

# THE MINERAL INDUSTRY OF KENTUCKY

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Kentucky Geological Survey for collecting information on all nonfuel minerals.**

In 1998, the preliminary estimated value<sup>1</sup> of nonfuel mineral production for Kentucky was \$489 million, according to the U.S. Geological Survey (USGS). This was about a 2% decrease from that of 1997,<sup>2</sup> and followed a 12.7% increase from 1996 to 1997. Kentucky remained 30th among the 50 States in total nonfuel mineral production value, of which the State accounted for more than 1% of the U.S. total.

Crushed stone continued as Kentucky's leading nonfuel mineral commodity in 1998, accounting for an estimated 58% of the State's nonfuel mineral production value. Lime was second and portland cement was third. In recent years, Kentucky has been entirely an industrial mineral-producing State. The last year in which any metal was mined in the State was 1990, when small quantities of zinc were mined. Kentucky's decrease in nonfuel mineral value in 1998 resulted mostly from \$10 million and \$3.2 million decreases, respectively, in the values of crushed stone and gemstones. These decreases were somewhat mitigated by increases in the values of portland cement and ball clay. All other nonfuel minerals showed small increases in value, except for a small decrease in construction sand and gravel. In 1997, the State's increase in value mostly resulted from increases in crushed stone, portland cement, and ball clay; all other minerals increased in value except gemstones and crushed sandstone.

Compared with USGS estimates of the quantities produced in the other 49 States during 1998, Kentucky remained one of the top four lime-producing States<sup>2</sup> and dropped from second to third in ball clays. Additionally, the State produced significant quantities of crushed stone and common clays. Primary aluminum and raw steel were produced from materials obtained from other domestic and foreign sources. Based on preliminary estimates, Kentucky remained the Nation's second leading producer of primary aluminum.

<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 1998 USGS mineral production data published in this chapter are preliminary estimates as of February 1999 and are expected to change. For some mineral 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. A telephone listing for the specialists may be retrieved over the Internet at <http://minerals.usgs.gov/minerals/contacts/comdir.html>; by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists); or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

<sup>2</sup>Values, percentage calculations, and rankings for 1997 may vary from the *Minerals Yearbook, Area Reports: Domestic 1997, Volume II*, owing to the revision of preliminary 1997 to final 1997 data. Data for 1998 are preliminary and expected to change, while related rankings may also be subject to change.

The following narrative information was provided by the Kentucky Geological Survey (KGS).<sup>3</sup> To furnish additional construction aggregate for growing urban markets in the Louisville metropolitan area and in northern Kentucky, two mines were opened to produce stone from limestone and dolomite of the High Bridge Group (Ordovician). Mines in the High Bridge rock unit sequence have been a major source of aggregate for the metropolitan Lexington market of central Kentucky and a source of feedstock for lime plants along the Ohio River in northern Kentucky.

In eastern Jefferson County (Louisville), The Rogers Group produced crushed stone from an open pit operation in the Laurel Dolomite (Silurian). During 1998, they received approval from the county Board of Zoning Adjustment to modify their quarry permit to move stone production and primary crushing underground. A slope is being driven down into the High Bridge Group, where stone will be produced from two levels. The depth of the lower level will be more than 300 meters below the surface.

In north central Kentucky, Sterling Materials Co. opened a mine in the High Bridge at a greenfield site in Gallatin County. The operation will supply aggregate for the northern Kentucky market.

Boone County Fiscal Court approved regulations for underground mining that were proposed by the county planning commission in response to a lawsuit filed by American Aggregates Corp. The lawsuit grew out of an attempt by American Aggregates to develop an underground mine in northern Kentucky to produce stone from the High Bridge Group. The owner of American Aggregates, Martin Marietta Aggregates, indicated that they planned to challenge the reasonableness of the regulations (Charley, 1998). Martin Marietta continues to work toward obtaining approval for the underground mine and the lawsuit is still outstanding.

