

# 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 1998, the preliminary estimated value<sup>1</sup> of nonfuel mineral production for Kansas was \$535 million, according to the U.S. Geological Survey (USGS). This was a marginal decrease from that of 1997,<sup>2</sup> following a 1.7% increase from 1996 to 1997. The State decreased in rank from 25th to 27th among the 50 States in total nonfuel mineral production value, of which Kansas accounted for more than 1% of the U.S. total.

Portland cement, salt, grade-A helium, and crushed stone were Kansas' leading nonfuel mineral commodities, accounting for about 24%, 23%, 20%, and 19%, respectively, of the State's total nonfuel mineral production value. In 1998, increases in the values of portland cement, grade-A helium, and salt were less than enough to balance out the drops in crushed stone and construction sand and gravel values, resulting in a small net decrease (table 1). (All mineral commodity listings are by descending order of value or change in value.) The State's other nonfuel minerals increased in value, except crude gypsum, dimension stone, and fuller's earth, which showed small decreases; gemstones remained the same. In 1997, moderate to small increases in crushed stone, portland cement, salt, and crude gypsum were partly mitigated by decreases in grade-A helium and pumice and pumicite; all other nonfuel minerals changed by relatively small amounts (table 1).

Production of nonfuel minerals in Kansas consisted entirely of industrial minerals; no metals were mined in the State. Based on USGS estimates of the quantities produced in the 50 States, Kansas continued as the Nation's leading<sup>2</sup> producer of crude and grade-A helium and remained fourth in salt. Additionally, significant quantities of portland cement, crushed stone, crude gypsum, common clays, and dimension stone were produced in the State.

<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 Kansas Geological Survey<sup>3</sup> (KGS). Producers of construction-related commodities like sand and gravel, crushed stone, cement, and building stone reported another good year for business, owing to good economic conditions in Kansas and the country overall, as well as a well-funded highway-construction program. Whereas USGS preliminary data (table 1) showed that the tonnage of crushed stone and sand and gravel sold or used were not as large as in 1998, the Kansas Aggregate Producers Association (KAPA) in Topeka projected that final 1998 production figures would likely be similar to or only slightly less than those of 1997. While demand for sand and gravel remained strong, supplies appeared to be shrinking in the Kansas City area owing to the dredging restrictions in the Kansas River, a limited number of floodplain dredges in the Kansas City area, and the reluctance of some users to use Missouri River sand because of the presence of lignite. Barring a sudden change in the economy, producers projected that sales in 1999 would be approximately the same as in 1998.

Martin Marietta Materials, Inc. announced that they had acquired the limestone quarry at Ottawa, Franklin County, from the Fogle Quarry Co., Inc. This is a significant acquisition because it is the largest crushed stone quarry in Kansas with a production capacity of over 1.6 million metric tons per year. Shears, Inc. divided its construction and aggregate operations into two groups. The aggregate operations are now collectively named Couch Construction Materials. In regard to mergers and acquisitions, Walker Stone Co., headquartered in Chapman, acquired the 21st Street Quarry outside of Augusta from George M. Myers, Inc., of El Dorado. The quarry has been a major source of crushed stone for the Wichita area; no plans are underway to make any changes to the 21st Street's previous modes of operation. Both companies are long-term producers of crushed stone—Walker for over 50 years and Myers for over 40 years.

## Industry Issues and Legislation

A number of significant issues were prominently under discussion, debate, and study within the State, and were actively addressed in the State legislature and the news media. Sand and gravel dredging of the Kansas River continued to be the most prominent news item in the industrial minerals sector throughout early 1998. At issue was the potential for recreation on the Kansas River and how river dredging might be affected. Throughout 1997 an interagency committee, the Kansas River Corridor Recreational Committee (mandated by the legislature) addressed the issue of recreational potential. The committee was composed of five State agencies

<sup>3</sup>David A. Grisafe, Industrial Minerals Specialist with the Kansas Geological Survey authored the text of minerals industry information submitted by that agency.

