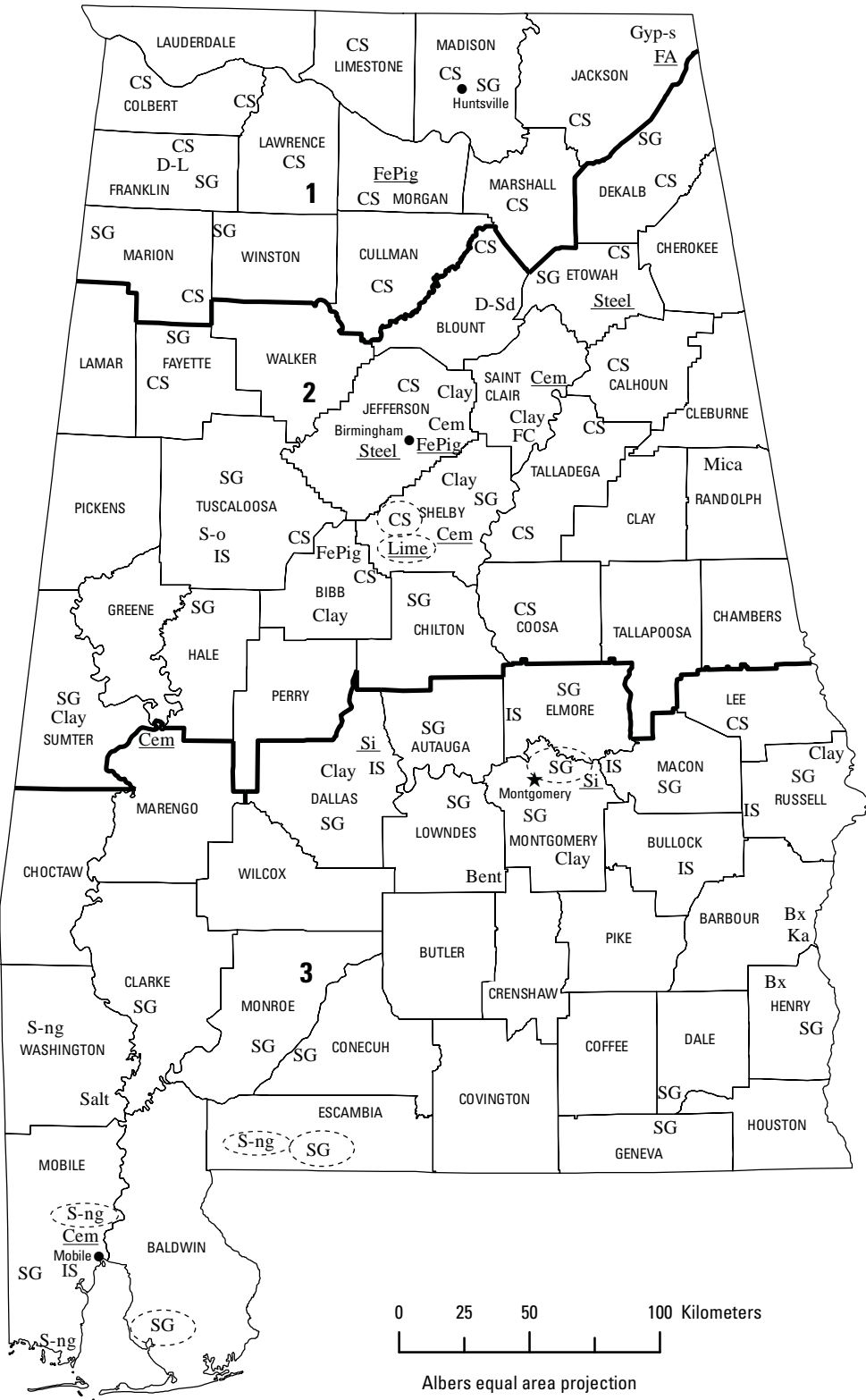




2007 Minerals Yearbook

ALABAMA [ADVANCE RELEASE]

ALABAMA



LEGEND

- County boundary
- ★ Capital
- City
- 1— Crushed stone/sand and gravel district boundary

MINERAL SYMBOLS (Major producing areas)

