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 1996, Alabama rose from 18th to 17th among the 50 States in nonfuel mineral production value,[1] according to the U.S. Geological Survey (USGS). The estimated value for 1996 was $735 million, about a 4% increase from that of 1995. This followed a nearly 12% increase from 1994 to 1995 (based on final 1995 data). The State accounted for nearly 2% of the U.S. total nonfuel mineral production value.

The top four nonfuel mineral commodities produced in Alabama in 1996 were, in descending order of value, portland cement, crushed stone, lime, and construction sand and gravel; these accounted for close to 87% of the State's total nonfuel mineral value. The combined value of crushed stone and portland cement represented almost 65% of the total. Crushed stone and construction sand and gravel production provided the highest dollar increases in nonfuel mineral value for the State (*see table 1*), increasing by 7% and 13% of their previous years values, respectively. Clays were also an important portion of the State's nonfuel mineral economy, but changes in their values during the year were small relative to those of the other mineral commodities. The State's clays included bentonite, common clays, fire clays, and kaolin. All nonfuel minerals increased in value, except for bauxite, bentonite, industrial sand and gravel, and salt, all of which had only small decreases.

Increases in nonfuel mineral commodity values were even greater in 1995. The value of portland cement, being the highest dollar increase, increased by 15%, lime by nearly 19%, and crushed stone by 6%. The increase in portland cement value reflected a nationwide trend of higher cement prices. Decreases in value were small and occurred for dimension stone, industrial sand and gravel, salt, and gemstones.

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 1996, Alabama became the only bauxite-producing State and remained fourth in masonry cement and bentonite, and sixth in portland cement. While Alabama rose from third to first in common clays and third to second in kaolin and fire clays, the State dropped from third to fourth in lime and seventh to eighth in salt. 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. Based on American Iron and Steel Institute data, Alabama was an estimated sixth in the Nation in the manufacture of raw steel. 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 following narrative information was provided by the Geological Survey of Alabama[2] (GSA). The GSA reported that 179 companies or operations were involved in the mining and production of mineral resources in the State during 1996. Record production of limestone, dolomite, and marble was recorded. Clay, sandstone, and shale also increased over the previous period. Demand for industrial minerals was expected to continue to increase, especially for those produced near urban areas where the need is greatest for construction materials. According to the GSA, chert, shale, and recovered sulfur were produced in Alabama, in addition to the minerals included in tables 1 through 6.

[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 1996 USGS mineral production data published in this chapter are estimates as of February 1997. For some commodities (e.g., 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 also may be retrieved over the Internet at http://minerals.er.usgs.gov/minerals/contacts/comdir.html

[2]Lewis S. Dean, Geologist, authored the text of State minerals information provided by the Geological Survey of Alabama. An additional contact is Donald F. Oltz, State Geologist. He may be contacted at the same address, telephone, and fax numbers as Mr. Dean.

Mineral exploration in Alabama continued to focus on industrial mineral resources. The total capital investment in expanding operations in the State exceeded $80 million in 1995-96, a 50% increase over 1993-94. To follow are several of the major projects. In Shelby County, three companies announced a total capital investment of $35.5 million to enlarge high-calcium limestone quarries and associated lime production in order to meet increased market demands for quicklime and hydrated lime. The GSA reported Shelby County to be one of the top three lime-producing counties in the United States. ECC International Corp. completed a $10 million expansion of its calcium carbonate operation at its Sylacauga marble quarry in Talladega County. Whereas in previous years the marble that was quarried there was used primarily for monuments and for decorative purposes, today's operations predominantly produce crushed marble. Crushed marble was used in a number of diversified applications, including industrial fillers, fertilizer, and aggregate. Micronized marble was shipped as a slurry for use in paper pigment and coating.

Other expanding mineral industries included those of refractory and common clay production in northern Alabama and synthetic zeolite production in southern Alabama. Expansions also were reported in ferrosilicon production at plants in Selma and Mount Meigs. These plants utilize high-silica deposits of the Montgomery sand and gravel district.

