350612 Published online by Cambridge University Press