

# THE MINERAL INDUSTRY OF KANSAS

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

In 1997, Kansas moved up in rank from 24th to 23d among the 50 States in total nonfuel mineral production value,<sup>1</sup> according to the U.S. Geological Survey (USGS). The estimated value for 1997 was \$547 million, a 3.2% increase from that of 1996. This followed a 6.4% increase from 1995 to 1996 (based on final 1996 data). The State accounted for about 1.5% of the U.S. total nonfuel mineral production value.

Portland cement, salt, crushed stone, and grade-A helium, were Kansas' leading nonfuel mineral commodities accounting for about 23%, 22%, 22%, and 20%, respectively, of the State's total nonfuel mineral production value. In 1997, many commodities contributed to Kansas' increase in nonfuel mineral value, but the increase mostly resulted from the rising values of crushed stone, portland cement, grade-A helium, and salt, in decreasing order of total increase (*table 1*). Decreases in value occurred for common clays, construction sand and gravel, Fuller's earth, gypsum (crude), and pumice and pumicite. In 1996, most commodities increased in value, led by crushed stone, portland cement, and salt (*table 1*). Small decreases occurred in common clays, dimension sandstone, masonry cement, grade-A helium, and pumice and pumicite.

The following narrative information was provided by the Kansas Geological Survey<sup>2</sup> (KGS). Sand and gravel dredging on the Kansas River was by far the most mentioned news item in the industrial minerals sector throughout 1997. At issue was the potential for recreation on the Kansas River and how river dredging might be affected. Throughout the year an interagency committee, the Kansas River Corridor Recreational Committee, addressed the issue of recreational potential. The committee, mandated by the legislature, was composed of five State agencies (Commerce and Housing, Water Office, Wildlife and Parks, Biological Survey, and Geological Survey). While all of the agencies were in favor of allowing some degree of recreation along the entire river, there were some differences as to whether there should be recreation zone(s) coexisting with commercial enterprises or restricted recreation zones that would exclude

commercial activities. Near yearend, committee members decided to allow recreation on all parts of the river without selecting certain parts of the river for recreation only. However, at the last meeting of the year, all of the agencies except the KGS voted to set aside large parts of the river for recreation only.

Realizing at the outset the importance of possible impacts on the river-dredging industry, the KGS conducted its own study. The KGS study showed that since 1980, the population growth in the 10 counties bordering the Kansas River was twice as great as the whole State and now contained 40% of the State's population. Furthermore, population projections indicate that nearly 50% of Kansas residents will live in the 10-county area by the year 2025. The study also indicated factors such as a relatively narrow floodplain, considerable overburden, high land costs, and little availability of land, all of which favored the use of river dredges in the lower reaches of the Kansas River. The upper reaches of the river have a wider floodplain, more available land, lower land costs, and numerous locations with low overburden, all factors that favor pit or floodplain dredges. As a result, the KGS agreed with the concept of recreation zones, but not the large zones proposed that excluded possible future river dredging in areas of present high population density and future large population growth. The final committee recommendation did not define the area(s) of the Kansas River that should be restricted to recreation use alone. The interagency committee report will be submitted at the 1998 legislative session, and the KGS plans to submit their study as additional information for the Kansas Legislature to make their decision on this important issue.

Another important and controversial issue in western Kansas revolves around the scarcity of ground water in dredged pits along the Arkansas River floodplain, particularly the amount of water evaporation from the pits and the resulting effects on the watertable elevation. Representatives from the Kansas Aggregate Producers Association and the Equus Beds Groundwater Management District #2 have conducted several meetings in an attempt to define the extent of the problem and come up with a solution that satisfies all parties. That goal had not been met by yearend. A major problem is how to handle applications for dredging permits in areas where the ground water is already claimed. The task force hopes to draft legislation that would allow aggregate producers to have water rights.

Because of the healthy economy as well as a well-funded highway construction program, producers of construction-related commodities like building stone, cement, crushed stone, sand and gravel, etc. reported a very good year for their businesses, and they expect next year to be about the same.

