

# THE MINERAL INDUSTRY OF KENTUCKY

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 Kentucky Geological Survey for collecting information on all nonfuel minerals.

Kentucky ranked 26th among the 50 States in total nonfuel mineral value<sup>1</sup> in 1994, climbing from 28th in 1993, according to the U.S. Bureau of Mines (USBM). The estimated value for 1994 exceeded \$431 million, an 11% increase compared with that of 1993. This followed a 3.3% decrease in 1993 from that of 1992. In 1994, the value attributed to nonfuel minerals was the highest reported in State history, having surpassed \$400 million for the second time in the last 3 years. Demand for industrial minerals used in construction remained strong, as evidenced by the increased output of nearly every commodity produced in the State. In recent years, Kentucky has entirely been an industrial mineral-producing State. The year 1990 marked the last year in which any metal was mined in the State; small quantities of zinc were mined that year. Crushed stone was the State's leading commodity, accounting for an estimated 60% of nonfuel mineral value. Compared with 1993, the value of crushed stone, lime, portland cement, construction sand and gravel, and crushed sandstone increased. Decreases occurred in masonry cement, gemstones, and common clays.

Compared to USBM estimates of the quantities of minerals produced in the other 49 States during 1994, Kentucky climbed from ninth to eighth in crushed stone. The State remained 1 of the top 6 lime-producing States and 12th in the production of common clays. While dropping from second to third in ball clays, Kentucky was 1 of only 4 States to mine the mineral product in 1994, down from 6 States that produced it in 1993. While Kentucky mines produced no metals, the State's metal industry produced significant quantities of primary aluminum and raw steel originating from materials received

from other domestic and foreign sources. Kentucky remained the Nation's second leading producer of primary aluminum, although production dropped an estimated 17% from that of 1993.

According to the Kentucky Geological Survey, fluorspar mineralization and a geophysical anomaly were targets for exploratory drilling in western Kentucky's fluorspar district in 1994. Mineral exploration in the State, especially the search for metals, was reported as being rather limited, with none occurring in the State's south-central and central mining districts. In other developments, two electric utility companies awarded contracts to several Kentucky quarries to supply limestone for their flue-gas desulfurization systems. Their increased requirement for limestone resulted from the companies' need to comply with the Clean Air Act Amendments of 1990, in particular for the reduction of sulfur dioxide (SO<sub>2</sub>) emissions at coal-burning plants. The Kentucky Stone Co.'s Irvington Quarry in Breckinridge County received a 5-year contract to provide more than 90,000 metric tons (100,000 short tons) of limestone yearly for a scrubber at the Owensboro Municipal Utilities' Smith plant in Daviess County. The Tennessee Valley Authority (TVA) awarded a 5-year contract to Dravo Basic Materials Co.'s (DBM) Three Rivers Quarry in Livingston County to furnish more than 675,000 metric tons (750,000 short tons) of stone annually for scrubbers at the TVA's Cumberland plant in west-central Tennessee. In late 1994, Martin Marietta Aggregates announced plans to purchase DBM, including the Three Rivers Quarry. The Black River Division of Dravo Lime Co. was expanding its Carntown facility in Pendleton County in response to an increased demand for

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN KENTUCKY<sup>1</sup>

Mineral	1992		1993		1994 <sup>p</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays <sup>2</sup> thousand metric tons	760	\$3,777	768	\$3,057	762	\$2,960
Sand and gravel (construction) do.	6,710	24,412	<sup>q</sup> 7,700	<sup>q</sup> 29,900	8,900	35,600
Stone (crushed) do.	<sup>e</sup> 53,342	<sup>e</sup> 251,100	<sup>3</sup> 49,028	<sup>3</sup> 226,058	<sup>e</sup> 53,500	<sup>e</sup> 325,700
Combined value of cement, clays (ball), gemstones, lime, and stone [crushed sandstone (1993-94)]	XX	121,285	XX	128,488	XX	136,000
Total	XX	400,574	XX	387,503	XX	<sup>4</sup> 431,000

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

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

<sup>4</sup>Data do not add to total shown because of independent rounding.

