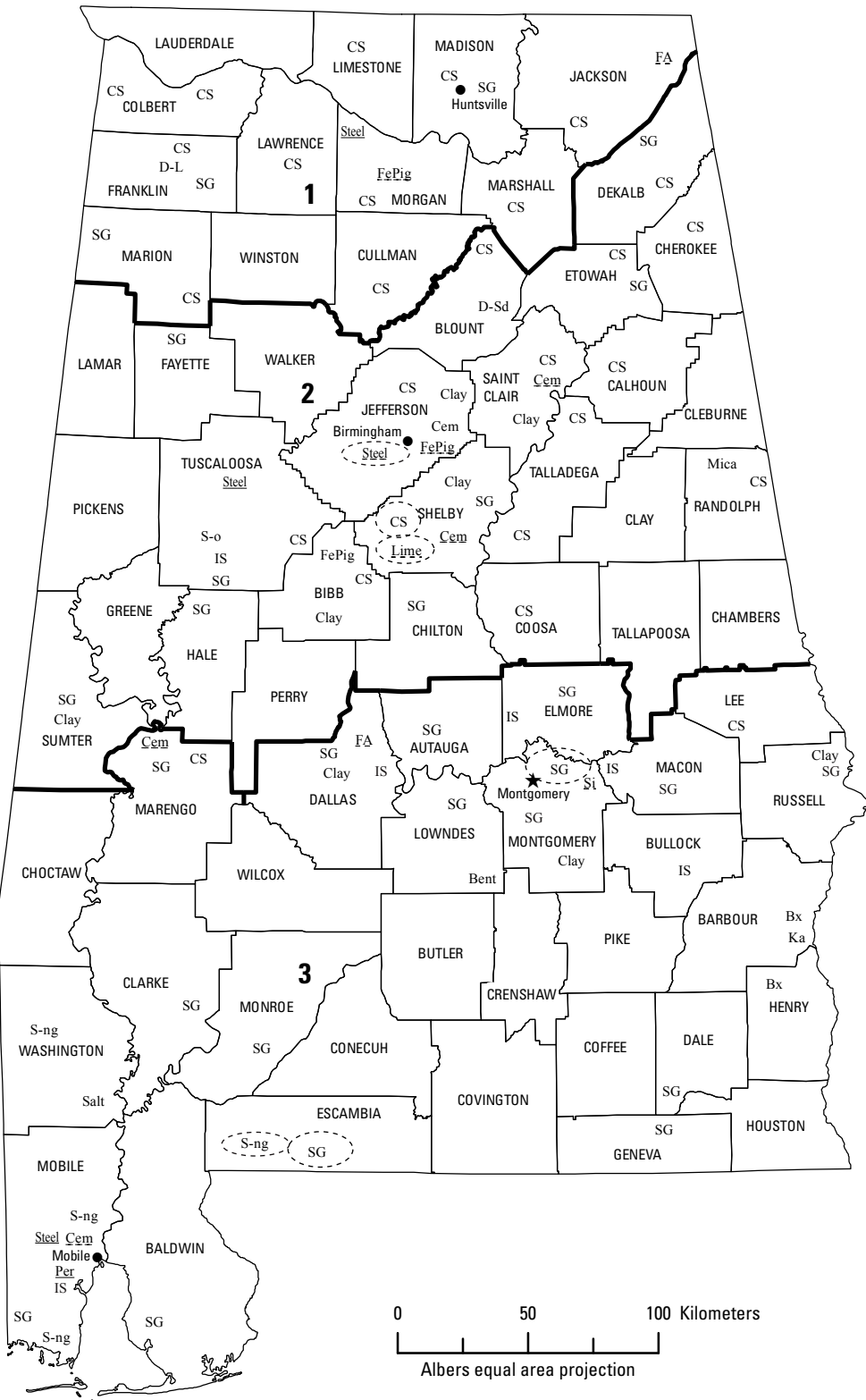




2009 Minerals Yearbook

ALABAMA

ALABAMA



LEGEND

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

MINERAL SYMBOLS (Principal producing areas)

- Bent Bentonite
- Bx Bauxite
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- D-L Dimension limestone
- D-Sd Dimension sandstone
- FA Ferroalloys plant
- FePig Iron oxide pigments
- FePig Iron oxide pigment plant
- IS Industrial sand
- Ka Kaolin
- Lime Lime plant
- Mica Mica
- Per Perlite plant
- 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

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 2009, Alabama's nonfuel mineral production¹ was valued at \$1.02 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$240 million, or a 19%, decrease compared with the State's total nonfuel mineral production value of \$1.26 billion in 2008, following a \$70 million, or a 5%, decrease from \$1.33 billion in 2007. Although the State's total production value decreased from 2008 to 2009, the State rose to 17th from 18th in rank among the 50 States in total nonfuel mineral production value and accounted for 1.7% of the U.S. total.

