

# 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 1998, the preliminary estimated value<sup>1</sup> of nonfuel mineral production for Alabama was \$947 million, according to the U.S. Geological Survey (USGS). This was a more than 7% increase from that of 1997,<sup>2</sup> following a 13.2% increase from 1996 to 1997. The State rose in rank to 16th from 17th among the 50 States in total nonfuel mineral production value, of which Alabama accounted for almost 2.5% of the U.S. total.

The top four nonfuel mineral commodities produced in Alabama in 1998 were, in descending order of value, portland cement, crushed stone, lime, and construction sand and gravel; they accounted for 90% of the State's total nonfuel mineral production value. The combined value of crushed stone and portland cement represented 71% of the total. Of the State's overall increase in value from 1997 to 1998, 53% of it resulted from the \$35 million increase in crushed stone and 30% was accounted for by the \$20 million rise in portland cement (table 1). Construction sand and gravel increased by about \$7 million. Most other nonfuel minerals increased in value, except for gemstones, which had a small decrease; the values of kaolin, crude iron oxide pigments, and salt virtually remained the same. In 1997, the most significant increases were the \$75 million rise in crushed stone and the \$18 million increase in portland cement (table 1).

Nonfuel mineral production in Alabama consisted entirely of industrial minerals; no metals were mined in the State. Compared with USGS estimates of the quantities produced in the other 49 States in 1998, Alabama remained first<sup>2</sup> in common clays, third in masonry cement and kaolin, fourth in lime and iron oxide pigments, sixth in portland cement, and eighth in salt. The State rose to second from third in the production of bentonite and to third from fourth in fire clays. Additionally, Alabama's stone quarries and sand pits produced substantial quantities of crushed stone and construction and industrial sand and gravel. All metal production in the State,

<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or 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 1998 USGS mineral production data published in this chapter are preliminary estimates as of February 1999 and are expected to change. For some mineral commodities (for example, construction sand and gravel, crushed stone, and portland cement), estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. A telephone listing for the specialists may be retrieved over the Internet at <http://minerals.usgs.gov/minerals/contacts/comdir.html>; by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists); or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

<sup>2</sup>Values, percentage calculations, and rankings for 1997 may vary from the *Minerals Yearbook, Area Reports: Domestic 1997, Volume II*, owing to the revision of preliminary 1997 to final 1997 data. Data for 1998 are preliminary and expected to change, while related rankings may also be subject to change.

especially that of raw steel, was the result of processing materials acquired from other domestic and foreign sources. Bauxite is no longer mined in Alabama to produce primary aluminum. Production of a natural mixture of bauxite and bauxitic clay with a very low iron oxide content has been reported to the USGS since 1995 as kaolin; it is primarily used to make refractory (high-temperature-resistant) products.

The Geological Survey of Alabama<sup>3</sup> provided the narrative information that follows. In Alabama, 155 companies or operations were involved in the mining and production of industrial minerals, which included crushed stone, sand, gravel, bentonite, fuller's earth, fire clay, kaolin, common clay, marl, shale, bauxitic clay, building stone, calcium carbonate, recovered sulfur, and salt (solution mining).

The State's crushed stone production included a variety of rock types—limestone, dolomite, marble, sandstone, granite, and quartzite. Record production of 34.5 million metric tons of limestone and dolomite was recorded in 1997 (final data for 1998 are not yet available). Shelby County, the leading limestone-producing area in the State, has had an average annual production of 6.4 million metric tons since 1970, representing roughly 30% of the entire production in Alabama. Shelby County is expected to continue to be the leading stone producing area of the State.

The limestones and dolomites of Alabama have a wide variety of chemical and physical properties suitable for various applications. Limestones of varying grades are used for aggregates, dimension stone, flux, and soil conditioners, and in many industrial processes, including the manufacture of abrasives, cement, chemicals, fillers, glass, lime, and refractories.

Marble production from Sylacauga in Talladega County reached a record of 1.6 million metric tons in 1997. This trend of increasing production, which has been maintained since 1990, is expected to continue past 2000, owing to the economic applications of micronized marble. It is shipped as a slurry and is used in paper pigment and coating and numerous other diverse applications.

