

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 1999, the preliminary estimated value¹ of nonfuel mineral production for Kansas was \$566 million, according to the U.S. Geological Survey (USGS). This was a 2.7% increase from that of 1998,² following a 2.2% increase from 1997 to 1998. The State increased in rank to 25th from 26th among the 50 States in total nonfuel mineral production value, of which Kansas accounted for nearly 1.5% of the U.S. total.

Portland cement, salt, crushed stone, and grade-A helium were Kansas' leading nonfuel mineral commodities, accounting for about 25%, 21%, and the latter two 20%, respectively, of the State's total nonfuel mineral production value. In 1999, increases in the values of crude helium (up more than \$15 million), portland cement, and grade-A helium accounted for most of the State's rise in value. Only construction sand and gravel, down about \$6 million, showed any significant drop in value. (All mineral commodity listings are by descending order of value or change in value.) In 1998, increases in portland cement and grade-A helium were offset somewhat by a \$13 million decrease in crude helium; all other changes in nonfuel mineral values were relatively small (table 1).

Production of nonfuel minerals in Kansas consisted entirely of industrial minerals; no metals were mined in the State. Based upon USGS estimates of the quantities produced in 1999 in the 50 States, Kansas continued as the Nation's leading producer of crude and grade-A helium and remained fifth in salt, sixth in pumice and pumicite, and ninth in crude gypsum and fuller's earth. Additionally, significant quantities of portland cement, crushed stone, common clays, and dimension stone were produced in the State.

The following narrative information was provided by the Kansas Geological Survey³ (KGS). According to the Kansas Aggregate Producers Association (KAPA), aggregate

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 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000 and are expected to change. For some mineral commodities, such as, 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 URL <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 URL <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

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

production—particularly construction sand and gravel, declined due to three factors:

- (1) There was a temporary slump in demand due to a transition between the 1998 and 1999 highway programs. The States 8-year comprehensive highway program ended in 1998. It is anticipated that aggregate production next year will show an increase as the new 10-year highway program is implemented.
- (2) The Kansas Department of Transportation is using more Superpave specifications (Federal Highway Administration standards) in their mix designs. The sand content is lower in these mixes.
- (3) The U.S. Army Corps of Engineers continues to lower the quotas of sand and gravel dredged from the Kansas River.

A major acquisition within the State's sand and gravel industry occurred when Holliday Sand & Gravel Co., located in Overland Park, Johnson County, acquired both Victory Sand Co., operating in Topeka, and Builders Sand Co., operating near the Kansas City area. The Victory name will be retained while the other operations in the DeSoto/Bonner Springs area will adopt the Holliday Sand & Gravel name.

Further major consolidation in the aggregate industry occurred when Shears Construction LP, located in Hutchinson, Reno County, acquired the operations of Allied, Inc., located in Hays, Ellis County. Allied continued to operate as a separate entity. Late in the year, Shears and Couch Construction Materials (the aggregate portion of Shears) was acquired by APAC-Kansas, Inc., located in Overland Park, Johnson County.

O'Brien Ready Mix Co., headquartered in St. Paul, Neosho County, expanded its presence in southeastern Kansas by acquiring Cullor, Inc., located in Fort Scott, Bourbon County. Cullor had provided crushed stone in the area for over 50 years.

Early in the year, the Governor released a proposed transportation plan that included \$2.4 billion in additional revenue. According to KAPA, the plan could be funded by transferring 10% of existing sales tax receipts to the State Highway Fund and by long-term debt financing (25-year bonds) of \$1.8 billion. While this was short of the Transportation-2000 Plan Task Force goal that called for \$1.552 billion per year compared to the Governor's plan of \$1.335 billion per year, it would not require a tax increase, a feature that appealed to many lawmakers. Others were concerned that this would be an insufficient amount, while still others were concerned about the long-term debt. During the legislative session, House and Senate committees debated and passed somewhat different versions, but on April 30, a compromise version passed both houses and was signed by the Governor on May 10. The final version of the Kansas Comprehensive Transportation Plan includes \$12.6 billion over a 10-year period, and will be funded by increases in motor fuel taxes; a 15% increase in vehicle registration fees in 2000, with an additional 5% in 2004; 20-year bonds; and general fund transfers.

Four county governments have opened their crushed rock operations for commercial purposes. They are competing with the State's private producers as well as producers in other

States. KAPA is exploring whether it is legal for a governmental body to compete with the private industry.

