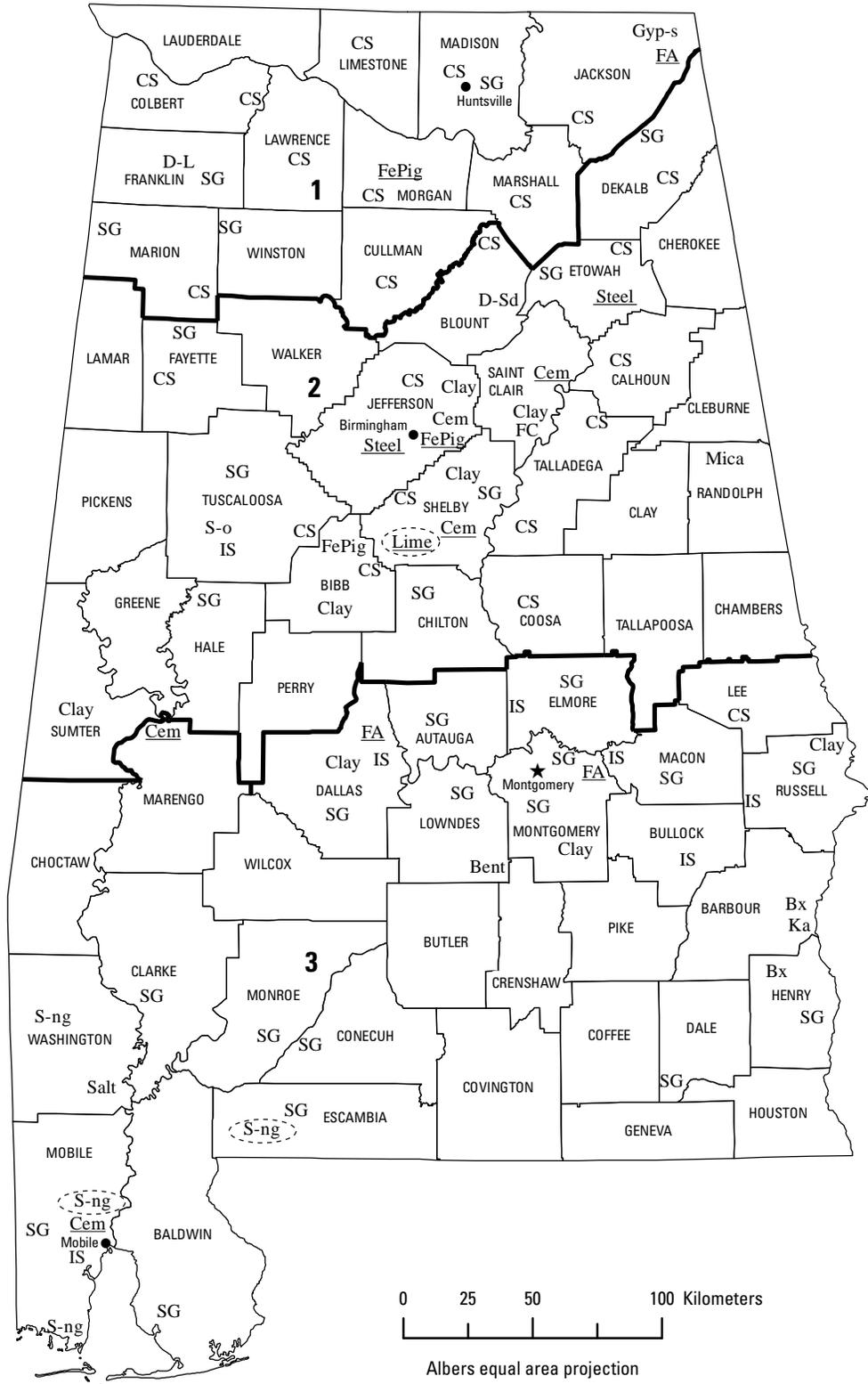




2006 Minerals Yearbook

ALABAMA

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
- S-ng Sulfur (natural gas)
- S-o Sulfur (oil)
- Steel Steel plant
- Concentration of mineral operations

Source: Geological Survey of Alabama/U.S. Geological Survey (2006).

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 2006, Alabama's nonfuel mineral production¹ was valued at \$1.36 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$230 million, or more than 20%, increase compared with that of 2005, following a 17% increase from 2004 to 2005. The State rose in rank to 16th from 20th among the 50 States in total nonfuel mineral production value and accounted for more than 2% of the U.S. total.

The top four nonfuel mineral commodities produced in Alabama in 2006 continued to be, in descending order of value, cement (portland and masonry), crushed stone, lime, and construction sand and gravel. These four commodities accounted for nearly 90% of the State's total nonfuel mineral production value; the combined value of cement and crushed stone represented 66% of the total. Most of Alabama's nonfuel minerals increased in production value in 2006. Leading in the State's rise in value were increases in the values of cement (portland and masonry), salt, lime, crushed stone, and construction sand and gravel, up by about \$59 million, more than \$44 million, \$43 million, \$36 million, and nearly \$26 million, respectively (table 1). Smaller increases took place in common clays, up by \$10 million, and industrial sand and gravel, up by \$7.5 million. Comparatively smaller decreases in value took place in the mineral commodities of crude iron oxide pigments, kaolin, and crude mica.

