

# THE MINERAL INDUSTRY OF ALABAMA

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

In 1995, for the third consecutive year, Alabama was 18th among the 50 States in nonfuel mineral production value,<sup>1</sup> according to the U.S. Geological Survey (USGS). The estimated value for 1995 was \$676 million, nearly an 8% increase from that of 1994. This followed an 11.5% increase from 1993 to 1994 (based on final data). The State accounted for a little less than 2% of the U.S. total nonfuel mineral production value.

The top four nonfuel mineral commodities produced in Alabama were, in descending order of value, portland cement, crushed stone, lime, and construction sand and gravel; they accounted for close to 86% of the State's total nonfuel mineral value. The combined value of crushed stone and portland cement represented almost 65% of the total. A number of mineral commodities (see table 1), including gemstones, provided significant portions of Alabama's increased nonfuel mineral value in 1995. In 1994, an increase in portland cement was by far the major portion of that year's increase. Compared with 1994, increases occurred in 1995 in portland cement, common clays, lime, crushed stone, gemstones, bauxite, and salt. The values of masonry cement, construction and industrial sand and gravel, and dimension stone decreased.

Compared with USGS estimates of the quantities produced in the other 49 States in 1995, Alabama remained first in bauxite, third in fire clays, fourth in masonry cement, fifth in bentonite clays, and eighth in salt. While

the State was third in lime, it climbed from third to second in common clays, gemstones, and kaolin clays, and from sixth to fifth in portland cement. In addition, Alabama's stone quarries and sand pits produced substantial quantities of crushed stone and construction and industrial sand and gravel. Nonfuel mineral production in Alabama consisted entirely of industrial minerals; no metals were mined in the State. All metal production, especially that of raw steel, was processed from materials acquired from other domestic and foreign sources. Bauxite that is mined in the State is a natural mixture of bauxitic clay and bauxite that has a very low iron oxide content and is primarily used to make refractory (high temperature resistant) products, rather than to produce primary aluminum.

The Geological Survey of Alabama (GSA)<sup>2</sup> reported that approximately 230 companies or operations were involved in the mining and production of mineral materials in the State during 1995. According to the GSA, chert, sandstone, shale, and recovered sulfur, in addition to the minerals included in tables 2 and 3, were also produced in Alabama. More limestone and dolomite were produced in the State than any other minerals.

Several new developments occurred in the State's mineral industry during 1995. North Carolina-based Martin Marietta Materials acquired Dravo Corp.'s stone and sand and gravel operations, several of which were in

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN ALABAMA<sup>1 2</sup>

Mineral	1993		1994		1995 <sup>p</sup>		
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	
Cement:							
Masonry	metric tons	277,000	\$21,900	312,000	\$28,900	306,000	\$28,400
Portland	do.	3,750,000	191,000	3,980,000	248,000	4,230,000	264,000
Clays <sup>3</sup>	thousand metric tons	2,490	23,200	2,280	25,400	3,790	35,400
Lime	do.	1,630	89,500	1,660	88,300	1,770	97,200
Sand and gravel:							
Construction	do.	°10,300	°39,100	12,500	47,600	12,100	46,600
Industrial	metric tons	559,000	6,800	610,000	7,160	578,000	7,120
Stone (crushed)	thousand metric tons	28,900	176,000	32,500	164,000	33,400	170,000
Combined value of bauxite, clays (bentonite), gemstones, salt, and stone [dimension (1993, 1995), dimension limestone, marble and sandstone (1994)]							
		XX	14,900	XX	16,500	XX	27,200
Total		XX	562,000	XX	626,000	XX	676,000

<sup>p</sup>Estimated. <sup>p</sup>Preliminary. XX Not applicable.

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

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

<sup>3</sup>Excludes certain clays; kind and value included with "Combined value" data.