Wamego Sand Co. (Wamego, Wabaunsee County) acquired Kershaw Ready-Mix Concrete and Sand Co. (Manhattan, Riley County) and changed Kershaw's name to Midwest Concrete Materials Co. Midwest operates three pit dredges and is also in

<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 1997 USGS mineral production data published in this chapter are estimates as of January 1998. For some 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. 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>.

<sup>2</sup>David A. Grisafe, Industrial Minerals Specialist with the Kansas Geological Survey authored the text of minerals industry information submitted by that agency.

the ready-mixed concrete business.

As part of the KGS's multiyear program remapping much of the State, county geology maps became available for Elk, Ness, and Stafford Counties. Active mapping programs are underway in many counties including Bourbon, Comanche, Ford, Greenwood, Hamilton, Kearny, Labette, Leavenworth, Marshall, Republic, Sedgwick, Wyandotte, and Wilson.

A new directory of industrial mineral producers was compiled using records from both the KGS and the State Conservation Commission (KGS, Open File Report 97-84). The new directory is arranged alphabetically by county and includes the commodity, name, address, and phone numbers as well the legal description for each operation. The directory is expected to be available on the Internet during early 1998 (<http://www.kgs.ukans.edu>).

A total of 85 open-file reports covering a variety of topics were completed at KGS during the year and are available in the Survey's library. Titles of 1996 open-file reports are on the Internet, and a 1997 list will be available during 1998. Among KGS publications of interest are (1) review of the building stones used in Wichita (Educational Series 11), (2) outcrop stratigraphy and depositional facies of the Chase Group (Lower Permian) in Kansas and southeastern Nebraska (Technical Series 6), and (3) current research in earth sciences (Bulletin 240). The KGS also has a series of short, issue-related Public Information Circulars (PIC). The PIC 6, published this year deals with sand, gravel, and crushed stone and its production and use in Kansas.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1995		1996		1997 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	31	2,650	24	2,240 e/	25	2,330 e/
Portland	1,730	109,000	1,730	120,000 e/	1,760	124,000 e/
Clays:						
Common	573	2,390	548	2,250	376	1,270
Fuller's earth	48	W	64	W	W	W
Gemstones	NA	W	NA	621	NA	1,000
Helium:						
Crude million cubic meters	30	26,600	W	W	W	W
Grade-A do.	53	105,000	53	104,000	54	108,000
Salt	2,770	113,000	2,950	118,000	3,100	121,000
Sand and gravel, construction	11,100	29,400	11,500	31,300	10,800	30,100
Stone:						
Crushed	20,400	95,800	22,100	110,000	23,600	118,000
Dimension 3/ metric tons	19,800	1,810	21,400	2,100	21,500	2,110
Combined value of gypsum (crude), pumice and pumicite, sand and gravel (industrial), stone (dimension sandstone), and values indicated by symbol W	XX	12,200	XX	40,600	XX	39,300
Total	XX	498,000	XX	530,000	XX	547,000

e/ Estimated. 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" figure.

TABLE 2  
KANSAS: CRUSHED STONE SOLD OR USED, 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 2/	107 r/	19,500 r/	\$93,800 r/	\$4.80	117	21,400	\$108,000	\$5.04
Sandstone and quartzite	3	W	W	2.32	2	W	W	2.38
Granite	1	W	W	3.47	1	W	W	3.56
Total	XX	20,400	95,800	4.69	XX	22,100	110,000	4.96