- Bent Bentonite
- Bx Bauxite
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- D-L Dimension limestone
- D-Sd Dimension sandstone
- FA Ferroalloys plant
- FC Fire clay
- FePig Iron oxide pigments
- FePig Iron oxide pigment plant
- Gyp-s Synthetic gypsum
- IS Industrial sand
- Ka Kaolin
- Lime Lime plant
- Mica Mica
- Salt Salt
- SG Construction sand and gravel
- Si Silicon plant
- S-ng Sulfur (natural gas)
- S-o Sulfur (oil)
- Steel Steel plant
- Concentration of mineral operations

0 25 50 100 Kilometers

Albers equal area projection

Source: Geological Survey of Alabama/U.S. Geological Survey (2007).

THE MINERAL INDUSTRY OF ALABAMA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Geological Survey of Alabama for collecting information on all nonfuel minerals.

In 2007, Alabama's nonfuel mineral production¹ was valued at \$1.35 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$20 million, or 1.5%, increase compared with that of 2006, following a \$200 million, or about 17.7%, increase from 2005 to 2006. The State was 18th in rank (16th in 2006) among the 50 States in total nonfuel mineral production value and accounted for nearly 2% of the U.S. total.

The top four nonfuel mineral commodities produced in Alabama in 2007 continued to be, in descending order of value, cement (portland and masonry), crushed stone, lime, and construction sand and gravel. These four mineral commodities accounted for more than 94% of the State's total nonfuel mineral production value; the combined value of cement and crushed stone represented nearly 70% of the total. Leading in the State's rise in value were increases in the values of crushed stone, cement (portland and masonry), and lime, up by \$15 million, nearly \$11 million, and \$10 million, respectively (table 1). Smaller increases took place in several other mineral commodities, the largest of which was in common clays, up by more than \$4 million. The largest decreases took place in industrial sand and gravel, down by almost \$9 million, and crude mica (data withheld—company proprietary data), which had no production reported for 2007. A smaller yet significant decrease took place in the value of dimension stone.

In 2007, Alabama continued to be second in the quantities of lime produced as compared with those of other States, second of three iron-oxide-pigment-producing States, fourth in masonry cement, sixth in gemstones (gemstones based upon value), seventh in portland cement, and eighth in salt. The State rose to first from third in the production of common clays and to third from fourth in kaolin clay production, but decreased to fourth from third in the production of bentonite clay. Alabama continued to be the producer of substantial quantities of, in descending order of value, crushed stone, construction sand and gravel, and industrial sand and gravel. All metal production in the State, especially that of raw steel, was the result of the processing of materials acquired from other domestic and foreign sources. Production of a natural mixture of bauxite (no longer used to produce primary aluminum) and bauxitic clay with very low iron oxide content has been reported to the USGS since 1995 as kaolin; it is primarily used to make refractory products.

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 2007 USGS mineral production data published in this chapter are those available as of June 2009. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

The narrative information that follows was provided by the Geological Survey of Alabama² (GSA). In 2007, 200 companies or operations were involved in the mining and production of industrial mineral resources in Alabama.

Exploration and Development

Mineral exploration and mine and plant development continued to focus on industrial mineral resources, with several large expansions of operations taking place in the State, exceeding \$180 million in capital investments. Mineral commodities for which new operations or expansions were reported included brick and refractory clay, crushed stone, portland and masonry cement, iron oxide pigments, chalk, synthetic gypsum (wallboard), and nonferrous metals.

Commodity Review

Industrial Minerals

Clays.—Alabama had 35 active clay (bentonite, common clay, fire clay, fuller's earth, kaolin, and shale) operations. Clay production was led by common clay with the most produced followed by shale, fuller's earth, bentonite, fire clay, and kaolin. Several industrial mineral mining operations, such as those of fire clay, sandstone, and shale, were related to the State's coal mining industry.