Alabama. This acquisition reportedly made Martin Marietta the second largest aggregate producer in the United States. According to the GSA, Birmingham-based Vulcan Materials Co. remained the largest construction aggregate producer in the country. Vulcan Materials Co.'s new Bessemer quarry began operation in Jefferson County, to meet demand for construction crushed stone in nearby high-growth areas. For fiscal year 1994-95, capital investment in certain expanding mineral industries amounted to \$44 million. These expanding industries included marble, refractory clay, lightweight aggregate, talc, lime, and zeolites (artificial).

In July, the Governor signed into law the Alabama Professional Geologists Licensure Act. The new law instituted the regulation and licensing of persons engaged in the public practice of geology. The mining industry was to be represented by one member on the Alabama Board of Licensure for Professional Geologists.

The Alabama Department of Transportation's annual maintenance and construction program involved nearly 11,000 miles of highway. This work represented one of the largest uses of concrete, asphaltic and bituminous base, and aggregate (stone and gravel) in the State, with costs

exceeding \$500 million per year.

During 1995, the GSA responded to many inquiries for geologic information to be used in mineral exploration, evaluation, development, and educational programs. The GSA also published several reports and maps on Alabama's geology and mineral resources. By yearend, summary minerals reports and maps had been prepared for all 67 counties in Alabama. The GSA published its annual minerals industry summary which provided 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 was available from the GSA.

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<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 1995 USGS mineral production data are estimates, as of Dec. 1995. For some commodities, especially 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. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset and request Document No. 1000 for a telephone listing of all mineral commodity specialists or call USGS information at (703) 648-4000 for the specialist's name and number.

<sup>2</sup>This report includes information provided by the GSA.

TABLE 2  
ALABAMA: CRUSHED STONE<sup>1</sup> SOLD OR USED BY PRODUCERS IN 1994, BY USE<sup>2</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Riprap and jetty stone	772	\$3,990	\$5.17
Filter stone	99	233	2.35
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	3,700	14,900	4.03
Bituminous aggregate, coarse	2,770	12,400	4.48
Bituminous surface-treatment aggregate	703	3,120	4.43
Railroad ballast	130	577	4.44
Other graded coarse aggregate	1,220	3,210	2.63
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	477	2,120	4.43
Screening, undesignated	1,170	4,420	3.76
Other fine aggregates	281	673	2.40
<b>Coarse and fine aggregates:</b>			
Graded road base or subbase	3,390	14,000	4.14
Crusher run or fill or waste	2,420	11,400	4.71
Other coarse and fine aggregates	927	3,400	3.66
Other construction materials <sup>3</sup>	1,820	9,250	5.09
<b>Agricultural:</b>			
Agricultural limestone	141	1,000	7.11
Other agricultural uses <sup>4</sup>	290	2,590	8.92
<b>Chemical and metallurgical:</b>			
Cement manufacture	W	W	2.03
Lime manufacture	W	W	5.51
Dead-burned dolomite manufacture	151	374	2.25
Flux stone	W	W	5.35
Sulfur oxide removal	W	W	3.31
<b>Special:</b>			
Mine dusting or acid water treatment	W	W	27.60
Asphalt fillers or extenders	W	W	27.60
Whiting or whiting substitute	W	W	51.00
Other fillers or extenders	W	W	19.50
Other specified uses not listed	3,810	38,700	10.20
<b>Unspecified:<sup>5</sup></b>			
Actual	7,440	32,700	4.39
Estimated	756	5,420	7.17
Total	32,500	164,000	5.07

W Withheld to avoid disclosing company proprietary data; included with "Other specified uses not listed."

<sup>1</sup>Includes dolomite, granite, limestone, limestone-dolomite, marble, and slate.

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

<sup>3</sup>Includes other coarse aggregates, roofing granules, stone sand (bituminous mix or seal), terrazzo and exposed aggregate, and unpaved road surfacing.

<sup>4</sup>Includes poultry grit and mineral food.