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 3  
KANSAS: CRUSHED STONE SOLD OR USED  
BY PRODUCERS IN 1996, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Macadam	64	\$284	\$4.44
Riprap and jetty stone	161	887	5.51
Filter stone	318	1,910	6.01
Other coarse aggregate	107	652	6.09
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	1,150	7,050	6.15
Bituminous aggregate, coarse	927	5,150	5.55
Bituminous surface-treatment aggregate	194	1,320	6.80
Railroad ballast	12	59	4.92
Other graded coarse aggregate	W	W	5.33
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, bituminous mix or seal	W	W	3.40
Screening, undesignated	538	1,370	2.55
<b>Coarse and fine aggregate:</b>			
Graded road base or subbase	1,370	6,600	4.83
Unpaved road surfacing	867	3,920	4.52
Terrazzo and exposed aggregate	W	W	6.70
Crusher run or fill or waste	367	2,210	6.01
Other coarse and fine aggregates	996	4,760	4.78
Other construction materials 3/	596	3,090	5.19
Agricultural limestone	216	939	4.35
Chemical and metallurgical, cement manufacture	1,990	7,950	4.00
Special, other fillers or extenders	81	611	7.54
<b>Unspecified: 4/</b>			
Actual	8,760	45,100	5.15
Estimated	3,420	15,800	4.62
Total	22,100	110,000	4.96

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

1/ Includes granite, limestone, limestone-dolomite, and sandstone and quartzite.

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

3/ Includes waste material.

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

TABLE 4  
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1996,  
BY USE AND DISTRICT 1/ 2/ 3/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 4/	259	1,650	W	W	--	--	W	W
Coarse aggregate, graded 5/	W	W	W	W	--	--	W	W
Fine aggregate (-3/8 inch) 6/	W	W	W	W	--	--	W	W
Coarse and fine aggregate 7/	W	W	W	W	172	277	2,850	13,900
Other construction materials 8/	2,010	12,400	1,960	8,790	--	--	407	2,210
Agricultural 9/	(10/)	(10/)	(10/)	(10/)	--	--	53	255
Chemical and metallurgical 11/	--	--	--	--	--	--	1,990	7,950
Special 12/	81	611	--	--	--	--	--	--
Unspecified: 13/								
Actual	(10/)	(10/)	(10/)	(10/)	--	--	2,940	13,200
Estimated	1,520	7,550	--	--	--	--	1,900	8,270
Total	8,700	49,000	3,110	14,600	172	277	10,100	45,800

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

1/ No crushed stone was produced in District 4.

2/ Production reported in District 5 was included with "District 6" to avoid disclosing company proprietary data.

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

4/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

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

6/ Includes stone sand (bituminous mix or seal) and screening (undesigned).

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

8/ Includes waste material.

9/ Includes agricultural limestone.

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

11/ Includes cement manufacture.

12/ Includes other fillers or extenders.

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

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

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	2,520	\$6,660.00	\$2.64
Plaster and gunitite sands	103	269	2.61
Concrete products (blocks, bricks, pipe, decorative, etc.)	11	89	8.09
Asphaltic concrete aggregates and other bituminous mixtures	1,640	5,170	3.15
Road base and coverings 2/	2,400	5,530	2.30
Fill	929	1,900	2.05
Snow and ice control	83	294	3.54
Roofing granules	23	75	3.26
Other miscellaneous uses	213	785	3.69
Unspecified: 3/			
Actual	1,620	5,040	3.11
Estimated	1,980	5,510	2.78
Total or average	11,500	31,300	2.72

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

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

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

TABLE 6  
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,  
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	617	1,870	201	634	74	205
Asphaltic concrete aggregates and road base materials 3/	522	1,600	563	1,930	754	1,490
Other miscellaneous uses 4/	20	161	--	--	--	--
Unspecified: 5/						
Actual	1,100	3,520	40	96	19	54
Estimated	1,320	3,780	21	66	18	40
Total	3,580	10,900	825	2,730	865	1,790
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	230	685	1,510	3,620	--	--
Asphaltic concrete aggregates and road base materials 3/	1,260	3,090	1,940	4,750	15	39
Other miscellaneous uses 4/	--	--	215	700	--	--
Unspecified: 5/						
Actual	--	--	465	1,370	--	--
Estimated	217	617	401	1,000	--	--
Total	1,710	4,390	4,530	11,400	15	39

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

2/ Includes plaster and gunite sands.

3/ Includes fill, road and other stabilization (cement and lime), and snow and ice control.

4/ Includes roofing granules.

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