Alabama increased in State ranking in the quantities of many of the nonfuel mineral commodities that were produced in the State. The State rose to second from third in the production of lime, to second from third in iron oxide pigments of three producing States, to third from fourth in bentonite clay, to fifth in fire clay following no production in 2005, and to sixth from ninth in gemstones (gemstones based upon value). Alabama continued to be fourth in the production of masonry cement, seventh in portland cement, and eighth in salt; and it was the producer of substantial quantities of, in descending order of value, crushed stone and construction sand and gravel. Decreases in rank took place in the production of common clay and mica, to third from second in each, and in that of kaolin clay, to fourth from third. 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

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 2006 USGS mineral production data published in this chapter are those available as of March 2008. 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>.

iron oxide content has been reported to the USGS since 1995 as kaolin; it is primarily used to make refractory products.

The narrative information that follows was provided by the Geological Survey of Alabama² (GSA).

Exploration and Development

Mineral exploration in Alabama continued to focus on industrial mineral resources, with several large expansions of operations taking place in the State (including brick operations, calcium carbonate, cement, crushed stone, and refractory clay).

Commodity Review

Industrial Minerals

In 2006, 218 companies or operations were involved in the mining and production of industrial mineral resources in Alabama. This included 53 limestone-dolomite operations for crushed stone that were active in the State. In addition, granite, sandstone, marble, and quartzite operations for crushed stone were active in the State.

The GSA reported another year of record crushed stone production for the State with more than 54 million metric tons (60 million short tons) produced in the State. Birmingham-based Vulcan Materials Co. remained the leading construction aggregate producer in the country. Marble operations were active for the production of micronized calcium carbonate and building stone. Alabama had 30 active clay (bentonite, common clay, fire clay, fuller's earth, kaolin, and shale) operations. Clay production was led by common clay followed by shale, fuller's earth, bentonite, fire clay, and kaolin.

In 2006, 123 sand and gravel operations (including both construction and industrial operations) were active in the State. Sand and gravel production came primarily from alluvium and terrace deposits in Elmore, Macon, Montgomery, Russell, and Tuscaloosa Counties and from the Citronelle Formation in Mobile County.

Other industrial mineral operations included bauxitic clays, building stone (limestone and sandstone), cement, chalk, recovered sulfur, salt (solution recovery), and silicon.

Government Activities and Programs

The Alabama Department of Transportation (ADOT) has an annual maintenance and construction program for nearly 18,000 kilometers of highway. This work represents one of the largest uses of asphaltic and bituminous base, concrete, and stone and

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.

gravel aggregate in the State. A revised listing of approved sources of coarse and fine aggregates is available from the ADOT (Alabama Department of Transportation, 2007, p. 2–67)

In 2006, the GSA continued to publish 1:24,000–scale geologic maps in Alabama in conjunction with the STATEMAP program. STATEMAP is a component of the congressionally mandated National Cooperative Geological 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. For example, geologic mapping aids in the identification of supplies of industrial mineral resources (sand, gravel, and crushed stone) that support construction and infrastructure

development. Published geologic 7.5–minute quadrangles during 2006 included the Birmingham North, Cahaba Heights, Cottondale, Greenwood, and McCalla quads in the Jefferson, the Shelby, and the Tuscaloosa County areas of the Valley and Ridge geologic province.

More information on geology, hydrology, mineral occurrence, mining history, and general economics of specific mineral resources in Alabama is available from the Geological Survey of Alabama. Much of this information and GSA contact information is available over the Internet at <http://www.gsa.state.al.us>.

Reference Cited

Alabama Department of Transportation, 2007, List I – 1 Sources of course and fine aggregates: Alabama Department of Transportation, 68 p. (Accessed July 21, 2008, at <http://www.dot.state.al.us/NR/rdonlyres/63C54970-7695-4DFD-8582-E574DDFA7153/0/Li01.pdf>.)

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ALABAMA^{1, 2}

(Thousand metric tons and thousand dollars)

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	430	49,400 ^e	475	54,800 ^e	526	66,500 ^e
Portland	4,800	320,000 ^e	5,120	421,000 ^e	5,200	468,000 ^e
Clays:						
Bentonite	100	3,050	109	W	W	W
Common	2,120	29,600	2,280	29,000	2,210	38,800
Gemstones, natural	NA	356	NA	371	NA	398
Lime	2,280	164,000	2,240	181,000	2,450	224,000
Sand and gravel:						
Construction	14,700	65,300	15,700	70,500	20,100	96,000
Industrial	643	9,800	710	11,200	474	18,700
Stone:						
Crushed	47,800	296,000	50,300 ^r	329,000 ^r	55,400	365,000
Dimension	W	W	W	W	4	3,630
Combined values of clays (fire, kaolin), iron oxide pigments (crude), mica [crude (2005-06)], salt, stone [dimension (2004-05) marble and sandstone], and values indicated by the symbol W	XX	27,000	XX	30,500 ^r	XX	76,000
Total	XX	965,000	XX	1,130,000 ^r	XX	1,360,000