<sup>5</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3  
ALABAMA: CRUSHED STONE SOLD OR USED, BY KIND<sup>1</sup>

Kind	1993				1994			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone <sup>2</sup>	36	24,900	\$107,000	\$4.30	34	28,300	\$117,000	\$4.15
Dolomite	3	W	W	5.89	3	W	W	5.38
Marble	2	W	W	41.40	2	W	W	21.90
Granite	1	W	W	6.58	1	W	W	5.67
Slate	1	W	W	5.61	2	W	W	7.05
Total	XX	28,900	176,000	6.08	XX	32,500	164,000	5.07

W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

<sup>1</sup>Data are rounded to three significant digits.

<sup>2</sup>Includes "Limestone-dolomite" reported with no distinction between the two.

TABLE 4  
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1994, BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) <sup>2</sup>	211	972	844	3,800	—	—
Coarse aggregate, graded <sup>3</sup>	3,530	14,400	4,990	19,800	—	—
Fine aggregate (-3/8 inch) <sup>4</sup>	W	W	W	W	—	—
Coarse and fine aggregate <sup>5</sup>	W	W	W	W	—	—
Other construction materials	4,240	17,600	6,070	27,100	—	—
Agricultural <sup>6</sup>	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>8</sup> )	( <sup>8</sup> )	—	—
Chemical and metallurgical <sup>9</sup>	—	—	2,740	10,200	—	—
Special <sup>10</sup>	—	—	( <sup>8</sup> )	( <sup>8</sup> )	—	—
Other miscellaneous uses <sup>11</sup>	—	—	1,540	31,800	—	—
Unspecified <sup>12</sup>						
Actual	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	1,840	8,550
Estimated	253	1,700	504	3,710	—	—
Total	8,570	36,300	22,100	120,000	1,840	8,550

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

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

<sup>2</sup>Includes filter stone, riprap and jetty stone, and other coarse aggregate.

<sup>3</sup>Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

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

<sup>5</sup>Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material or fill), other coarse and fine aggregates, and roofing granules.

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

<sup>7</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>8</sup>Withheld to avoid disclosing company proprietary data; included with "Other miscellaneous uses."

<sup>9</sup>Includes cement manufacture, dead-burned dolomite manufacture, flux stone, lime manufacture, and sulfur oxide removal.

<sup>10</sup>Includes asphalt fillers or extenders, mine dusting or acid water treatment, other fillers or extenders, and whiting or whiting substitute.

<sup>11</sup>Includes other specified uses not listed.

<sup>12</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5  
**ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY MAJOR USE CATEGORY<sup>1</sup>**

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	4,780	\$16,700	\$3.50
Plaster and gunite sands	W	W	3.63
Concrete products (blocks, brick, pipe, decorative, etc.)	W	W	2.23
Asphaltic concrete aggregates and other bituminous mixtures	562	2,630	4.67
Road base and coverings <sup>2</sup>	496	1,500	3.02
Fill	210	378	1.80
Railroad ballast	1	3	3.00
Other	115	351	3.05
Unspecified: <sup>3</sup>			
Actual	3,620	16,900	4.68
Estimated	2,750	9,100	3.31
Total or average	12,500	47,600	3.80

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

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

<sup>2</sup>Includes road and other stabilization (lime).

<sup>3</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6  
**ALABAMA: CONSTRUCTION SAND AND GRAVEL<sup>1</sup> SOLD OR USED IN 1994, BY USE AND DISTRICT<sup>2</sup>**

(Thousand metric tons and thousand dollars)

Use	District 2		District 3		Unspecified within all districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products <sup>3</sup>	1,310	4,910	3,590	12,200	—	—
Asphaltic concrete aggregates and road base materials <sup>4</sup>	643	2,520	625	1,980	—	—
Railroad ballast	—	—	1	3	—	—
Other miscellaneous uses	—	—	1	3	—	—
Unspecified: <sup>5</sup>						
Actual	983	3,590	2,490	12,700	148	616
Estimated	381	1,270	2,370	7,830	—	—
Total	3,310	12,300	9,070	34,700	148	616

<sup>1</sup>Production reported in District 1 was included with "District 2" to avoid disclosing company proprietary data.

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

<sup>3</sup>Includes plaster and gunite sands.

<sup>4</sup>Includes fill and road and other stabilization (lime).

<sup>5</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.



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