(Commerce and Housing, Water Office, Wildlife and Parks, Biological Survey, and Geological Survey). All of the agencies favored allowing some degree of recreation along the entire river, but differed as to whether there should be recreation zones coexisting with commercial enterprises or restricted recreation zones that would exclude commercial activities. Near yearend, committee members decided to allow recreation on all of the river without selected sections being reserved for recreation only. However, this changed at the last meeting of 1997. All of the agencies except the KGS voted to set aside large parts of the river for recreation only. Additionally, the non-KGS committee members, wanted to require a recreational compatibility plan for all new dredging permits that would be approved by the agency overseeing recreation on the river, the State's Wildlife and Parks agency.

Throughout 1997, the KGS conducted its own study of the Kansas River, encompassing the development of the river corridor and possible impacts on the river-dredging industry. This study included the geology of the Kansas River corridor; the economically important industrial mineral resources, particularly sand and gravel; sediment transport; and characteristics of the river and floodplain that might favor river or floodplain dredging. Also studied were scenarios of restricted dredging, alternate sources of sand, and the increased transportation costs if other sources were used. The study, *The Kansas River Corridor—Its Geologic Setting, Land Use, Economic Geology, and Hydrology*, completed in January 1998 (KGS Open-file Report 98-2), is available through the Publications Sales Office of the KGS. Portions of the study dealing with industrial minerals were presented at the 1998 Annual Forum on the Geology of Industrial Minerals in Norman, OK, the proceedings of which will be published at a later date.

The KGS agreed with the concept of recreation zones but not the large zones proposed that excluded possible river dredging in areas of high population density and future large population growth. The final interagency committee recommendation did not define any area of the Kansas River as restricted to recreation use alone. The interagency committee report was submitted at the 1998 legislative session before House and Senate committees; the KGS submitted its study to the committees as additional information. A bill, termed by some as a compromise solution between the dredging industry and recreation proponents, was defeated at the end of the legislative session by a vote of 16-24.

Another important and controversial issue revolved around the scarcity of ground water in western Kansas and the pit dredges along the Arkansas River floodplain, particularly the amount of water evaporation from the pits and the resulting effects on the water-table elevation. Representatives from the KAPA and the Equus Beds Groundwater Management District #2 formed the Aggregate and Groundwater Resources Task Force and were given the charge to make recommendations to the legislature related to ground water resources and aggregate production. The group conducted monthly, day-long meetings from July 1997 through January 1998, and April 1998 through December 1998, in an attempt to identify the extent of the problem and to come up with a solution that would satisfy all parties, a goal that was almost completed by yearend. The task force addressed the issues of transferability of water rights, differentiation of regional aquifers from stream-channel

aquifers, and development of regulatory language that recognized those various geological settings. In some cases, experts were brought in to discuss specific issues. An underlying major problem throughout the study was how to handle applications for dredging permits in areas where the ground water is already appropriated. The task force hoped to propose legislation early in the 1999 legislative session.

In 1997, one action taken by a County resulted in legislation being passed by the State legislature in 1998 to address it and similar situations. During 1997, Dickinson County attempted to impose a severance tax of \$0.22 per metric ton (\$0.20 per short ton) of stone aggregate produced in the county. Opposition was raised by county producers and by the KAPA largely because no other industry that hauls on county roads had a similar tax imposed. Local aggregate producers filed an injunction preventing the implementation of the tax. During the 1998 legislative session, a bill supported by the KAPA, and the Kansas Department of Transportation was introduced and passed, effectively barring counties from imposing this tax. Local aggregate producers intend to continue working with the county commissioners to develop a compromise solution for repairing the haul roads.

## Government Programs

Kansas was in the final year of its 8-year comprehensive highway program. Enhanced Federal funding, in part from the Transportation Equity Act for the 21st Century (Public Law 105-178), which authorized funds for Federal aid for highways, highway safety programs, and transit programs, prompted the Governor to begin his Transportation 2000 Plan in June 1998. During the year, a series of 12 town meetings were held to obtain input from citizens, businesses, regions, and communities to form a list of perceived future transportation needs for the State.