The top five nonfuel mineral commodities produced in Alabama in 2009 were, in descending order of value, crushed stone, portland cement, lime, construction sand and gravel, and masonry cement. These five mineral commodities accounted for approximately 94% of the State's total nonfuel mineral production value; the combined value of the top three mineral commodities produced in the State—crushed stone, portland cement, and lime—accounted for 85% of the total production value. Only two mineral commodities increased in production value from 2008 to 2009, salt and crude iron oxide pigments (actual values withheld—company proprietary data), though the production of both of these mineral commodities decreased over the same time period.

The three largest decreases in production value took place with portland cement, crushed stone, and construction sand and gravel, down by \$143 million, \$38 million, and \$23 million, respectively. The largest decrease in production took place with crushed stone, down by almost 14 million metric tons (Mt), from a total of 50 Mt in 2008 to 36 Mt in 2009. Construction sand and gravel followed, down by 3.8 Mt from almost 14 Mt in 2008 to almost 10 Mt in 2009, followed by portland cement, down by 1.2 Mt from 4.6 Mt to 3.4 Mt (table 1).

In 2009, the State remained second among the 33 lime-producing States, second of the three iron oxide-producing States, fourth in bentonite clay production, and eighth in salt production. The State increased to third from fourth in masonry cement production and to sixth from seventh in portland cement production. The State declined in rank to second from first in quantities of common clays produced and to 15th from 10th 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 from foreign sources. Production of a natural mixture of bauxite (no longer used to produce primary

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 2009 USGS mineral production data published in this chapter are those available as of September 2011. 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>.

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. Iron oxide pigments were mined in Bibb, Jefferson, and Morgan Counties. Steel was produced in the Birmingham region and also at a facility in Etowah County.

The narrative information that follows was provided by the Geological Survey of Alabama² (GSA). The GSA production data and information, except where otherwise noted, were based upon the agency's own surveys and mine inquiries, company annual reports, and data and information derived from other State government agency sources. These data may differ from USGS annual production figures, which were based upon company responses to USGS surveys and upon USGS estimates.

Overview

In 2009, approximately 272 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 2009 Annual Report—Statistical Supplement of the Mining and Reclamation Division of the Alabama Department of Industrial Relations and cover the time period of October 1, 2008, to September 30, 2009 (Alabama Department of Industrial Relations, 2009).

Commodity Review

Industrial Minerals

Clays.—Alabama had 35 active clay (bentonite, common clay, fire clay, fuller's earth, kaolin, and shale) operations in 2009, up from 23 in 2008. 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, Construction, and Sand and Gravel, Industrial.—In 2009, 157 sand and gravel operations (including both construction and industrial operations) were active in the State, an increase from 145 in 2008. 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.

Stone, Crushed.—The State had 54 limestone-dolomite operations for crushed stone in 2009, 4 fewer than in 2008. In addition, granite, sandstone, and quartzite operations continued to produce crushed stone in the State. The GSA reported total crushed stone production at almost 31 million metric tons (more

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.

than 34 million short tons) produced. Birmingham-based Vulcan Materials Co. remained the leading construction aggregate producer in the country.

Government Activities and Programs

In 2009, 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 2009 included the Stevenson and Hollywood quadrangles in the Jackson County area of the Appalachian Plateau region 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—Mining and Reclamation Division, 2009, Annual report—Statistical summary: Birmingham, AL, Alabama Department of Industrial Relations, September 30, 46 p. (Accessed January 14, 2013, at http://dir.alabama.gov/Inspections/Mining/docs/2009_ANNUAL.pdf.)

