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 1997, Alabama ranked 18th among the 50 States in nonfuel mineral production value,[1] according to the U.S. Geological Survey (USGS); the State was 17th in 1996. The estimated value for 1997 was $805 million, an increase of more than 3% from that of 1996. This followed a 10% increase from 1995 to 1996 (based on final 1996 data). The State accounted for 2% of the U.S. total nonfuel mineral production value.

The top four nonfuel mineral commodities produced in Alabama in 1997 were, in descending order of value, portland cement, crushed stone, lime, and construction sand and gravel; these accounted for 89% of the State's total nonfuel mineral production value. The combined value of crushed stone and portland cement represented 67% of the total. Of the increase in value 48% resulted from the $13 million increase in portland cement (*see table 1).* All other nonfuel minerals increased in value, except for gemstones, which had a minimal decrease, and bentonite and industrial sand and gravel, which were unchanged.

In 1996, increases in nonfuel mineral commodity values were larger than those of 1997. The value of portland cement increased by $41 million; crushed stone, by $24 million; construction sand and gravel, by $12 million; and lime, by $11 million.

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 1997, Alabama rose to first from second in the production of common clays; to second from third in kaolin; to third from fourth in fire clays: and to seventh from eighth in salt. The State remained second in bentonite, third in masonry cement, fourth in lime, and sixth in portland cement. 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, especially that of raw steel, was the result of processing materials acquired from other domestic and foreign sources. Production of bauxite in Alabama has not been reported to the USGS since 1995. Bauxite that is mined in the State is a natural mixture of bauxite and bauxitic clay 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. These materials have, of late, been reported to the USGS as kaolin.

The following narrative information was provided by the Geological Survey of Alabama[2] (GSA). In 1997, 162 companies or operations were involved in the mining and production of industrial mineral resources. Included in this number were 38 limestone-dolomite crushed stone operations, 6 lime plants, and a number of granite, sandstone, and quartzite crushed stone operations. Two marble operations produced micronized calcium carbonate. Other operations included 18 clay (common clay, bentonite, fuller's earth, kaolin, and fire clay) and 11 bauxitic clay, as well as chalk, building stone, and recovered sulfur.

During 1997, 91 sand and gravel pits were in operation. The Montgomery district, located in the Coastal Plain region of south-central Alabama (see district 3 on the Alabama State map), is the largest sand and gravel producing area in the State. Sand and gravel resources occur principally in Quaternary alluvium and terrace deposits of the Alabama, Coosa, and Tallapoosa Rivers bordering Montgomery, Autauga, Lowndes, Elmore, and Macon Counties. Since 1970, the Montgomery district has produced about 3.2 million metric tons per year of sand and gravel, or about 40% of the entire production of the State; large-scale production began in the early 1920's.

Mineral exploration in Alabama continued to focus on industrial minerals with several large expansions and new operations. The United States Gypsum Co. announced plans to build a $110 million wallboard plant in Bridgeport, Jackson County. This operation will utilize synthetic gypsum produced as a byproduct of flue gas desulfurization. The Olin Corp. initiated a $100 million expansion of its chlorine and chemical plant at McIntosh, Washington County; this operation utilizes solution mining of a shallow salt dome. Monarch Tile Inc. announced a $15 million expansion of its floor tile plant in Florence, Lauderdale County. Blue Circle Cement Co. installed a new 1,000-ton-per-day preheater rotary kiln, modernized the hydration system, and made improvements to the quarry, storage, and load-out facilities at its Roberta lime plant in Shelby County. Also in Shelby County, Chemical Lime Co. completed construction of a new 1,200-ton-per-day lime plant at its O'Neal limestone quarry.

Other expanding mineral industries include refractory clay production in the Eufaula bauxite district and artificial zeolite production in southern Alabama. Expansions and new operations also were reported in limestone and marble quarries for crushed

[1]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 1997 USGS mineral production data published in this chapter are estimates as of January 1998. For some 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. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset, and request Document # 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. This telephone listing may also be retrieved over the Internet at <http://minerals.er.usgs.gov/minerals/contacts/comdir.html> . All Mineral Industry Surveys–mineral commodity, State, and country–also may be retrieved by way of MINES FaxBack or over the Internet at <http://minerals.er.usgs.gov/minerals/pubs/>.

[2]Lewis S. Dean, Geologist, authored the text of State minerals information provided by the Geological Survey of Alabama. Another contact is Donald F. Oltz, State Geologist.

stone and calcium carbonate.

The GSA published its annual summary, “The Minerals Industry of Alabama—1997," which 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 GSA.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ALABAMA 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1995		1996		1997 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	306	30,700	309	32,000 e/	315	33,300 e/
Portland	4,090	285,000	4,330	326,000 e/	4,410	339,000 e/
Clays:						
Bentonite	154	4,700	166	5,060	166	5,060
Common	2,080	18,600	2,290	17,100	2,670	20,500
Fire	80	3,120	52	2,800	53	2,840
Kaolin	373	7,220	254	W	471	W
Gemstones	NA	3,000	NA	2,000	NA	1,980
Lime	1,730	105,000 r/	1,860	116,000	1,880	117,000
Sand and gravel:						
Construction	11,900	49,400	13,800	60,600	13,600	61,300
Industrial	479	5,940	799	8,380	780	8,380
Stone, crushed	33,600	174,000	38,900	198,000	38,000	200,000
Combined value of bauxite (1995), iron oxide pigment (crude, 1997), salt, stone (dimension limestone and sandstone), and values indicated by symbol W	XX	6,810	XX	9,930	XX	15,200
Total	XX	693,000 r/	XX	778,000	XX	805,000