Sand and Gravel.—In 2007, 150 sand and gravel operations (including both construction and industrial operations) were active in the State. Sand and gravel production came primarily from the mining of alluvium and terrace deposits in Elmore, Macon, Montgomery, Russell, and Tuscaloosa Counties and from the Citronelle Formation in Mobile County. In recent years, a significant and expanding industry in Alabama has included companies involved in the restoration of eroding or storm-damaged beaches. Engineered beach restoration projects along Alabama shores began in 2001 using sand deposits located in the Gulf of Mexico and estuarine State waters. The largest project was the Orange Beach/Gulf State Park/Gulf Shores Beach restoration initiative that included 24.6 kilometers (15.3 miles) of shoreline and a placement volume that exceeded 6 million cubic meters (7.9 million cubic yards) of sand. During 2007, about 380,000 cubic meters (500,000 cubic yards) of sand was mined from Mississippi Sound to construct the 5,900-meter (19,500-foot) Dauphin Island Emergency Berm to mitigate recent hurricane-related erosion.

²Lewis S. Dean, a Geologist in the Geologic Investigations Program at the Geological Survey of Alabama, authored the text of the State mineral industry information provided by that agency.

Stone, Crushed.—There were 53 active limestone-dolomite operations for crushed stone in Alabama. In addition, granite, sandstone, marble, and quartzite operations produced crushed stone in the State. The GSA reported another year of near-record crushed stone production with nearly 53 million metric tons (about 58 million short tons) produced. Since 1994, production of crushed stone has trended upward to the recent levels of record production. Birmingham-based Vulcan Materials Co. remained the leading construction aggregate producer in the country. Marble operations in the State produced micronized calcium carbonate and building stone.

Government Activities and Programs

In 2007, GSA continued to publish 1:24,000-scale geologic maps in conjunction with the Federal Government's STATEMAP program. STATEMAP is a component of the congressionally mandated National Cooperative Geologic Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers.

Alabama's geologic map information is used in a variety of ways especially in the rapidly urbanizing portions of the State. New geologic mapping is critical in the State to help in delineating current economic mineral deposits and identifying

mineral resources in the expanding market regions such as the Shelby-Jefferson County area and Tennessee River Valley area of northeast Alabama. For example, the mapping of these areas has helped in identifying geologic formations that potentially contain the industrial mineral resources of chert, common clay, crushed stone (limestone, dolomite, sandstone), gravel, high-calcium limestone, sand, and shale, all of which support construction and infrastructure development. Published geologic 7.5-minute quadrangles during 2007 included the Birmingham South quadrangle in the Jefferson and Shelby County areas of the Valley and Ridge, and the Grant quadrangle in the Appalachian Plateaus of northeast Alabama.

More information on geology, hydrology, mineral occurrence, mining history, and general economics of specific mineral resources in the State is available from the GSA. The GSA produced a detailed report of Alabama's industrial minerals industry up through 2007 and the State's mineral resources. The report, which is available on the Internet, includes mining and production trends, mine production, employment in the industrial mineral and coal mining industries, tables of limestone and dolomite production by county and sand and gravel by county, and a variety of other tables, illustrations, and maps (Lewis, 2008). GSA contact information and other related geological information about the State is available over the Internet at <http://www.gsa.state.al.us>.

Reference Cited

Dean, L.S., 2008, Minerals in the economy of Alabama, 2007, Geological Survey of Alabama Information Series 64R: Tuscaloosa, AL, Geological Survey of Alabama, 24 p. (Accessed June 25, 2009, at http://www.gsa.state.al.us/documents/misc_gsa/IS64RMinerals.pdf.)

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ALABAMA^{1,2}
(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	475	54,800 ^c	526	66,500 ^c	450	59,300 ^c
Portland	5,120	421,000 ^c	5,200	468,000 ^c	5,060	486,000 ^c
Clays:						
Bentonite	109	W	W	W	W	W
Common	2,280	29,000	2,210	38,800	2,240	43,100
Gemstones	NA	371	NA	398	NA	398
Lime	2,240	181,000	2,450	224,000	2,480	234,000
Sand and gravel:						
Construction	15,700	70,500	20,100	96,000	16,700	96,500
Industrial	710	11,200	474	18,700	459	9,810
Stone:						
Crushed	50,300	329,000	57,500 ^r	387,000 ^r	52,500	402,000
Dimension	W	W	4	3,630	W	W
Combined values of clays [fire (2006), kaolin], iron oxide pigments (crude), mica [crude (2005–06)], salt, and values indicated by symbol W	XX	30,500	XX	28,400 ^r	XX	24,300
Total	XX	1,130,000	XX	1,330,000 ^r	XX	1,350,000

^cEstimated. ^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined value" data. XX Not applicable.

