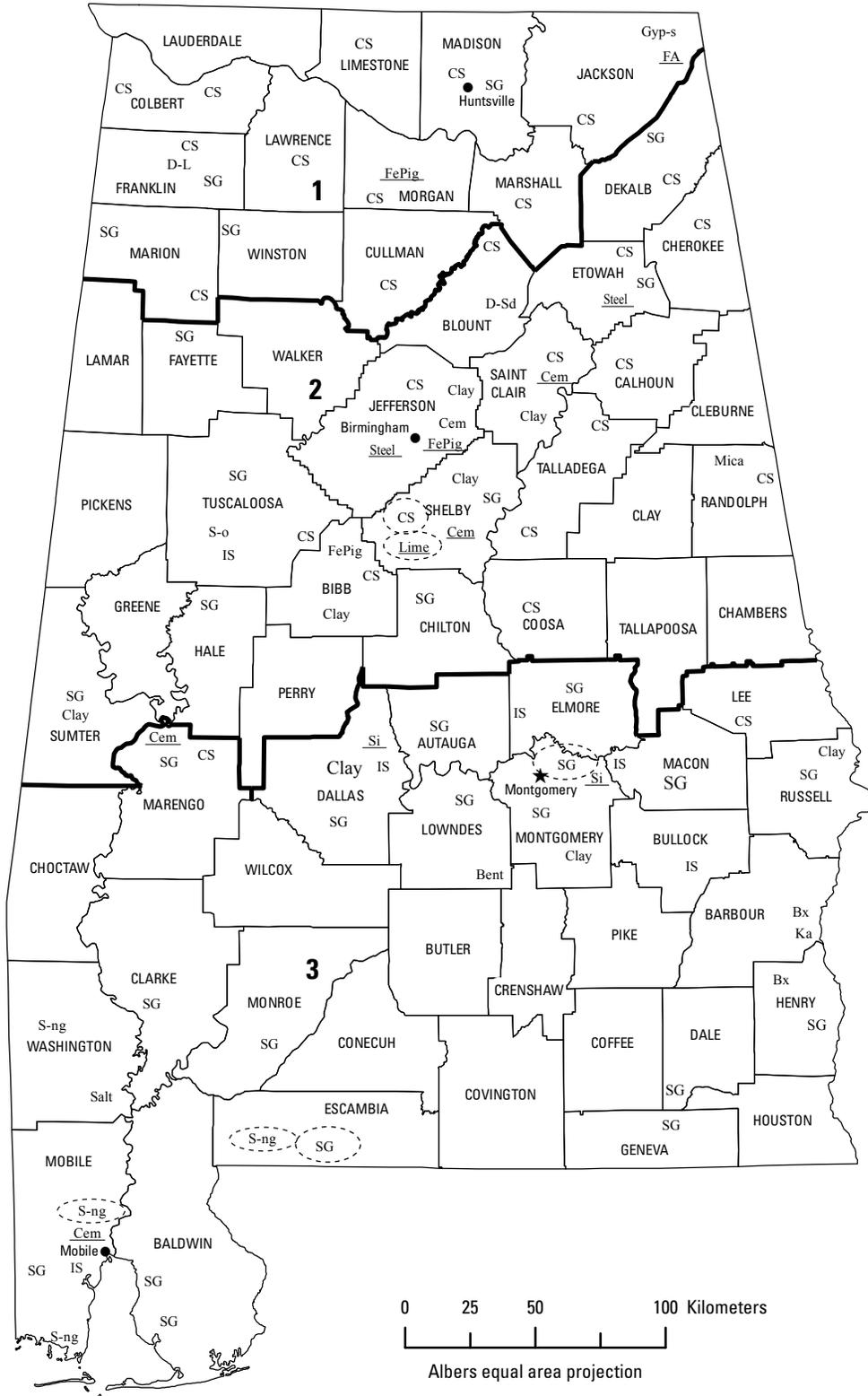




2008 Minerals Yearbook

ALABAMA

ALABAMA



LEGEND

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

**MINERAL SYMBOLS
 (Principal producing areas)**

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

Source: Geological Survey of Alabama/U.S. Geological Survey (2008).

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 2008, Alabama's nonfuel mineral production¹ was valued at \$1.3 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$30 million, or an almost 2.3%, decrease compared with that of 2007, following a \$10 million, or a less than 1%, increase from 2006 to 2007. The State remained 18th in rank among the 50 States in total nonfuel mineral production value and accounted for 1.8% of the U.S. total.