In the steel industry, Tuscaloosa Steel Corp., Tuscaloosa, began operating a 1-million-ton-per-year melt shop, containing a 150-ton electric arc furnace and a single strand continuous slab caster. The company wanted to avoid buying slabs for processing in a volatile market. In1997, the melt shop will be supplied with direct reduced iron feed from two units relocated from Scotland to Mobile, AL, by Tuscaloosa parent company British Steel Plc (Schriefer, 1996; Steel Times International, 1997). A new minimill was under construction near Decatur by Trico Steel Co., a joint venture of LTV Corp., Sumitomo Metal Industries Ltd., and British Steel Plc. The facility will have two oxy-fuel electric arc furnaces melting 2.2 million tons per year of raw steel, two ladle metallurgy stations, two continuous thin slab casters, and a hot strip mill (Business Week, 1995; Iron and Steel Maker, 1995; 33 Metal Producing, 1995).

The GSA published its annual minerals industry summary 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.

References Cited

Business Week, 1995: Business Week, July 17, p. 35.

Iron and Steel Maker, 1995: Iron and Steel Maker, v. 22, no. 1, p. 55.

Schriefer, John, 1996, 97 million tons—Repeat of 1995: New Steel, v.12, no. 1, p. 43-44.

Steel Times International, 1997: Steel Times International, v. 13, no. 1, p. 38.

33 Metal Producing, 1995, Steelmaker's progress continues: 33 Metal Producing, v. 33, no. 12, p. 33

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

(Thousand metric tons and thousand dollars unless otherwise specified)

	1994		1995		1996 p/	
Mineral	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	312	28,900	306	30,700	317	31,800
Portland	3,980	248,000	4,090	285,000	4,140	288,000
Clays	2,280 3/	25,400 3/	2,690	33,700	3,360	35,200
Gemstones	NA	W	NA	16,000	NA	W
Lime	1,660	88,300	1,730	105,000	1,760	107,000
Sand and gravel:						
Construction	12,500	47,600	11,900	49,400	13,000	55,900
Industrial	610	7,160	479	5,940	475	5,870
Stone (crushed)	32,500	164,000	33,600	174,000	35,500	186,000
Combined value of bauxite, clays [bentonite (1994)], iron oxide pigments [crude (1996)], salt, and stone [dimension limestone, marble and sandstone (1994), dimension limestone and sandstone (1995-96)], and values indicated by symbol W	XX	16,500	XX	6,810	XX	25,100
Total	XX	626,000	XX	706,000	XX	735,000

p/ Preliminary. 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/ Data are rounded to three significant digits; may not add to totals shown.
3/ Excludes certain clays; kind and value included with "Combined value" data.

TABLE 2
ALABAMA: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS
IN 1995, BY USE 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	563	$3,000	$5.32
Filter stone	28	109	3.89
Other coarse aggregate	W	W	4.44
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,780	17,200	4.56
Bituminous aggregate, coarse	3,080	14,600	4.73
Bituminous surface-treatment aggregate	296	1,400	4.74
Railroad ballast	185	805	4.35
Other graded coarse aggregate	W	W	4.29
Fine aggregate (-3/8 inch):			
Screening, undesignated	511	2,240	4.38
Other fine aggregates	W	W	3.86
Coarse and fine aggregates:			
Graded road base or subbase	3,360	14,500	4.31
Terrazzo and exposed aggregate	54	1,260	23.40
Crusher run or fill or waste	2,740	13,700	5.00
Other coarse and fine aggregates	W	W	4.33
Other construction materials 3/	2,730	12,300	4.51
Agricultural:			
Agricultural limestone	261	1,940	7.42
Poultry grit and mineral food	64	700	10.90
Chemical and metallurgical:			
Cement manufacture	3,460	8,860	2.56
Lime manufacture	757	3,120	4.11
Dead-burned dolomite manufacture	363	1,540	4.24
Special: Other fillers or extenders 4/	1,490	32,500	21.80
Other specified uses not listed 5/	(6/)	(6/)	1.35
Unspecified: 7/			
Actual	7,880	38,900	1.35
Estimated	(6/)	(6/)	4.90
Total	33,600	174,000	5.19