¹Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

²Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2
ALABAMA: CRUSHED STONE SOLD OR USED, BY TYPE¹

Type	2006			2007		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	52	45,800 ^r	\$308,000 ^r	53	44,400	\$340,000
Dolomite	3	2,120	14,500	3	1,840	14,000
Marble	2	2,940 ^r	19,900 ^r	2	2,460	18,800
Sandstone	9	2,170 ^r	14,400 ^r	8	1,350	11,300
Granite	2	1,620	11,100	1	1,060	7,960
Slate	2	655 ^r	4,480 ^r	2	605	4,640
Miscellaneous stone	3	2,240	14,500	4	711	5,480
Total	XX	57,500 ^r	387,000 ^r	XX	52,500	402,000

^rRevised. XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 3
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2007, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	172	1,570
Filter stone	W	W
Other coarse aggregate	958	10,000
Coarse aggregate, graded:		
Concrete aggregate, coarse	526	4,410
Bituminous aggregate, coarse	W	W
Bituminous surface-treatment aggregate	W	W
Other graded coarse aggregate	7,950	64,600
Fine aggregate (-¾ inch):		
Stone sand, concrete	261	2,260
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	183	1,320
Other fine aggregate	1,730	12,500
Coarse and fine aggregates:		
Graded road base or subbase	1,170	7,640
Unpaved road surface	W	W
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	382	3,030
Roofing granules	W	W
Other coarse and fine aggregates	7,110	55,700
Other construction materials	359	2,830
Agricultural, limestone	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Lime manufacture	W	W
Unspecified: ²		
Reported	9,840	74,400
Estimated	15,000	112,000
Total	52,500	402,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Reported and estimated production without a breakdown by end use.

TABLE 4
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ²	410	3,730	W	W	W	W
Coarse aggregate, graded ³	W	W	W	W	W	W
Fine aggregate (¾ inch) ⁴	967	7,470	W	W	W	W
Coarse and fine aggregates ⁵	4,980	34,400	W	W	W	W
Other construction materials	346	2,420	13	416	--	--
Agricultural ⁶	W	W	W	W	W	W
Chemical and metallurgical ⁷	--	--	W	W	W	W
Unspecified: ⁸						
Reported	236	1,810	5,270	39,900	4,330	32,700
Estimated	2,300	17,000	12,000	91,000	470	3,600
Total	14,600	108,000	31,900	238,000	6,030	55,700

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes riprap and jetty stone, filter stone, and other coarse aggregates.

³Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, and other graded coarse aggregate.

⁴Includes screening (undesignated), stone sand (concrete), stone sand (bituminous mix or seal), and other fine aggregate.

⁵Includes crusher run or fill or waste, graded road base or subbase, roofing granules, unpaved road surface, terrazzo and exposed aggregate, and other coarse and fine aggregates.

⁶Includes agricultural limestone.

⁷Includes cement and lime manufacture.

⁸Reported and estimated production without a breakdown by end use.

TABLE 5
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007,
BY MAJOR USE CATEGORY¹

Use	Quantity	Value (thousands)	Unit value
	(thousand metric tons)		
Concrete aggregate and concrete products ²	5,190	\$29,700	\$5.72
Asphaltic concrete aggregates and road base materials ³	835	5,160	6.18
Fill	598	1,330	2.22
Other miscellaneous uses ⁴	271	2,460	9.09
Unspecified: ⁵			
Reported	2,000	13,900	6.96
Estimated	7,780	44,000	5.66
Total or average	16,700	96,500	5.79

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement and lime).

⁴Includes filtration and snow and ice control.

⁵Reported and estimated production without a breakdown by end use.

TABLE 6
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	880	5,810	821	4,990	3,490	18,900
Asphaltic concrete aggregates and road base materials ³	W	W	W	W	734	4,410
Fill	--	--	3	43	594	1,290
Other miscellaneous uses ⁴	24	167	103	721	245	2,320
Unspecified: ⁵						
Reported	38	233	--	--	1,960	13,700
Estimated	60	307	1,160	6,490	6,550	37,200
Total	1,000	6,520	2,090	12,200	13,600	77,800

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement and lime).

⁴Includes filtration and snow and ice control.

⁵Reported and estimated production without a breakdown by end use.