^eEstimated. ^rRevised. NA Not available. 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 KIND¹

Kind	2005			2006		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	51	41,400 ^r	\$269,000	52	44,300	\$293,000
Dolomite	3	1,990	14,400	3	2,120	14,500
Marble	2	2,750	18,200	2	2,640	16,400
Sandstone	9 ^r	1,680 ^r	10,500 ^r	9	1,980	12,300
Granite	2	1,830	12,600	2	1,620	11,100
Slate	2	561	3,650	2	481	2,990
Miscellaneous stone	3	50	436	3	2,240	14,500
Total	XX	50,300 ^r	329,000 ^r	XX	55,400	365,000

^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 2006, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	160	1,230
Filter stone	W	W
Other coarse aggregate	978	8,360
Total	1,140	9,590
Coarse aggregate, graded:		
Concrete aggregate, coarse	1,680	11,700
Bituminous aggregate, coarse	(2)	(2)
Bituminous surface-treatment aggregate	(2)	(2)
Railroad ballast	(2)	(2)
Other graded coarse aggregate	7,850	56,000
Total	11,800	83,300
Fine aggregate (-¾ inch):		
Stone sand, concrete	151	973
Stone sand, bituminous mix or seal	520	3,340
Screening, undesignated	(3)	(3)
Other fine aggregate	2,550	16,000
Total	3,220	20,300
Coarse and fine aggregates:		
Graded road base or subbase	1,700	10,200
Unpaved road surface	138	960
Crusher run or fill or waste	163	1,130
Roofing granules	(4)	(4)
Other coarse and fine aggregates	7,460	51,800
Total	9,460	64,000
Other construction materials	528	3,850
Agricultural, limestone	(5)	(5)
Chemical and metallurgical:		
Cement manufacture	(5)	(5)
Lime manufacture	(5)	(5)
Unspecified: ⁶		
Reported	12,700	82,500
Estimated	14,000	84,000
Total	26,200	166,000
Grand total	55,400	365,000

W Withheld to avoid disclosing company proprietary data; included with "Other coarse aggregate."

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

²Withheld to avoid disclosing company proprietary data, included in "Total."

³Withheld to avoid disclosing company proprietary data, included with "Other fine aggregate."

⁴Withheld to avoid disclosing company proprietary data; included with "Other coarse and fine aggregates."

⁵Withheld to avoid disclosing company proprietary data; included in "Grand total."

⁶Reported and estimated production without a breakdown by end use.

TABLE 4
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, 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	W	W	W	W	W	W
Coarse aggregate, graded ³	W	W	6,550	45,500	W	W
Fine aggregate (¾ inch) ⁴	W	W	1,910	11,400	W	W
Coarse and fine aggregates ⁵	5,060	31,600	W	W	W	W
Other construction materials	510	3,450	18	400	--	--
Agricultural ⁶	W	W	W	W	W	W
Chemical and metallurgical ⁷	--	--	W	W	W	W
Unspecified:⁸						
Reported	167	1,070	7,230	47,300	5,260	34,200
Estimated	2,200	14,000	10,000	63,000	1,200	7,200
Total	14,900	98,300	33,000	211,000	7,430	55,400

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, railroad ballast, and other graded coarse aggregate.

⁴Includes screening (undesigned), 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, 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 2006,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and concrete products ²	7,640	\$34,900	\$4.57
Asphaltic concrete aggregates and road base materials	1,340	9,600	7.14
Road and other stabilization (lime)	19	131	6.94
Fill	1,400	3,360	2.41
Other miscellaneous uses ³	174	1,490	8.58
Unspecified:⁴			
Reported	2,340	12,800	5.50
Estimated	7,160	33,600	4.69
Total or average	20,100	96,000	4.78

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

²Includes plaster and gunite sands.

³Includes snow and ice control, railroad ballast, filtration, and golf course.

⁴Reported and estimated production without a breakdown by end use.

TABLE 6
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006, 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	1,200	6,940	683	3,340	5,760	24,700
Asphaltic concrete aggregates and road base materials	W	W	125	378	W	W
Road and other stabilization (lime)	--	--	--	--	19	131
Fill	9	26	13	50	1,370	3,280
Other miscellaneous uses ³	96	520	168	1,430	1,130	8,760
Unspecified: ⁴						
Reported	94	467	8	35	2,230	12,300
Estimated	237	1,110	452	2,160	6,470	30,300
Total	1,630	9,060	1,450	7,390	17,000	79,500

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 snow and ice control, railroad ballast, filtration, and golf course.

⁴Reported and estimated production without a breakdown by end use.