The Lexington Cut Stone, Marble & Tile Co. supplied about 545 metric tons of dimension limestone for refacing walls at the Keeneland Race Course in Fayette County. The stone was produced from the Tyrone Limestone, the uppermost formation in the High Bridge Group, at a Lexington Cut Stone quarry in Jessamine County.

Medusa Aggregates purchased the Commonwealth Stone quarry in south central Kentucky. The quarry, located in Warren County, produces about 360,000 metric tons of crushed stone per year (Drake, 1998). Later in the year, Medusa, which has six quarries in the State, was acquired by Southdown, Inc., the owner of Kentucky's sole cement plant, located on the Ohio River near Louisville, and an auxiliary limestone quarry down river in Meade County (Burdette, 1998). In northeastern Kentucky, Mountain Materials purchased a quarry near Carter

<sup>3</sup>Garland Dever, Jr., Geologist, submitted the text of information provided by the Kentucky Geological Survey.

City in northwestern Carter County (Kentucky Crushed Stone Association, 1998c).

Martin Marietta Materials bought a sand and gravel operation near Petersburg in western Boone County, northern Kentucky (Kentucky Crushed Stone Association, 1998b). In western Kentucky, Liter's Quarry, Inc., purchased Davies County Sand & Gravel, a producer with an operation near Owensboro (Kentucky Crushed Stone Association, 1998a).

According to the KGS, Southwire Corp. plans to spend nearly \$8 million to add a new aluminum rod mill at its Hancock County plant, which already has two aluminum rod mills. The new mill at Hawesville will make specialty alloys and will enable the other systems to produce standard rods at faster speeds.

Limestone continued to be an exploration target in Kentucky during 1998, mainly for sources of construction aggregate near urban areas. No exploratory drilling was reported in the State's mineral districts.

### References Cited

- Burdett, Steve, 1998, Southdown and Medusa consolidate capacity: Rock Products Cement Edition, May, p. 9.  
 Charley, Amy, 1998, County digs down over mining: Boone County Recorder, v. 122, no. 28, February 12, p. A1, A12.  
 Drake, Bob, 1998, Medusa expands presence in Kentucky: Rock Products, v. 101, no. 2, p. 7.  
 Kentucky Crushed Stone Association, 1998a, [Untitled]: KCSA Newsletter, February, p. 3.  
 ———1998b, [Untitled]: KCSA Newsletter, July, p. 3.  
 ———1998c, [Untitled]: KCSA Newsletter, November, p. 3

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>Clays:</b>						
Ball	70	W	W	W	W	W
Common	823	3,680	865	3,910	882	3,980
Fire	--	--	7	W	--	--
<b>Gemstones</b>	NA	5,910	NA	3,520	NA	329
<b>Sand and gravel: Construction</b>	7,310	25,600	8,140	26,600	7,870	26,500
<b>Stone: Crushed 3/</b>	58,500	243,000	62,700	292,000	61,300	282,000
Combined values of cement, lime, stone [crushed sandstone (1996-97)], and values indicated by symbol W	XX	164,000	XX	172,000	XX	176,000
<b>Total</b>	XX	442,000	XX	498,000	XX	489,000

p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined values" data.

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 stones; kind and value included with "Combined values" data.

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

Kind	1996				1997			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	92	58,500	\$243,000	\$4.15	91	62,700	\$292,000	\$4.65
Sandstone	1	(2/)	(2/)	(2/)	1	(2/)	(2/)	(2/)
<b>Total</b>	XX	58,500	243,000	4.15	XX	62,700	292,000	4.65

XX Not applicable.

1/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

2/ Excluded from State total to avoid disclosing company proprietary data.

