

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 1997, Kentucky ranked 30th among the 50 States in total nonfuel mineral production value,¹ according to the U.S. Geological Survey (USGS). The State was 31st in 1996. The estimated value for 1997 was \$476 million, a nearly 8% increase from that of 1996. This followed a 2.3% increase from 1995 to 1996 (based on final 1996 data). In 1997, Kentucky reached the highest nonfuel mineral value reported in the State's history, surpassing the \$400 million mark for the fifth time in the past 6 years. The State accounted for more than 1% of the U.S. total nonfuel mineral production value.

Crushed stone continued as the State's leading nonfuel mineral commodity in 1997, accounting for an estimated 57% of nonfuel mineral production value. Lime was second and portland cement was third. In recent years, Kentucky has been 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 increase in nonfuel mineral value in 1997 resulted mostly from a \$29-million, or about a 12%, increase in the value of crushed stone. Other mineral commodities increased in value except for gemstones (*table 1*). In 1996, the State's increase in value mostly resulted from increases in crushed stone and portland cement, moderated by a combined decrease in construction sand and gravel and a smaller decrease in ball clay.

Compared with USGS estimates of the quantities produced in the other 49 States during 1997, Kentucky remained one of the top three lime-producing States and ninth in crushed stone. The State rose from third to second (by value) in gemstones and from fourth to third in ball clays. Additionally, the State produced significant quantities of common clays. Primary aluminum and raw steel were produced from materials obtained from other domestic and foreign sources. Kentucky remained the Nation's second leading producer of primary aluminum.

The following narrative information was provided by the Kentucky Geological Survey² (KGS). In the Western Kentucky Fluorspar District, zinc was the target for exploratory drilling in Crittenden County. Savage Zinc Co. purchased USX Corp.'s idle

fluorspar mill near Salem. No exploration activity was reported from the State's central and south-central mineral districts.

Elf Atochem North American, Inc. completed construction of a HFC-134a plant in Calvert City, Marshall County. The plant, with a capacity of 18,100 metric tons, will produce refrigerants for automobiles, refrigerators, and freezers, principally in the North American market. Fluorspar is one of the raw materials used to manufacture these refrigerants.

Corhart Refractories Corp. finished constructing a new \$12 million plant in Louisville, Jefferson County, for the manufacture of Cruciform, a new product, used to line glass furnaces.

Sterling Materials Co. is in the process of developing an underground limestone mine in Gallatin County in northern Kentucky. Drilling and property acquisition were completed during 1997. Aggregates will be produced from the High Bridge Group (Ordovician), a major aggregates source in central Kentucky.

Dravo Lime Co. completed construction of a new 318,000-metric-ton-per-year preheater rotary kiln at its Maysville Division lime plant in Mason County. The Maysville plant is the second largest lime plant in North America.

A \$50-million expansion of Kosmos Cement Co.'s cement plant near Louisville was announced by its joint owners, Southdown Inc. and the Lone Star Industries. Annual production capacity will be increased from 787,000 metric tons to 1.26 million tons.

Louisville Gas and Electric Co. (LG&E) and the United States Gypsum Co. announced that, beginning in 1999, U.S. Gypsum annually will purchase more than 450,000 tons of synthetic gypsum to be produced at LG&E's Mill Creek powerplant in Jefferson County. The gypsum will be a byproduct of Mill Creek's limestone-based flue-gas desulfurization system, which will undergo a \$25 million modification. The plant's scrubber product currently is landfilled.

Martin Marietta Materials purchased the Fredonia quarry in Caldwell County from Rock Dust Products. The Fredonia operation produces chemical-grade stone from the Saint Genevieve Limestone. The Elmo Greer and Sons Quarry in Pulaski County was purchased by the Kentucky Stone Co. The Greer site is on the east side along the Kentucky Highway 80 corridor leading into the Eastern Kentucky Coal Field, a region mainly devoid of sources for crushed stone.

Benchmark Material's Division of Cornerstone Construction and Materials Inc. (CCM) chose Louisville as its midwest regional office. CCM's Midwest region includes the Kentucky Stone Co. and the France Stone Co.

American Aggregates Corp. had been attempting to open an underground mine in Boone County in northern Kentucky, but the county government was delaying making a decision about the request. As a result of a lawsuit filed by American Aggregates to

¹The 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. Construction sand and gravel and crushed stone 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>.

²Garland Dever, Geologist, submitted the text of information provided by the Kentucky Geological Survey.

force a decision, the county planning commission in late 1997 proposed regulations for subsurface mining in the county. At yearend, the regulations were pending before Boone County Fiscal Court.