The top five nonfuel mineral commodities produced in Alabama in 2008 were, in descending order of value, portland cement, crushed stone, lime, construction sand and gravel, and salt. The first four remained unchanged in rank, by production value, from 2007. These five mineral commodities accounted for more than 92% of the State's total nonfuel mineral production value; the combined value of portland cement and crushed stone represented almost 63% of the total. Leading in the State's rise in production value were increases in the production values of salt (withheld—company proprietary data), lime, and industrial sand and gravel. The production of lime was down 6.4% but saw a 2.2% rise in production value. The production of industrial sand and gravel, however, was up 35% from 2007, for a total increase in production value of almost \$4.8 million. Smaller increases took place in kaolin and bentonite clays. The largest production value decreases took place in portland and masonry cement (down \$36 and \$21 million, respectively), crushed stone (down \$12.7 million), and construction sand and gravel (down \$9.8 million) (table 1).

In 2008, Alabama continued to be second among lime-producing States, second of three iron oxide pigment-producing States, third in kaolin clay, fourth in masonry cement and bentonite clay, seventh in portland cement, and eighth in salt. The State decreased from 1st to 2d in common clay production and to 10th from 6th in gemstones (gemstones based upon value). 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.

The narrative information that follows was provided by the Geological Survey of Alabama² (GSA). In 2008, approximately 200 companies or operations were involved in the mining and

production of industrial mineral resources in Alabama. The total numbers of reported operations are derived from information presented in the 2008 Annual Report—Statistical Supplement of the Mining and Reclamation Division (MRD) of the Alabama Department of Industrial Relations (ADIR) and cover the time period of October 1, 2007, to September 30, 2008 (ADIR, 2008). These numbers may differ from those reported by the USGS due to different methodologies, classification schemas, and reporting requirements used by the USGS and the GSA, respectively.

Exploration and Development

Mineral exploration and mine and plant development in Alabama continued to focus on industrial mineral resources, with some expansions of operations taking place, though at a reduced scale than in 2007. 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 23 active clay (bentonite, common clay, fire clay, fuller's earth, kaolin, and shale) operations, down from 35 in 2007. Clay production was led by common clay 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 2008, 145 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.

Stone, Crushed.—The State added 5 more limestone-dolomite operations for crushed stone in 2008, bringing the total number of operations to 58. In addition, granite, sandstone, marble, and quartzite operations continued to produce crushed stone in the State. The GSA reported total crushed stone production at almost 42 million metric tons (more than 46 million short tons) produced. Birmingham-based Vulcan Materials Co. remained the leading construction aggregate producer in the country.

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 2008 USGS mineral production data published in this chapter are those available as of July 2010. 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>.

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.

Government Activities and Programs

In 2008, 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 (the greater Birmingham 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, and sandstone), gravel, high-calcium limestone, sand,

and shale, all of which support construction and infrastructure development. Published geologic 7.5-minute quadrangles during 2008 included the Concord quadrangle in the Jefferson County area of the Valley and Ridge region and the Wannville 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. GSA contact information and other related geological information about the State is available over the Internet at <http://www.gsa.state.al.us>.

Additionally, the Alabama Department of Transportation (ADOT) maintains an annual maintenance and construction program for more than 17,000 kilometers (km) (approximately 11,000 miles) of highway. This work represents one of the largest uses for concrete, asphaltic and bituminous base, and construction aggregates (crushed stone and construction sand and gravel) in the State. An updated listing of approved sources of coarse and fine aggregates is available from ADOT at <http://www.dot.state.al.us/mtweb/Testing/MSDSAR/doc/QMSD/Li01.pdf>.

Reference Cited

Alabama Department of Industrial Relations (ADIR), Mining and Reclamation Division, 2008, Annual Report—Statistical Summary, 49 p. (Accessed June 2, 2011, at http://dir.alabama.gov/mr/2008_ANNUAL.pdf.)