Mineral exploration in Alabama continued to focus on industrial resources with several large expansions and new operations in recent years. Vulcan Materials Co.'s new Tuscaloosa quarry recently began operation near Vance to meet demand for crushed stone in a high-growth area (Nicholson, 1997). Opelika Materials LLC recently began crushed stone operations at the historic Chewacla marble quarry in Lee County (Stevenson, 1997). McCartney Construction Co. recently open its Coldwater Mountain quarry near Anniston, producing crushed quartzite for aggregate. ECC International has made a \$6 million expansion of its micronized calcium carbonate operation in Sylacauga.

<sup>3</sup>Lewis S. Dean, a Geologist at the Geological Survey of Alabama, authored the text of State minerals information provided by that agency.

Clanton Classic Stone continued development of a new building stone operation from a varicolored "marble" (polished limestone) in Lauderdale County (Adams, 1998). Other expanding mineral industries include refractory clay products in Calhoun County and limestone production in Jefferson County. Duke Energy announced an \$88 million petroleum refining and natural gas cleansing plant in Mobile (Alabama Development Office, 1997).

Sand and gravel production has come primarily from deposits in the Montgomery district. Other large producing areas of the State are Tuscaloosa, Russell, and Mobile Counties. In the past, small plants alone produced sand and gravel for a specific job or area. Recently the trend has been to develop large, high-capacity plants using long-distance transportation. Although many of the plants are small, they are designed to produce large quantities of material.

The Geological Survey of Alabama published its annual minerals industry summary that provides details of the occurrence, mining history, and general economics of specific mineral resources in Alabama. More information on geology, hydrology, and environmental considerations related to these resources is available from the Geological Survey of Alabama.

### References Cited

- Adams, Jennifer, 1998, A promising discovery: Stone World, September, v. 15, no. 9, p. 40, 43-44, 47.  
 Alabama Development Office, 1997, Alabama Development Office 1997 annual report: Alabama Development Office, 75 p.  
 Nicholson, Gilbert, 1997, Growth expected at Vance Quarry: The Tuscaloosa News, April 10, v. 179, no. 100, p. 5C.  
 Stevenson, Gene, 1997, New Opelika limestone company operating in quarry dating back to 1850s: The Opelika-Auburn News, March 7, v. 93, p. A-1.

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

Mineral	1996		1997		1998 p/	
	Quantitv	Value	Quantitv	Value	Quantitv	Value
<b>Cement:</b>						
Masonrv	309	32.000 e/	346	36.200 e/	352	38.000
Portland	4.330	326.000 e/	4.280	344.000 e/	4.430	364.000
<b>Clavs:</b>						
Bentonite	166	5.060	W	W	W	W
Common	2.290	17.100	2.590	25.400	2.640	25.900
Fire	52	2.800	W	W	W	W
Kaolin	254	W	W	W	W	W
<b>Gemstones</b>	NA	2.000	NA	860	NA	175
Lime	1.860	116.000	1.830	115.000	1.900	116.000
<b>Sand and gravel:</b>						
Construction	13.800	60.600	13.400	58.800	14.500	65.600
Industrial	799	8.380	734	9.730	745	9.900
Stone: Crushed	38.900	198.000	42.000	273.000	45.600	308.000
Combined values of iron oxide pigments [crude, (1997-98)], salt, stone (dimension limestone and sandstone), and values indicated by symbol W	XX	9.930	XX	17.600	XX	20.200
<b>Total</b>	<b>XX</b>	<b>778.000</b>	<b>XX</b>	<b>881.000</b>	<b>XX</b>	<b>947.000</b>

e/ Estimated. p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data: value included with "Combined values" data. XX Not applicable.

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

2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 2  
 ALABAMA: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1996				1997			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	43	34.400 r/	\$167.000 r/	\$4.85 r/	45	37.300	\$194.000	\$5.21
Dolomite	3	W	W	5.34	3	W	W	5.47
Marble	2 r/	W	W	10.55 r/	2	W	W	35.38
Granite	4 r/	W	W	3.36 r/	4	W	W	5.46
Slate	2	W	W	3.46	1	W	W	5.17
<b>Total</b>	<b>XX</b>	<b>38.900</b>	<b>198.000</b>	<b>5.09</b>	<b>XX</b>	<b>42.000</b>	<b>273.000</b>	<b>6.51</b>

r/ Revised. W Withheld to avoid disclosing company proprietary data: included in "Total." XX Not applicable.