Nugent Sand Co. proposed developing a sand distribution facility along the Ohio River near West Point, Hardin County, to

serve Hardin and Meade Counties and southwestern Jefferson County. The proposed facility was approved by Hardin County and at yearend, a decision by the Corps of Engineers was pending. The Corps must approve the project because of its location on a navigable river.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN KENTUCKY 1/ 2/
(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1995		1996		1997 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays:						
Ball	117	W	70	W	82	6,070
Common	786	3,430	823	3,680	739	3,790
Gemstones	NA	W	NA	5,910	NA	4,580
Sand and gravel, construction	8,710	31,700	7,310	25,600	7,890	28,300
Stone, crushed 3/	54,700	230,000	58,500	243,000	64,000	272,000
Combined value of cement, lime, stone [crushed (1995), crushed sandstone (1996-97)], and values indicated by symbol W	XX	167,000	XX	164,000	XX	161,000
Total	XX	432,000	XX	442,000	XX	476,000

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

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

Kind	1995				1996			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	90 r/	55,500 r/	\$234,000 r/	\$4.22 r/	92	58,500	\$243,000	\$4.15
Sandstone	--	--	--	--	(2/)	(2/)	(2/)	(2/)
Total	XX	55,500 r/	234,000 r/	4.22 r/	XX	58,500	243,000	4.15

r/ Revised. XX Not applicable.

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.

TABLE 3
KENTUCKY: 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):			
Riprap and jetty stone	582	\$3,000	\$5.15
Filter stone	529	2,690	5.09
Other coarse aggregate 3/	467	2,410	5.15
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,330	15,600	4.69
Bituminous aggregate, coarse	4,350	21,000	4.82
Bituminous surface-treatment aggregate	1,120	5,860	5.23
Railroad ballast	186	961	5.17
Other graded coarse aggregate	1,380	7,640	5.53
Fine aggregate (-3/8 inch):			
Stone sand, concrete	198	1,220	5.97
Stone sand, bituminous mix or seal	1,330	5,790	4.34
Screening, undesignated	326	1,980	6.06
Other fine aggregate	320	1,780	5.56
Coarse and fine aggregate:			
Graded road base or subbase	4,570	20,000	4.37
Unpaved road surfacing	2,170	9,740	4.48
Crusher run or fill or waste	640	2,780	4.34
Other coarse and fine aggregate	1,280	6,470	5.06
Other construction materials 4/	19	25	1.32
Agricultural:			
Agricultural limestone	962	4,000	4.15
Poultry grit and mineral food	8	132	16.50
Other agricultural uses	4	46	11.50
Chemical and metallurgical:			
Cement manufacture	(5/)	(5/)	2.63
Lime manufacture	(5/)	(5/)	1.10
Sulfur oxide removal	(5/)	(5/)	3.92
Special:			
Mine dusting or acid water treatment	32	493	7.65
Other fillers or extenders	132	1,230	9.34
Unspecified: 6/			
Actual	18,200	75,500	4.16
Estimated	10,800	43,700	4.05
Total	58,500	243,000	4.15

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

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

3/ Includes macadam.

4/ Includes waste material.

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

6/ Includes production reported without a breakdown by end use and with estimates for norespondents.

TABLE 4
KENTUCKY: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1996, 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/	(4/)	(4/)	(4/)	(4/)	469	2,450	851	4,570
Coarse aggregate, graded 5/	(4/)	(4/)	(4/)	(4/)	4,010	22,600	3,400	16,800
Fine aggregate (-3/8 inch) 6/	(4/)	(4/)	(4/)	(4/)	709	3,860	897	4,260
Coarse and fine aggregate 7/	(4/)	(4/)	(4/)	(4/)	3,430	17,100	2,360	11,000
Other construction materials 8/	--	--	--	--	19	25	--	--
Agricultural 9/	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)
Chemical and metallurgical 10/	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	--	--
Special 11/	(4/)	(4/)	--	--	--	--	(4/)	(4/)
Unspecified: 12/								
Actual	15,200	61,500	--	--	2,920	14,000	--	--
Estimated	169	694	2,630	10,800	5,020	20,800	2,980	11,300
Total	17,400	71,700	9,530	35,700	21,000	86,900	10,600	48,600

1/ Excludes sandstone from State total 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/ Withheld to avoid disclosing company proprietary data; included in "Total."

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

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

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

8/ Includes waste material.

9/ Includes agricultural limestone, poultry grit and material food, and other agricultural uses.

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

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

12/ Includes production reported without a breakdown by end use and with estimates for nonrespondents.

TABLE 5
KENTUCKY: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY MAJOR USE CATEGORY 1/2/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand) 3/	1,260	\$4,720	\$3.73
Concrete products (blocks, bricks, pipe, decorative, etc.)	101	407	4.03
Asphaltic concrete aggregates and other bituminous mixtures	403	1,360	3.37
Road base and coverings	103	404	3.92
Fill	404	1,270	3.15
Unspecified: 4/			
Actual	1,130	3,930	3.46
Estimated	3,900	13,500	3.46
Total or average	7,310	25,600	3.50

1/ To avoid disclosing company proprietary data, no district tables were produced for 1996.

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

3/ Includes plaster and gunite sands.

4/ Includes production reported without a breakdown by end use and with estimates for nonrespondents.