

THE MINERAL INDUSTRY OF FLORIDA

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 Florida Geological Survey for collecting information on all nonfuel minerals.

Florida ranked sixth among the 50 States in total nonfuel mineral value¹ in 1994, climbing from 8th in 1993, according to the U.S. Bureau of Mines. The estimated value for 1994 was \$1.5 billion, an 12% increase over that of 1993. This followed a 9% decrease in 1993 from that of 1992. The State accounted for 5% of the U.S. total value and continued to lead significantly the other U.S. States in phosphate rock production and value. The total value decreased in 1993, mainly due to a drop in phosphate rock values. But the rebound in 1994 was attributed to a combination of increased values for phosphate rock, crushed stone, construction sand and gravel, and masonry cement. The latter three commodities have increased consistently during the last 3 years. Florida, almost exclusively an industrial mineral producing State, remained first in the production of phosphate rock, masonry cement, peat, titanium concentrates, and metal; second in rare-earth concentrates and fuller's earth clay; and third in crushed stone and magnesium compounds. The State rose from sixth to fifth in portland cement production. Compared with 1993, the value of phosphate rock, crushed stone, construction sand and gravel, masonry cement, industrial

sand and gravel, and peat increased in 1994. Decreases occurred in the value of portland cement, common and kaolin clays, and the rare-earth metal concentrates.

In 1994, the phosphate industry rebounded somewhat from significant production and value drops in 1993—one of the most difficult of recent years. Production of phosphate rock, primarily used to manufacture fertilizer, increased moderately in 1994 and some previously closed operations were able to reopen. Consumption increased substantially, especially for diammonium phosphate, in large part to supply increased export demands. The industry continued research to develop technologies that would enable mining companies to further reduce the need for deep-aquifer water. Presently, the industry recirculates about 80% of the water it uses in certain manufacturing processes. Limestone production was moderately up in 1994 compared with that of 1993; this was due, in part, to increased highway and residential construction. Compliance with the 1990 amendments to the Clean Air Act (CAA) was a controversial issue for mining facility operators who were required to obtain permits for work already in progress in addition to all new work, according

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN FLORIDA¹

Mineral	1992		1993		1994 ^P	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Cement:						
Masonry thousand metric tons	310	\$22,424	351	\$27,264	462	\$35,900
Portland do.	2,898	161,969	4,195	210,762	4,120	207,000
Clays ² do.	367	37,201	407	52,699	408	52,800
Gemstones	NA	1	NA	W	NA	W
Peat thousand metric tons	191	3,158	219	3,781	250	4,060
Sand and gravel:						
Construction do.	21,107	66,141	^e 22,800	^e 73,100	25,000	83,700
Industrial do.	433	5,167	504	5,911	W	W
Stone (crushed) ³ do.	^e 53,796	^e 266,900	64,926	313,270	^e 72,000	^e 360,000
Combined value of clays [common, kaolin (1994)], magnesium compounds, phosphate rock, rare-earth metal concentrates, staurolite, stone [crushed dolomite and limestone (1993-94), crushed marl (1992)], titanium concentrates (ilmenite and rutile), zircon concentrates, and values indicated by symbol W						
	XX	876,799	XX	623,845	XX	724,000
Total	XX	1,439,760	XX	1,310,632	XX	⁴ 1,470,000

^eEstimated. ^PPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

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

²Excludes certain clays; kind and value included with "Combined value" data.

³Excludes certain stones; kind and value included with "Combined value" data.

⁴Data do not add to total shown because of independent rounding

to the Florida Limerock Institute.

mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

¹The term value means the total monetary value as represented by either

TABLE 2
FLORIDA: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1993, BY USE