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; may not add to totals shown.
3/ Includes roofing granules, stone sand (bituminous mix or seal), stone sand (concrete), and unpaved road surfacing.
4/ Includes mine dusting or acid water treatment.
5/ Includes sulfur oxide removal.
6/ Withheld to avoid disclosing company proprietary data; included in "Total."
7/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

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

Kind	1994 Number of quarries	1994 Quantity (thousand metric tons)	1994 Value (thousands)	1994 Unit value	1995 Number of quarries	1995 Quantity (thousand metric tons)	1995 Value (thousands)	1995 Unit value
Limestone 2/	35 r/	28,900 r/	$144,000 r/	$4.96 r/	40	29,500	$151,000	$5.11
Dolomite	3	W	W	5.38	3	W	W	5.14
Marble	1 r/	782	W	W	1	816	W	W
Granite	1	W	W	5.67	6	W	W	5.58
Slate	2	W	W	7.05	2	W	W	4.27
Total	XX	32,500	164,000	5.07	XX	33,600	174,000	5.19

r/ Revised. 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 4
ALABAMA: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS IN 1995,
BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

Use	District 1 Quantity	District 1 Value	District 2 Quantity	District 2 Value
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/	2,920	13,100	3,310	16,600
Other construction materials	4,590	21,400	6,500	29,900
Agricultural 7/	(8/)	(8/)	(8/)	(8/)
Chemical and metallurgical 9/	--	--	4,580	13,500
Special 10/	--	--	1,490	32,500
Other miscellaneous uses 11/	--	--	(8/)	(8/)
Unspecified 12/				
Actual	1,040	4,160	6,840	34,800
Estimated	(8/)	(8/)	(8/)	(8/)
Total	8,810	39,800	24,800	134,000

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, riprap and jetty stone, and other coarse aggregate.
4/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.
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, crusher run (select material or fill), other coarse and fine aggregates, and roofing granules.
7/ Includes agricultural limestone and poultry grit and mineral food.
8/ Withheld to avoid disclosing company proprietary data; included in "Total."
9/ Includes cement manufacture, dead-burned dolomite manufacture, and lime manufacture.
10/ Includes mine dusting or acid water treatment and other fillers or extenders.
11/ Includes other specified uses not listed and sulfur oxide removal.
12/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
ALABAMA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED
IN 1995, BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand) 2/	4,130	$16,500	$3.99
Concrete products (blocks, bricks, pipe, decorative, etc.)	255	1,390	5.43
Asphaltic concrete aggregates and other bituminous mixtures	660	2,100	3.18
Road base and coverings 3/	853	3,830	4.49
Fill	200	686	3.43
Railroad ballast	1	3	3.00
Other 4/	394	2,090	5.31
Unspecified: 5/			
Actual	2,550	12,100	4.76
Estimated	2,850	10,700	3.75
Total or average	11,900	49,400	4.15

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes plaster and gunite sands.
3/ Includes road and other stabilization (lime) and snow and ice control.
4/ Includes filtration and roofing ganules.
5/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6
ALABAMA: CONSTRUCTION SAND AND GRAVEL 1/ SOLD OR USED IN 1995,
BY USE AND DISTRICT 2/

(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 3/	1,390	7,070	3,000	10,800	--	--
Asphaltic concrete aggregates and road base materials 4/	698	3,430	1,010	3,180	--	--
Railroad ballast	--	--	1	3	--	--
Other miscellaneous uses 5/	175	986	218	1,110	--	--
Unspecified: 6/						
Actual	16	65	2,270	11,000	261	1,020
Estimated	912	3,350	1,940	7,350	--	--
Total	3,190	14,900	8,440	33,400	261	1,020

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, road and other stabilization (lime), and snow and ice control.
5/ Includes filtration and roofing granules.
6/ Includes production reported without a breakdown by end use and estimates for nonrespondents.