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

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

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

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

Kind	1995				1996			
	Number of quarries	Quanity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quanity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	40	29,500	$151,000	$5.11	43	34,800	$176,000	$5.06
Dolomite	3	W	W	5.14	3	W	W	5.34
Marble	1	816	W	W	1	W	W	5.56
Granite	6	W	W	5.58	5	W	W	5.02
Slate	2	W	W	4.27	2	W	W	3.46
Total	XX	33,600	174,000	5.19	XX	38,900	198,000	5.09

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

1/ Data are rounded to three significant digits; 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 1996, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit Value
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	$6.51
Riprap and jetty stone	337	$1,690	5.01
Filter stone	15	63	4.20
Other coarse aggregate	29	96	3.31
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,110	14,400	4.63
Bituminous aggregate, coarse	4,390	21,900	4.98
Bituminous surface-treatment aggregate	332	1,660	4.99
Railroad ballast	114	527	4.62
Fine aggregate (-3/8 inch):			
Stone sand, concrete	375	1,680	4.48
Stone sand, bituminous mix or seal	1,790	8,570	4.80
Screening, undesignated	212	1,010	4.76
Other fine aggregates	2	16	8.00
Coarse and fine aggregates:			
Graded road base or subbase	3,140	14,300	4.56
Unpaved road surfacing	393	1,930	4.90
Terrazzo and exposed aggregate	W	W	5.56
Crusher run or fill or waste	3,210	16,000	5.00
Other construction materials	396	1,710	4.32
Agricultural:			
Agricultural limestone	126	662	5.25
Poultry grit and mineral food	57	596	10.46
Other agricultural uses	7	73	10.43
Chemical and metallurgical:			
Cement manufacture	(3/)	(3/)	2.87
Dead-burned dolomite manufacture	320	1,510	4.73
Flux stone	117	428	3.66
Special:			
Mine dusting or acid water treatment	(3/)	(3/)	27.56
Other fillers or extenders	(3/)	(3/)	20.43
Unspecified: 4/			
Actual	13,100	72,700	5.54
Estimated	5,190	28,300	5.46
Total	38,900	198,000	5.09

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."1/ Includes dolomite, granite, limestone, limestone-dolomite, marble, and slate.
2/ Data are rounded to three significant digits, except unit value; may not add to totals shown.
3/ Withheld to avoid disclosing company proprietary data; included in "Total."
4/ Includes production reported without a breakdown by end use and estimates fornonrespondents.

TABLE 4
ALABAMA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1996,
BY USE AND DISTRICT 1/ 2/

Use	District 1		District 2	
	Quanity (metric tons)	Value (thousands)	Quanity (metric tons)	Value (thousands)
Construction aggregates:				
Coarse aggregate (+1 1/2 inch) 3/	W	W	W	W
Coarse aggregate, graded 4/	W	W	W	W
Fine aggregate (-3/8 inch) 5/	W	W	W	W
Coarse and fine aggregate 6/	W	W	W	W
Other construction materials	9,510	$45,400	8,410	$41,100
Agricultural 7/	(8/)	(8/)	(8/)	(8/)
Chemical and metallurgical 9/	--	--	(8/)	(8/)
Special 10/	--	--	(8/)	(8/)
Unspecified 11/				
Actual	159	673	13,000	72,000
Estimated	(8/)	(8/)	4,830	26,500
Total	10,100	48,400	28,800	150,000

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."
1/ Production reported in District 3 was included with "District 2" to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.
4/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, and railroad ballast.
5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.
6/ Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing and crusher run (select material or fill).
7/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.
8/ Withheld to avoid disclosing company proprietary data; included in "Total."
9/ Includes cement manufacture, dead-burned dolomite manufacture, and flux stone.
10/ Includes mine dusting or acid water treatment and other fillers or extenders.
11/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand) 2/	2,140	$8,220	$3.85
Concrete products (blocks, bricks, pipe, decorative, etc.)	134	1,530	11.43
Asphaltic concrete aggregates and other bituminous mixtures	329	1,010	3.06
Road base and coverings 3/	383	1,990	5.20
Fill	119	174	1.46
Other miscellaneous uses	415	1,670	4.02
Unspecified: 4/			
Actual	4,470	21,200	4.74
Estimated	5,780	24,800	4.29
Total or average	13,800	60,600	4.40

1/ Data are rounded to three significant digits, except value per ton; may not add to totals shown.
2/ Includes plaster and gunite sands.\
3/ Includes road and other stabilization (lime).
4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 2		District 3	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 3/	132	808	2,140	8,940
Asphaltic concrete aggregates and road base materials 4/	65	185	767	2,990
Other miscellaneous uses	410	1,630	5	34
Unspecified: 5/				
Actual	1,320	5,280	3,150	15,900
Estimated	1,220	5,060	4,560	19,700
Total	3,150	13,000	10,600	47,600

1/ Production reported in "District 1" was included with "District 2" to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Includes plaster and gunite sands.
4/ Includes fill and road and other stabilization (lime).
5/ Includes production reported without a breakdown by end use and estimates for nonrespondents.