TABLE 2  
**KENTUCKY: CRUSHED STONE<sup>1</sup> SOLD OR USED BY PRODUCERS IN 1993, BY USE**

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Macadam	118	\$557	\$4.72
Riprap and jetty stone	3,856	14,725	3.82
Filter stone	1,186	5,094	4.30
Other coarse aggregate	336	1,615	4.81
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	4,450	19,240	4.32
Bituminous aggregate, coarse	4,680	21,426	4.58
Bituminous surface-treatment aggregate	1,375	6,823	4.96
Railroad ballast	432	2,084	4.82
Other graded coarse aggregate	1,872	6,950	3.71
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	W	W	5.31
Stone sand, bituminous mix or seal	2,059	8,586	4.17
Screening, undesignated	1,222	5,603	4.59
Other fine aggregate	W	W	3.30
<b>Coarse and fine aggregate:</b>			
Graded road base or subbase	8,690	38,214	4.40
Unpaved road surfacing	2,226	8,904	4.00
Crusher run or fill or waste	702	2,369	3.37
Other coarse and fine aggregate	W	W	5.51
Other construction materials	385	1,810	4.70
<b>Agricultural:</b>			
Agricultural limestone	1,535	6,889	4.49
Poultry grit and mineral food	(?)	(?)	15.42
Other agricultural uses	(?)	(?)	10.80
<b>Chemical and metallurgical:</b>			
Cement manufacture	(?)	(?)	2.90
Lime manufacture	(?)	(?)	7.87
Flux stone	(?)	(?)	5.73
Sulfur oxide removal	(?)	(?)	4.71
<b>Special:</b>			
Mine dusting or acid water treatment	(?)	(?)	11.63
Other fillers or extenders	(?)	(?)	9.82
Other specified uses not listed	5,369	33,763	6.29
<b>Unspecified:<sup>3</sup></b>			
Actual	6,291	30,438	4.84
Estimated	2,245	10,971	4.89
Total <sup>4</sup>	49,028	226,058	4.61
Total <sup>5 6</sup>	54,044	226,058	4.18

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

<sup>1</sup>Includes granite and limestone; excludes sandstone from State total to avoid disclosing company proprietary data.

<sup>2</sup>Withheld to avoid disclosing company proprietary data; include with "Other specified uses not listed."

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

<sup>4</sup>Data may not add to totals shown because of independent rounding.

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

<sup>6</sup>Total shown in thousand short tons and thousand dollars.

scrubber lime. The 633,000-metric-ton-per-year (700,000 short tons per year) expansion will more than double the existing production capacity. The Hitchins brick plant in Carter County was closed by A.P. Green Industries, which had previously obtained the plant through its purchase of

General Refractories.

<sup>1</sup>The term value means the total monetary value as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

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

Kind	1991				1993 <sup>1</sup>			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	'87	41,972	\$191,893	\$4.5	86	49,020	\$226,048	\$4.61
Granite	—	—	—	—	1	8	11	1.37
Total	XX	41,972	191,893	4.57	XX	49,028	<sup>2</sup> 226,058	4.61
Total <sup>3 4</sup>	XX	46,266	191,893	4.15	XX	54,044	226,058	4.18

Revised. XX Not applicable.

<sup>1</sup>Excludes sandstone from State total to avoid disclosing company proprietary data.

<sup>2</sup>Data do not add to total shown because of independent rounding.

<sup>3</sup>One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

<sup>4</sup>Total shown in thousand short tons and thousand dollars.

TABLE 4  
KENTUCKY: CRUSHED STONE<sup>1</sup> 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) <sup>2</sup>	W	W	291	1,455	W	W	887	4,322
Coarse aggregate, graded <sup>3</sup>	W	W	2,491	10,799	W	W	3,172	13,255
Fine aggregate (-3/8 inch) <sup>4</sup>	W	4,577	444	2,216	W	5,893	670	3,171
Coarse and fine aggregate <sup>5</sup>	3,522	13,705	2,914	12,527	3,454	15,592	1,753	7,797
Other construction materials	8,880	28,314	—	—	5,110	20,375	—	—
Agricultural <sup>6</sup>	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	75	276
Chemical and metallurgical <sup>8</sup>	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	—	—
Special <sup>9</sup>	( <sup>7</sup> )	( <sup>7</sup> )	—	—	( <sup>7</sup> )	( <sup>7</sup> )	—	—
Other miscellaneous uses	1,297	6,034	1,595	5,854	3,936	28,488	—	—
Unspecified: <sup>10</sup>								
Actual	951	4,903	473	2,419	4,012	19,457	854	3,658
Estimated	—	—	408	1,534	124	666	1,713	8,770
Total <sup>11</sup>	14,651	57,533	8,616	36,805	16,636	90,471	9,125	41,249
Total <sup>12 13</sup>	16,150	57,533	9,498	36,805	18,338	90,471	10,057	41,249

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

<sup>1</sup>Excludes sandstone from State total to avoid disclosing company proprietary data.

<sup>2</sup>Includes filter stone, macadam, 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, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

<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 with "Other miscellaneous uses."

<sup>8</sup>Includes cement manufacture, flux stone, lime manufacture, and sulfur oxide removal.

<sup>9</sup>Includes mine dusting or acid water treatment, other fillers or extenders, and other specified uses not listed.

<sup>10</sup>Includes production reported without a breakdown by use and estimates for nonrespondents.

<sup>11</sup>Data may not add to totals shown because of independent rounding.

<sup>12</sup>One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

<sup>13</sup>Total shown in thousand short tons and thousand dollars.