INDUSTRIAL MINERALS NOTES No. 25

ANNOTATED SELECTED LIST OF
INDUSTRIAL MINERALS PUBLICATIONS

Compiled by

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ABSTRACT

Selected publications relating to the resources, occurrence, character, or uses of Illinois industrial minerals, including lead and zinc, are listed and briefly annotated when the title of the report does not adequately indicate its content.

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March 1, 1966

In addition to publications concerning industrial minerals, the Illinois Geological Survey has available for reference a considerable volume of information, including many well logs, pertaining to industrial mineral resources. Out-of-print publications (*) may be consulted at the Survey library and in other libraries; some may be borrowed for limited periods. Members of the Survey staff will confer with visitors on questions regarding mineral resources and their uses.


MAPS


LIMESTONE AND DOLOMITE


Bull. 46. Limestone Resources of Illinois. 392 p., 70 figs., 1925. Resources by counties; chemical analyses and physical tests.


R. I. 17. The Limestone Resources of the Pontiac-Fairbury Region. 27 p., 7 figs., 1929.

R. I. 23. High-Calcaim Limestone near Morris, Illinois. 26 p., 4 figs., 1931. (See also Supplement, Circular 4.)

*R. I. 49. A Summary of the Uses of Limestone and Dolomite. 50 p., 1938. (See Circular 321.)
R. I. 65. Agricultural Limestone Resources of Cumberland, Effingham, Clay, Richland, and Jasper Counties. 44 p., 8 figs., 12 tables, 1940.

   Deposits in the Chicago, Kankakee, Rockford, Savanna, Port Byron, and Grafton-Hardin regions; chemical analyses.

*R. I. 164. Water Soluble Salts in Limestones and Dolomites. 16 p., 1 fig., 7 tables, 1953.
   Fluid inclusions in Illinois limestones and dolomites and their probable composition.

   Limestone, dolomite, marble, and sandstone.

   Limestone, shale, and clay resources; chemical analyses.

   670 analyses from 43 counties.

   Resources by county and by geological formation; chemical analyses and physical tests.

*Circ. 4. Results of Test-Drilling of Limestone Near Morris, Illinois. 6 p., 1933.

*Circ. 94. Agricultural Limestone Resources of Illinois—Their Character and Occurrence and Methods of Examination. 33 p., 7 figs., 1943.

*Circ. 156. Acid Etching in the Study of Limestones and Dolomites. 47 p., 22 figs., 1950.
   A means of studying the texture and impurities in relation to utilization.


   Chiefly of significance to mineralogists or collectors.

Circ. 221. Sampling Limestone and Dolomite Deposits for Trace and Minor Elements. 18 p., 5 figs., 1956.

   Data on boron, barium, chromium, copper, iron, potassium, manganese, molybdenum, sodium, nickel, lead, strontium, titanium, vanadium, and zinc.

Circ. 261. Some Plastic Properties of Pastes Made from Hydrated Dolomitic and High-Calcium Limes. 9 p., 2 pls., 3 figs., 7 tables, 1958.


   Resources in Mississippi Bluff area; textural details, stratigraphy, and chemical analyses.

   (Reprinted with addenda 1965.)
   75 uses described; extensive bibliography.

   Laboratory tests with falling weight.

Circ. 346. Limestone Resources of the Lower Kaskaskia Valley. 22 p., 1 pl., 2 figs., 3 tables, 1963.
   Resources, chemical analyses and physical tests.

   Resources, chemical analyses, and physical tests.

Circ. 379. Dolomite Resources of Boone and DeKalb Counties. 22 p., 5 figs., 3 tables, 1965.
   Resources, depth to unexposed deposits, and chemical analyses.

   Resources, geologic map, stratigraphy, underground mining, and chemical analyses.

   Data from well records.

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SAND AND GRAVEL

Bull. 50. Natural-Bonded Molding Sand Resources of Illinois. 183 p., 50 figs., 1925. Resources in 40 counties; sieve, bond strength, permeability, and other tests.


*Circ. 100. Early Ordovician Strata Along Fox River in Northern Illinois. 11 p., 4 figs., 1943.  
Data on silica sand deposits.

Particle size, pebble counts, shape, roundness, polish, and fossils.

Deposits, chemical composition, and sieve tests.


Circ. 299. Sand and Gravel Resources of Kane County, Illinois. 11 p., 1 map pl., 1 fig., 5 tables, 1960.

Calcium and aluminum phosphates used as binders.

Deposits; sieve tests.