As part of the Kansas Geological Survey's multiyear program to remap much of the State, active geologic mapping programs were underway in many counties, including Bourbon, Coffey, Comanche, Ford, Greenwood, Hamilton, Kearny, Labette, Leavenworth, Marshall, Republic, Sedgwick, Wilson, Woodson, and Wyandotte. Studies were completed for Greenwood, Leavenworth, and Labette Counties and the maps are scheduled for release in 1999.

A new directory of industrial-mineral producers was compiled using records from the KGS and the State Conservation Commission (KGS, Open-File Report 98-35). The new directory, arranged alphabetically by county, includes the commodity, name, address, and telephone number for each producer as well as the legal description for each operation. The directory is expected to be available on the Internet during 1999 at the KGS's web site: <http://www.kgs.ukans.edu>. A State map showing the locations of all pits and quarries was nearly complete at yearend. Additionally, the KGS was compiling an abandoned quarry list for the State that also will eventually be placed on the Internet. Completion of the list is expected during 1999.

Thirty-nine open-file reports covering a variety of topics were completed at the KGS during the year and are available at the KGS library. A publication listing all open-file reports through 1998 will be issued during early 1999. Titles of all open-file reports through 1996 are now on the KGS's web site

and an updated list through 1998 will be placed there during 1999. Among recent KGS publications of interest are *Hydrogeology and Geochemistry of Glacial Deposits in Northeastern Kansas* (Bulletin 229) and *Lexicon of Geologic Names for Kansas (through 1995)* (Bulletin 231). Also issued

was *Current Research in Earth Science, 1998*, (Bulletin 241), which includes a study of the "Distribution of the Bandera Shale of the Marmaton Group, Middle Pennsylvanian, of Southeastern Kansas." The State's only building sandstone, the Bandera Quarry Sandstone Member, is included.

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

Mineral	1996		1997		1998 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	24	2,240 e/	W	W	W	W
Portland	1,730	120,000 e/	1,690	122,000 e/	1,750	129,000
Clays						
Common	548	2,250	545	2,500	556	2,550
Fuller's earth	64	W	W	W	W	W
Gemstones	NA	621	NA	291	NA	291
Helium: Grade-A million cubic	53	104,000	51	101,000	53	106,000
Salt	2,950	118,000	3,210	120,000	3,230	121,000
Sand and gravel: Construction	11,500	31,300	11,200	31,600	9,750	28,300
Stone:						
Crushed	22,100	110,000	23,000	116,000	22,600	102,000
Dimension 3/ metric tons	21,400	2,100	21,000	1,710	22,000	1,550
Combined values of gypsum (crude), helium (crude), pumice and pumicite, sand and gravel (industrial), stone (dimension sandstone), and values indicated by symbol W	XX	40,600	XX	44,200	XX	45,300
Total	XX	530,000	XX	539,000	XX	535,000

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

TABLE 2  
KANSAS: CRUSHED STONE SOLD OR USED, 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 2/	117	21,400	\$108,000	\$5.04	158	22,300	\$114,000	\$5.11
Sandstone and quartzite	2	W	W	W	3	W	W	W
Granite	1	W	W	W	1	W	W	W
Total	XX	22,100	110,000	4.96	XX	23,000	116,000	5.04

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 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	130	\$1,210	\$9.28
Filter stone	93	622	6.69
Other coarse aggregate 3/	225	1,280	5.70
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	166	1,330	7.99
Bituminous aggregate, coarse	538	4,430	8.24
Other graded coarse aggregate 4/	2,070	12,400	5.98
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	W	W	8.33
Stone sand, bituminous mix or seal	26	185	7.12
Screening, undesignated	109	419	3.84
Other fine aggregate 5/	279	1,010	3.61
<b>Coarse and fine aggregate:</b>			
Graded road base or subbase	1,150	5,460	4.77
Unpaved road surfacing	913	4,120	4.51
Crusher run or fill or waste	246	1,400	5.69
Other coarse and fine aggregates	803	3,770	4.70
Other construction materials	626	3,270	5.22
<b>Agricultural:</b>			
Agricultural limestone	333	1,530	4.58
Other agricultural uses	1	7	7.00
Chemical and metallurgical: Cement manufacture	2,000	8,260	4.12
Special: Roofing granules	(6/)	(6/)	(6/)
<b>Other miscellaneous uses:</b>			
Waste material	2	4	2.00
Other specified uses not listed	(6/)	(6/)	(6/)
<b>Unspecified: 7/</b>			
Actual	10,500	52,100	4.94
Estimated	2,590	12,300	4.73
Total	23,000	116,000	5.04