TABLE 3  
KENTUCKY: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1997,  
BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Riprap and jetty stone	528	\$3,310	\$6.27
Filter stone	511	2,880	5.64
Other coarse aggregate 3/	405	2,370	5.85
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	2,400	13,100	5.44
Bituminous aggregate, coarse	3,280	20,200	6.16
Bituminous surface-treatment aggregate	1,530	8,960	5.86
Railroad ballast	247	1,370	5.53
Other graded coarse aggregate	460	2,550	5.54
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	133	768	5.77
Stone sand, bituminous mix or seal	1,160	6,100	5.28
Screening, undesignated	783	3,610	4.61
Other fine aggregate	209	919	4.40
<b>Coarse and fine aggregate:</b>			
Graded road base or subbase	3,950	21,700	5.49
Unpaved road surfacing	697	3,480	4.99
Crusher run or fill or waste	894	3,360	3.76
Other construction materials 4/	690	3,760	5.45
Agricultural limestone	511	2,660	5.21
<b>Chemical and metallurgical:</b>			
Cement manufacture	W	W	1.56
Lime manufacture	W	W	1.33
Flux stone	W	W	4.20
Sulfur oxide removal	W	W	13.09
<b>Special:</b>			
Mine dusting or acid water treatment	W	W	13.95
Roofing granules	W	W	5.50
Other specified uses not listed	96	576	6.00
<b>Unspecified: 5/</b>			
Actual	27,400	129,000	4.70
Estimated	12,900	53,400	4.14
Total	62,700	292,000	4.65

W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

2/ Includes limestone; excludes sandstone from State total to avoid disclosing company proprietary data.

3/ Includes macadam.

4/ Includes waste material and other coarse and fine aggregates.

5/ Reported and estimated production without a breakdown by end use.

TABLE 4  
KENTUCKY: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1997, BY USE AND DISTRICT 1/ 2/

(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) 3/	W	W	211	1,200	618	3,900	514	2,850
Coarse aggregate, graded 4/	W	W	1,550	9,290	3,400	22,000	2,050	10,500
Fine aggregate (-3/8 inch) 5/	W	W	468	3,090	1,010	4,730	525	2,420
Coarse and fine aggregate 6/	W	W	1,110	5,890	2,670	14,800	1,350	6,240
Other construction materials 7/	--	--	--	--	W	W	--	--
Agricultural 8/	W	W	272	1,430	W	W	W	W
Chemical and metallurgical 9/	--	--	--	--	W	W	--	--
Special 10/	--	--	--	--	W	W	--	--
Other miscellaneous uses	--	--	--	--	W	W	--	--
Unspecified: 11/								
Actual	16,200	87,400	3,620	9,010	6,270	27,700	W	W
Estimated	700	3,880	3,730	12,200	4,350	16,600	4,130	20,800
Total	19,300	103,000	11,000	42,100	22,500	99,100	9,960	47,700

W Withheld to avoid disclosing company proprietary data; included in "Total."

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

2/ Excludes sandstone from State total to avoid disclosing company proprietary data.

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, 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, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

7/ Includes waste material.

8/ Includes agricultural limestone.

9/ Includes cement manufacture, lime manufacture, and sulfur oxide removal.

10/ Includes mine dusting or acid water treatment, and other fillers or extenders.

11/ Reported and estimated production without a breakdown by end use.

TABLE 5  
KENTUCKY: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,  
BY MAJOR USE CATEGORY 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate and concrete products (including concrete sand)	3,490	\$10,800	\$3.09
Asphaltic concrete aggregates and other bituminous mixtures	246	710	2.89
Road base and coverings 3/	92	267	2.90
Fill	329	864	2.63
Snow and ice control	19	93	4.89
Other miscellaneous uses 4/	190	678	3.57
Unspecified: 5/			
Actual	518	1,460	2.81
Estimated	3,260	11,800	3.62
Total or average	8,140	26,600	3.27

1/ To avoid disclosing company proprietary data, no district tables were produced for 1997.

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

3/ Includes road and other stabilization (cement and lime).

4/ Includes filtration.

5/ Reported and estimated production without a breakdown by end use.