Covers greater Chicago area.

Deposits; sieve tests.

Circ. 381. Sand and Gravel Resources of Peoria County. 16 p., 1 map pl., 1 fig., 4 tables, 1965.  
Deposits; sieve tests.


A popular account.


SILICA SAND


*Circ. 100. Early Ordovician Strata Along Fox River in Northern Illinois. 11 p., 4 figs., 1943. Data on silica sand deposits.

Circ. 335. Silica Brick from Northern Illinois Silica Sand. 18 p., 6 figs., 7 tables, 1962. Calcium and aluminum phosphates used as binders.


MOLDING SAND

Bull. 50. Natural-Bonded Molding Sand Resources of Illinois. 183 p., 50 figs., 1925. Resources in 40 counties; sieve, bond strength, permeability, and other tests.


CLAY AND SHALE

*Bull. 4. Preliminary Investigation of Illinois Fire Clays. p. 129-175, 1907. Resources, especially in extreme southern Illinois; chemical analyses and pyrometric tests.


Bull. 17. Portland-Cement Resources of Illinois. 121 p., 19 pls., 1912. Raw materials including clays in selected areas; cement manufacture.


Bull. 38D. Further Investigations of Illinois Fire-Clays. 149 p., 14 figs., 1921. Deposits in 20 counties; methods of testing; ceramic tests.

*Bull. 38F. Notes on Illinois Bituminous Shales, Including Results of Their Experimental Distillation. 19 p., 4 figs., 1922. Occurrences in 8 counties; distillation tests.


R. I. 27. Anna "Kaolin" as a New Decolorizing Agent for Edible Oils. 42 p., 7 figs., 1933. Decolorization; rate of filtration; oil retained by earth.

R. I. 53. A Unique Clay from the Goose Lake, Illinois, Area. 20 p., 4 figs., 1939. Occurrence, constitution, properties, and uses.


R. I. 100. Illinois Clays and Shales as Mortar Mix. 55 p., 12 figs., 20 tables, 1944.


R. I. 104. Illinois Surface Clays as Bonding Clays for Molding Sands—An Exploratory Study. 41 p., 3 figs., 11 tables, 1945. Tests on till, gumbotil, lake clays, residual clays, and others.


Circ. 162. Olmsted Fuller's Earth as a Bonding Clay for Foundry Use. 5 p., 1950.

Circ. 168. Reactions Accompanying the Firing of Brick. 6 p., 4 figs., 2 tables, 1951.

Circ. 188. Ceramic Materials from Magnesium-Treated Clays. p. 165-168, 1954.
Oil content and other data on 120 samples.

Circ. 233. Pottery Clay Resources of Illinois. 8 p., 2 figs., 1957.
Preliminary tests; general distribution.

Data on kaolinite, illite, chlorite, and montmorillonite.

Circ. 277. Light-Burning Clay Resources in LaSalle County, Illinois. 27 p.,
3 figs., 1959.
Deposits, firing, and bonding tests.

Over 500 analyses.

Circ. 290. Lightweight Aggregate from Illinois Shales. 34 p., 2 pls.,
2 figs., 1960.
Mineral and chemical composition; causes of bloating; tests on 76 samples.

Circ. 302. Lower Pennsylvanian Clay Resources of Knox County, Illinois.
Ceramic and bonding tests on 39 samples.

More than 125 tests of samples from 59 counties.

Circ. 307. Chemical Evaluation of Illinois Oil Shales. 22 p., 3 figs.,
11 tables, 1960.
Detailed study of chemical and physical characteristics of products produced by the retorting of 5 samples.

Circ. 322. Lower Pennsylvanian Clay Resources of Rock Island, Mercer, and
Ceramic and bonding tests on 95 samples.

Circ. 334. Stratigraphy and Mineralogy of the Wisconsinan Loesses of Illinois.

Circ. 347. Mineralogy of Glacial Tills and Their Weathering Profiles in Illinois.

Circ. 352.Buff-Burning Clay Resources of Southwestern and Southern Illinois.
24 p., 4 figs., 3 tables, 3 app., 1963.
Ceramic and bonding properties of 66 samples.

Circ. 353. Buff-Burning Clay Resources of Western Illinois. 23 p., 3 figs.,
1 table, app., 1963.
Ceramic and bonding properties of 110 samples.