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

(Thousand metric tons and thousand dollars)

Mineral	2007		2008		2009	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	450	59,300 ^e	303	38,000 ^e	208	25,600 ^e
Portland	5,060	486,000 ^e	4,640	450,000 ^e	3,420	307,000 ^e
Clays, common	2,240	42,300	1,970	34,400	1,340	25,300
Gemstones, natural	NA	398	NA	398	NA	143
Lime	2,480	234,000	2,320	239,000	1,960	225,000
Sand and gravel:						
Construction	16,700	96,500	13,800 ^r	87,300 ^r	10,000	64,800
Industrial	459	9,810	619	14,600	370	11,200
Stone:						
Crushed	55,600	382,000	50,000	370,000 ^r	36,400	332,000
Dimension, marble and sandstone	W	W	7	3,720	4	1,460
Combined values of clays (bentonite, kaolin), iron oxide pigments (crude), mica [crude (2008–09)], salt, and values indicated by symbol W	XX	24,300	XX	26,700 ^r	XX	26,500
Total	XX	1,330,000	XX	1,260,000 ^r	XX	1,020,000

^eEstimated. ^rRevised. 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	2008			2009		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone ²	56 ^r	44,200 ^r	\$326,000 ^r	55	30,400	\$279,000
Marble	2	2,120	15,800	2	1,680	13,600
Sandstone & Quartzite	7	1,230	10,500 ^r	7	1,220	11,300
Granite	3	1,400	9,680	4	2,210	20,300
Slate	2	1,000	7,490	2	781	6,340
Miscellaneous stone	3	76	985 ^r	4	84	844
Total	XX	50,000	370,000 ^r	XX	36,400	332,000

^rRevised. XX Not applicable.

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

²Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2009, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	251	2,610
Filter stone	W	W
Other coarse aggregate	1,290	15,600
Coarse aggregate, graded:		
Concrete aggregate, coarse	714	6,530
Bituminous aggregate, coarse	1,170	9,960
Bituminous surface-treatment aggregate	W	W
Railroad ballast	757	7,280
Other graded coarse aggregate	4,280	42,400
Fine aggregate (-¾ inch):		
Stone sand, concrete	141	1,550
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	86	695
Other fine aggregate	1,130	9,870
Coarse and fine aggregates:		
Graded road base or subbase	1,540	12,100
Unpaved road surface	246	1,520
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	298	2,620
Roofing granules	W	W
Other coarse and fine aggregates	5,510	63,200
Other construction materials	160	1,440
Agricultural:		
Limestone	184	1,750
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Cement manufacture	1,540	9,790
Lime manufacture	W	W
Sulfur oxide removal	W	W
Other miscellaneous uses and specified uses not listed	37	601
Unspecified: ²		
Reported	4,920	46,800
Estimated	9,710	73,100
Total	36,400	332,000

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 2009, 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	633	7,040	W	W	W	W
Coarse aggregate, graded ³	W	W	W	W	W	W
Fine aggregate (-¾ inch) ⁴	W	W	W	W	W	W
Coarse and fine aggregates ⁵	2,340	20,200	3,980	38,100	W	W
Other construction materials	136	1,150	23	295	--	--
Agricultural ⁶	W	W	W	W	--	--
Chemical and metallurgical ⁷	--	--	W	W	--	--
Other miscellaneous uses	--	--	37	601	--	--
Unspecified: ⁸						
Reported	1,030	11,700	2,870	25,700	1,020	9,360
Estimated	1,020	8,490	7,580	54,400	1,110	10,200
Total	8,910	81,900	22,700	192,000	4,810	58,200

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, terrazzo and exposed aggregate, and other coarse and fine aggregates.

⁶Includes agricultural limestone and poultry grit and mineral food.

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

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

TABLE 5
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2009,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	3,790	\$21,900	\$5.78
Concrete products (blocks, bricks, pipe, decorative, etc.)	74	989	13.36
Asphaltic concrete aggregates and other bituminous mixtures	377	3,730	9.89
Road base and coverings	123	1,330	10.81
Road and other stabilization (lime)	5	20	4.00
Fill	354	1,290	3.64
Other miscellaneous uses ³	41	452	11.02
Unspecified: ⁴			
Reported	407	2,690	6.61
Estimated	4,820	32,400	6.72
Total or average	10,000	64,800	6.48

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 golf course, filtration, and 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 2009, 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	2,680	14,900
Asphaltic concrete aggregates and road base materials ³	W	W	W	W	431	4,200
Fill	1	3	4	53	349	1,230
Other miscellaneous uses ⁴	839	5,980	440	3,100	28	292
Unspecified: ⁵						
Reported	14	101	--	--	394	2,580
Estimated	--	--	655	5,310	4,160	27,100
Total	853	6,080	1,100	8,460	8,040	50,300

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 (lime).

⁴Includes golf course, filtration, and snow and ice control.

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