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 macadam.

4/ Includes bituminous surface-treatment aggregate and railroad ballast.

5/ Includes stone sand (concrete).

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

7/ Includes reported and estimated production without a breakdown by end use.

TABLE 4  
KANSAS: 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 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:										
Coarse aggregate (+1 1/2 inch) 3/	W	W	113	1,000	--	--	(4/)	(4/)	188	1,110
Coarse aggregate, graded 5/	1,620	10,800	W	W	--	--	--	--	824	4,330
Fine aggregate (-3/8 inch) 6/	W	W	W	W	--	--	--	--	195	1
Coarse and fine aggregate 7/	681	4,070	W	W	(4/)	(4/)	(4/)	(4/)	973	4,470
Other construction materials 8/	222	1,270	1,260	7,660	--	--	--	--	602	3,150
Agricultural 9/	(4/)	(4/)	(4/)	(4/)	--	--	--	--	206	1
Chemical and metallurgical 10/	--	--	--	--	--	--	--	--	2,000	8,260
Other miscellaneous uses	--	--	--	--	--	--	--	--	(4/)	(4/)
Unspecified: 11/										
Actual	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)
Estimated	799	4,230	--	--	--	--	--	--	1,790	8,030
Total	9,140	52,900	3,260	16,500	192	(4/)	1,050	3,660	9,370	42,500

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

1/ No crushed stone was produced in District 4.

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 aggregate.

8/ Includes waste material.

9/ Includes agricultural limestone and other agricultural uses.

10/ Includes cement manufacture.

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

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

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	2,880	\$8,100	\$2.82
Plaster and gunite sands	224	950	4.24
Concrete products (blocks, bricks, pipe, decorative, etc.)	87	576	6.62
Asphaltic concrete aggregates and other bituminous mixtures	1,610	5,280	3.27
Road base and coverings	2,000	5,390	2.69
Road and other stabilization (cement and lime)	169	534	3.16
Fill	1,150	2,260	1.96
Snow and ice control	122	478	3.92
Other miscellaneous uses 2/	45	339	7.53
Unspecified: 3/			
Actual	791	1,880	2.38
Estimated	2,110	5,810	2.75
Total or average	11,200	31,600	2.82

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

2/ Includes railroad ballast and roofing granules.

3/ Includes reported and estimated production without a breakdown by end use.

TABLE 6  
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,  
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/	1,100	3,840	223	914	35	97
Asphaltic concrete 3/	456	1,680	122	437	W	W
Road base and coverings	196	1,090	191	621	494	904
Fill	215	654	W	W	W	W
Other miscellaneous uses 4/	W	W	W	W	W	W
Unspecified: 5/						
Actual	19	185	7	25	15	42
Estimated	W	W	105	213	--	--
Total	3,460	12,100	734	2,470	603	1,210
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	151	430	1,670	4,340	--	--
Asphaltic concrete 3/	W	W	891	2,490	--	--
Road base and coverings	170	762	607	1,780	--	--
Fill	124	266	718	1,070	--	--
Other miscellaneous uses 4/	W	W	57	139	--	--
Unspecified: 5/						
Actual	--	--	750	1,630	--	--
Estimated	W	W	288	750	15	39
Total	1,400	3,620	4,980	12,200	15	39

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/ Includes plaster and gunite sands.

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

4/ Includes railroad ballast, roofing granules, and snow and ice control.

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