1/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

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

TABLE 3  
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS  
IN 1997, BY USE 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch) 2/	752	\$4,990	\$6.64
Coarse aggregate, graded:			
Concrete aggregate, coarse	2,450	12,900	5.27
Bituminous aggregate, coarse	4,210	22,500	5.35
Bituminous surface-treatment aggregate	612	3,320	5.42
Other graded coarse aggregate 3/	438	3,380	7.73
Fine aggregate (-3/8 inch):			
Stone sand, concrete	555	2,950	5.31
Stone sand, bituminous mix or seal	1,820	9,450	5.20
Screening, undesignated	136	682	5.01
Other fine aggregate	40	248	6.20
Coarse and fine aggregates:			
Graded road base or subbase	3,680	18,400	5.00
Unpaved road surfacing	27	150	5.56
Crusher run or fill or waste	2,790	15,900	5.71
Other coarse and fine aggregates	387	4,630	11.97
Other construction materials	260	1,450	5.57
Agricultural:			
Agricultural limestone	216	1,150	5.31
Other agricultural uses 4/	147	2,110	14.37
Chemical and metallurgical:			
Cement manufacture	3,080	9,320	3.03
Lime manufacture	1,600	7,390	4.63
Special:			
Whiting or whiting substitute	650	35,800	55.08
Other fillers or extenders	217	11,900	54.99
Unspecified: 5/			
Actual	12,400	73,500	5.93
Estimated	5,530	31,000	5.60
Total	42,000	273,000	6.51

1/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

2/ Includes filter stone, macadam, other coarse aggregate, and riprap and jetty stone.

3/ Includes railroad ballast.

4/ Includes poultry grit and mineral food.

5/ Includes reported and estimated production without a breakdown by end use.

TABLE 4  
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1997,  
BY USE AND DISTRICT 1/

Use	District 1		District 2		District 3	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<b>Construction aggregates:</b>						
Coarse aggregate (+1 1/2 inch) 2/	389	\$2,450	W	W	W	W
Coarse aggregate, graded 3/	W	W	W	W	W	W
Fine aggregate (-3/8 inch) 4/	W	W	W	W	W	W
Coarse and fine aggregate 5/	W	W	W	W	W	W
Other construction materials	8,650	45,500	8,570	\$46,100	527	\$6,930
Agricultural 6/	186	1,020	176	2,240	--	--
Chemical and metallurgical 7/	--	--	3,350	12,500	(8/)	(8/)
Special 9/	--	--	866	47,700	--	--
Unspecified 10/						
Actual	(8/)	(8/)	9,650	60,600	(8/)	(8/)
Estimated	378	1,930	5,160	29,100	--	--
Total	10,900	55,600	27,800	198,000	3,340	19,400

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes, macadam, riprap and jetty stone, and other coarse aggregate.

3/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast and other coarse aggregates.

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

5/ Includes graded road base or subbase, unpaved road surfacing, terrazzo and exposed aggregate, and crusher run (select material or fill).

6/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

7/ Includes cement manufacture, lime manufacture, and flux stone.

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

9/ Includes whiting or whiting substitute and other fillers or extenders.

10/ Includes reported and estimated production without a breakdown by end use.

TABLE 5  
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,  
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value (thousands)	Value per ton
	(thousand metric tons)		
Concrete aggregate (including concrete sand) 2/	4,610	\$17,900	\$3.88
Concrete products (blocks, bricks, pipe, decorative, etc.)	268	1,760	6.58
Asphaltic concrete aggregates and other bituminous mixtures 3/	637	3,920	6.16
Road base and coverings 4/	779	3,180	4.08
Fill	359	851	2.37
Filtration	11	50	4.55
Unspecified: 5/			
Actual	4,000	19,300	4.83
Estimated	2,780	11,900	4.28
Total or average	13,400	58,800	4.38

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes plaster and gunite sands.

3/ Includes snow and ice control.

4/ Includes road and other stabilization (lime).

5/ Includes reported and estimated production without a breakdown by end use.

TABLE 6  
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,  
BY USE AND DISTRICT 1/

(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/	557	2,880	668	2,780	3,660	14,000
Asphaltic concrete aggregates 3/	W	W	369	1,740	W	W
Road base and coverings 4/	--	--	132	650	647	2,530
Filtration	11	50	--	--	--	--
Unspecified: 5/						
Actual	W	W	366	2,330	W	W
Estimated	272	740	344	926	2,160	10,200
Total	1,440	6,110	1,880	8,430	10,100	44,300

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

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes plaster and gunite sands.

3/ Includes snow and ice control.

4/ Includes road and other stabilization (lime).

5/ Includes reported and estimated production without a breakdown by end use.