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

(Thousand metric tons and thousand dollars)

Mineral	2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	526	66,500 ^e	450	59,300 ^e	303	38,000 ^e
Portland	5,200	468,000 ^e	5,060	486,000 ^e	4,640	450,000 ^e
Clays, common	2,210	38,800	2,240	42,300 ^f	1,970	34,400
Gemstones, natural	NA	398	NA	398	NA	398
Lime	2,450	224,000	2,480	234,000	2,320	239,000
Sand and gravel:						
Construction	20,100	96,000	16,700	96,500	13,700	86,700
Industrial	474	9,300 ^f	459	9,810	619	14,600
Stone:						
Crushed	57,600 ^f	387,000	55,600 ^f	382,000 ^f	50,000	369,000
Dimension	4	3,630	W	W	7	3,720
Combined values of clays [bentonite, fire (2006), kaolin] iron oxide pigments (crude), mica [crude (2006, 2008)] salt, and values indicated by symbol W	XX	28,400	XX	24,300	XX	68,200
Total	XX	1,320,000 ^f	XX	1,330,000 ^f	XX	1,300,000

^eEstimated. ^fRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" 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	2007			2008		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	54 ^r	47,600 ^r	\$319,000 ^r	54	42,900	\$313,000
Dolomite	3	1,840	14,000	2	1,340	12,100
Marble	2	2,460	18,800	2	2,120	15,800
Sandstone & Quartzite	8	1,350	11,300	7	1,230	9,390
Granite	1	1,060	7,960	3	1,400	9,680
Slate	2	605	4,640	2	1,000	7,490
Miscellaneous stone	4	711	5,480	3	76	984
Total	XX	55,600 ^r	382,000 ^r	XX	50,000	369,000

^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 2008, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	320	2,930
Filter stone	25	232
Other coarse aggregate	1,290	13,100
Coarse aggregate, graded:		
Concrete aggregate, coarse	6,090	15,600
Bituminous aggregate, coarse	1,620	11,700
Bituminous surface-treatment aggregate	W	W
Railroad ballast	W	W
Other graded coarse aggregate	6,210	58,100
Fine aggregate (-¾ inch):		
Stone sand, concrete	211	719
Stone sand, bituminous mix or seal	93	820
Screening, undesignated	345	2,510
Other fine aggregate	1,430	11,700
Coarse and fine aggregates:		
Graded road base or subbase	1,490	10,200
Unpaved road surface	168	428
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	889	7,270
Roofing granules	W	W
Other coarse and fine aggregates	7,700	76,000
Other construction materials	157	1,560
Agricultural:		
Limestone	W	W
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Cement manufacture	2,380	7,170
Lime manufacture	5,980	37,100
Flux stone	W	W
Sulfur oxide removal	W	W
Special, mine dusting or acid water treatment	W	W
Unspecified:²		
Reported	6,120	55,500
Estimated	6,400	48,000
Total	50,000	369,000

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 2008, 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	503	4,630	W	W	W	W
Coarse aggregate, graded ³	W	W	9,420	45,900	W	W
Fine aggregate (-¾ inch) ⁴	W	W	1,190	8,280	W	W
Coarse and fine aggregates ⁵	4,520	37,300	4,740	38,200	W	W
Other construction materials	142	1,090	15	473	--	--
Agricultural ⁶	W	W	W	W	--	--
Chemical and metallurgical ⁷	--	--	W	W	W	W
Special ⁸	--	--	W	W	--	--
Unspecified: ⁹						
Reported	283	2,570	3,060	27,700	2,780	25,200
Estimated	1,200	8,600	4,800	36,000	454	3,400
Total	11,500	94,800	32,600	210,000	5,890	64,600

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 (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 and poultry grit and mineral food.

⁷Includes cement and lime manufacture, flux stone, and sulfur oxide removal.

⁸Includes mine dusting or acid water treatment.

⁹Reported and estimated production without a breakdown by end use.

TABLE 5
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	5,350	\$30,800	\$5.76
Concrete products (blocks, bricks, pipe, decorative, etc.)	25	370	14.80
Asphaltic concrete aggregates and other bituminous mixtures	635	6,010	9.47
Road base and coverings	177	1,800	10.18
Road stabilization (lime)	1	2	2.00
Fill	553	1,620	2.92
Other miscellaneous uses ³	216	2,530	11.71
Unspecified: ⁴			
Reported	1,450	10,600	7.30
Estimated	5,300	33,000	6.28
Total or average	13,700	86,700	6.35

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

²Includes plaster and gunite sands.

³Includes snow and ice control.

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

TABLE 6
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008, 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	W	W	W	W	3,870	21,300
Asphaltic concrete aggregates and road base materials ³	W	W	W	W	724	6,400
Fill	--	--	4	61	549	1,560
Other miscellaneous uses ⁴	738	5,430	943	7,060	133	1,360
Unspecified: ⁵						
Reported	32	211	71	1,400	1,340	8,960
Estimated	5	31	646	4,100	4,600	29,000
Total	775	5,670	1,660	12,600	11,200	68,500

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 road and other stabilization (cement and lime).

⁴Includes snow and ice control.

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