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	125	\$572	\$4.58
Filter stone	349	2,228	6.38
Other coarse aggregate	W	W	2.21
Coarse aggregate, graded:			
Concrete aggregate, coarse	10,937	63,806	5.83
Bituminous aggregate, coarse	3,280	21,821	6.65
Bituminous surface-treatment aggregate	936	6,891	7.36
Railroad ballast	W	W	5.07
Other graded coarse aggregate	W	W	8.00
Fine aggregate (-3/8 inch):			
Stone sand, concrete	5,097	29,924	5.87
Stone sand, bituminous mix or seal	2,116	11,564	5.47
Screening, undesignated	5,167	20,816	4.03
Other fine aggregate	W	W	6.84
Coarse and fine aggregates:			
Graded road base or subbase	19,884	72,266	3.63
Unpaved road surfacing	418	1,881	4.50
Crusher run or fill or waste	2,043	4,493	2.20
Other coarse and fine aggregates	963	3,113	3.23
Other construction materials ²	2,727	18,490	6.78
Agricultural:			
Agricultural limestone	366	3,111	8.50
Poultry grit and mineral food	593	4,787	8.07
Other agricultural uses	238	(³)	(³)
Chemical and metallurgical:			
Cement manufacture	3,515	18,297	5.21
Glass manufacture	46	701	15.24
Special:			
Asphalt fillers or extenders	150	2,294	15.29
Other fillers or extenders	169	1,562	9.24
Other specified uses not listed	871	2,759	3.17
Unspecified:³			
Actual	891	4,193	4.71
Estimated	4,045	17,698	4.38
Total	64,926	⁴ 313,270	4.83
Total ^{5 6}	71,569	313,270	4.38

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

¹Includes dolomite, limestone, limestone-dolomite, calcareous marl, and shell.

²Excludes limestone-dolomite value from State total to avoid disclosing company proprietary data.

³Includes production reported without a breakdown by use and estimates for nonrespondents.

⁴Data do not add to total shown because of independent rounding.

⁵One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

⁶Total shown in thousand short tons and thousand dollars.

TABLE 3
FLORIDA: CRUSHED STONE SOLD OR USED, BY KIND

Kind	1991				1993			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone ¹	'96	'52,774	'\$252,422	'\$4.78	85	62,492	² \$300,827	² \$4.81
Dolomite	3	822	5,059	6.15	3	W	5,015	W
Calcareous marl	(³)	(³)	(³)	(³)	1	W	3	W
Shell	5	1,043	5,103	4.89	8	1,126	4,239	3.76
Total ⁴	XX	'55,005	'264,847	4.81	XX	64,926	313,270	4.83
Total ^{5 6}	XX	'60,633	'264,847	'4.37	XX	71,569	313,270	4.38

¹Revised. W Withheld to avoid disclosing company proprietary data; included with "Total." XX Not applicable.

²Includes "Limestone-dolomite," reported with no distinction between the two.

³Excludes limestone-dolomite value from State total to avoid disclosing company proprietary data.

⁴Excludes calcareous marl from State totals to avoid disclosing company proprietary data.

⁵Data may not add to totals shown because of independent rounding.

⁶One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

⁷Total shown in thousand short tons and thousand dollars.

TABLE 4
FLORIDA: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1993, BY USE AND DISTRICT

Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) ²	—	—	(³)	(³)	W	W	669	3,037
Coarse aggregate, graded ⁴	(³)	(³)	(³)	(³)	5,836	38,367	10,056	59,597
Fine aggregate (-3/8 inch) ⁵	(³)	(³)	(³)	(³)	3,493	13,952	8,660	47,136
Coarse and fine aggregate ⁶	(³)	(³)	6,201	23,195	W	W	12,721	43,647
Other construction materials	—	—	(³)	(³)	4,135	14,181	(⁹)	(⁹)
Agricultural ⁷	(³)	(³)	(³)	(³)	786	3,026	—	—
Chemical and metallurgical ⁸	—	—	46	701	(⁹)	(⁹)	(⁹)	(⁹)
Special ¹⁰	—	—	(³)	(³)	(⁹)	(⁹)	—	—
Other miscellaneous uses	—	—	—	—	1,906	8,817	3,531	18,800
Unspecified: ¹¹								
Actual	321	2,409	447	2,683	122	653	—	—
Estimated	713	4,050	819	3,624	563	2,863	1,950	8,804
Total ¹²	1,873	8,024	8,623	42,364	16,842	81,862	37,588	181,020
Total ^{13 14}	2,065	8,024	9,505	42,364	18,565	81,862	41,434	181,020

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

¹Excludes limestone - dolomite value from State total to avoid disclosing company proprietary data.

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

³Withheld to avoid disclosing company proprietary data; included with "Total."

⁴Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

⁵Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

⁶Includes graded road base or subbase, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

⁷Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁸Includes cement manufacture and glass manufacture.

⁹Withheld to avoid disclosing company proprietary data; included with "Other miscellaneous uses."

¹⁰Includes asphalt fillers or extenders, other fillers or extenders, and other specified uses not listed.

¹¹Includes production reported without a breakdown by use and estimates for nonrespondents.

¹²Data may not add to totals shown because of independent rounding.

¹³One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

¹⁴Total shown in thousand short tons and thousand dollars.