Circ. 371. Illinois Clay Resources for Lightweight Ceramic Blocks. 15 p.,
5 figs., 1 table, 1964.
Tests of 7 shales and clay as bonding material for lightweight shale aggregate.
I. M. Notes 2. Lightweight Brick from Clay and Peat or Shredded Corn Cobs. p. 3-4, 1955.


*I. M. Notes 11. Rare Earth and Trace Element Content of Unusual Clay on Hicks Dome in Hardin County, Illinois. 6 p., 1 fig., 3 tables, 1960.

   Tests of 12 clays, 4 shales, and 2 silicas.

   A general discussion.

   Tests of Illinois brick showed expansion not acute.

   Tests of 7 clays showed promise.


   Clay mineralogy in squeeze and nonsqueeze areas.

   A use for fluorspar.

   Describes 3 soil profiles; exposure of Fithian illite.

   Environment of deposition and clay mineralogy.


   Indicates temperature of 525-550° C.

   Mineralogy, chemical composition, organic matter, and chemical properties.
SILICA, GANISTER, NOVACULITE, AND CALICO ROCK IN SOUTHERN ILLINOIS

   Sand-lime brick from southern Illinois silica.


   Methods, costs, efficiency, corrosion problems.

   Materials offer promise when crushed, properly graded, bonded, and fired.

   Silica (tripoli), novaculite, novaculite gravel, ganister, calico rock, and shale and chert gravels; deposits, occurrence, character, composition, and uses.

   Tests of 12 clays, 4 shales, and 2 silicas.

SANDSTONE

   Resources, distribution, mineralogy, sieve tests, and uses.

   Sieve tests of 65 samples from 30 outcrops; 18 chemical analyses; uses.

Circ. 331. Chemical and Physical Character of the Pennsylvanian Sandstones in Central Illinois. 43 p., 5 figs., 11 tables, 1962.
   Deposits, 90 sieve tests, 71 chemical analyses, heavy minerals, clay minerals, and fusion tests.


CHERT

   Cherts are epigenetic concretions.
IGNEOUS ROCKS


GYPSUM AND ANHYDRITE


BRINES


FLUORSPAR, ZINC, AND LEAD IN SOUTHERN ILLINOIS


*Bull. 41. Geology of Hardin County and the Adjoining Part of Pope County. 416 p., 17 pls., 30 figs., 1 map, 1920. Geology; mineral resources, especially fluor spar, and lead and zinc ores.


*R. I. 68. Effect of Fluor spar on Silicate Melts with Special Reference to Mineral Wool. 15 p., 6 figs., 4 tables, 1940. Fiber diameter of wool and fluor spar content of melt.


Circ. 158. Structures Due to Volume Shrinkage in the Bedding-Replacement Fluorspar Deposits of Southern Illinois. 11 p., 10 figs., 1949.


BARITE


Chiefly of significance to mineralogists or collectors.
ZINC AND LEAD IN NORTHWESTERN ILLINOIS

Geology, ore deposits, mines, and prospects.

Geology, mineral resources, and development of Jo Davies County, including history of mining.

Includes descriptions of many mining properties.


Tests of soils by dithizone method.

Character, distribution, mineralogy, origin, mines, and future possibilities.

Map on scale of 2 inches to the mile.

I. M. Notes 5. Relation of Sulfate and Chloride to Ore Deposits in the Ordo-
vician Rocks of Jo Daviess County. 3 p., 1 fig., 1957.
No relation shown by tests of surface rocks.

Occurrences near Alto Pass and Anna, and in Hancock and Kendall Counties.


URANIUM

No samples contained more than 0.1% U₃O₈.

None of 175 samples tested met minimum requirements for ore.
Deposits, feldspar content, and sieve tests.


Iron content and particle size of feldspar.

MISCELLANEOUS

*Circ. 29. Synthetic Cryolite. 3 p., 1937.
Uses and production from fluor spar.


Trends in cement, glass, and clay products manufacture.

*I. M. Notes 11. Rare Earth and Trace Element Content of an Unusual Clay on Hicks Dome in Hardin County, Illinois. 5 p., 1 fig., 3 tables, 1960.

A literature review; extensive bibliography.

Cement, clay and clay products, fluor spar, lime, lead and zinc, silica sand, and tripoli.


A non-technical account of the formation, occurrence, production, and uses of over 22 materials.

Briefly describes reports dating from 1918, available for consultation at the Geological Survey, on the occurrence or uses of ocher, potash shale, silica (tripoli), ganister, novaculite, cement-making materials, fluor spar, limestone, zinc and lead ores, clay, gravel, and organic material in limestones.

* Out of print.