KGS updated its Directory of Industrial Mineral Producers using records from KGS and the State Conservation Commission (KGS Open-File Report 99-46). The directory, arranged alphabetically by county, lists the commodities produced; the name, address, and telephone number of each producer; and, the legal description for each mine, pit, or quarry. The directory is also available on the internet at the KGS web site: <http://www.kgs.ukans.edu>. It can be searched by commodity or county. The latitude and longitude are also given for each operation, based upon the center point of each lease. The KGS also issued a State map (Map M-63) showing the locations of active industrial mineral mining operations.

A total of 59 open-file reports (OFR) covering a variety of topics were completed in 1999 and can be accessed at the KGS library. In addition to the directory of industrial mineral producers, preliminary field geology maps were completed for six quadrangles in Bourbon County (KGS OFR 99-13), as well as a geologic map of the Atchison West and East Quadrangles in Atchison County (KGS OFR 99-38). KGS OFR 99-54 shows both the active and abandoned pit and quarry locations in the Manhattan Quadrangle (scale 1:250,000). The results of testing ethyl silicate solution to improve the strength and freeze-thaw resistance of the Ravenscroft Sandstone at St. Victor Provincial Petroglyph Park, Saskatchewan, Canada, are given in OFR 99-

42. A similar study for strength improvement using sandstone from the Castle Butte petroglyph area, Montana, is given in OFR 99-41. Finally, OFR 99-18 is a field guide for the Kansas Earth Resources Field Project held in 1999 in Southeast Kansas. The report addresses mining, water, and environmental issues in the area.

The KGS also published a Primer of Industrial Minerals for Kansas (Kansas Geological Survey: Educational Series 13). The 28-page book is not technical, and is intended for the general public.

The KGS continued its multiyear program to remap much of the State. Active mapping was ongoing in Atchison, Bourbon, Cherokee, Coffey, Comanche, Ford, Hamilton, Kearny, Marshall, Neosho, Republic, Sedgwick, and Wilson Counties. Field mapping was completed in Bourbon, Cherokee, Coffey, Comanche, Hamilton, Kearny, Neosho, and Wilson Counties. Final geologic maps were issued for Greenwood (Map M-50), Labette (Map M-48), Leavenworth (Map M-53), Woodson (Map M-52), and Wyandotte (Map M-58) Counties.

The KGS also publishes Public Information Circulars (PIC) that are informative, short publications for the general public at no charge. In 1999, PIC-13, titled "Landslides in Kansas," was published. The KGS also released the I-70 brochure. It describes the general geology along the east-west interstate across Kansas.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement: Portland	1,690	122,000 e/	1,800	138,000 e/	1,850	142,000 e/
Clays: Common	545	2,500	585	2,510	588	2,450
Gemstones	NA	291	NA	29	NA	21
Helium: Grade-A million cubic meters	51	101,000	56	110,000	57	112,000
Salt	3,210	120,000	3,090	120,000	3,100	121,000
Sand and gravel: Construction	11,200	31,600	10,800	31,400	8,410	25,000
Stone:						
Crushed	23,000	116,000	21,800	115,000	21,300	115,000
Dimension metric tons	21,000 3/	1,710 3/	15,800	1,240	13,700	1,510
Combined values of cement (masonry), clays (fuller's earth), gypsum (crude), helium (crude), pumice and pumicite, sand and gravel (industrial), stone [dimension sandstone (1997)]	XX	44,200	XX	31,400	XX	46,800
Total	XX	539,000	XX	551,000	XX	566,000

e/ Estimated. p/ Preliminary. NA Not available. XX Not applicable.

1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

2/ Data are rounded to no more than 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	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	158	22,300	\$114,000	\$5.11	144	21,200	\$109,000	\$5.15
Sandstone and quartzite	3	W	W	W	3	W	W	W
Miscellaneous stone	1	W	W	W	1	W	W	W
Total or average	XX	23,000	116,000	5.04	XX	21,800	115,000	5.28

W Withheld to avoid disclosing company proprietary data, included in "Total." XX Not applicable.

1/ Data are rounded to no more than 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 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	\$6.54
Riprap and jetty stone	119	930	7.81
Filter stone	169	1,070	6.31
Other coarse aggregate	266	1,600	6.03
Coarse aggregate, graded:			
Concrete aggregate, coarse	334	2,830	8.48
Bituminous aggregate, coarse	676	5,420	8.02
Bituminous surface-treatment aggregate	W	W	7.43
Other graded coarse aggregate	2,220	15,000	6.76
Fine aggregate (-3/8 inch):			
Stone sand, bituminous mix or seal	W	W	6.96
Screening, undesignated	710	5,160	7.26
Other fine aggregate	325	744	2.29
Coarse and fine aggregate:			
Graded road base or subbase	1,080	5,510	5.10
Unpaved road surfacing	394	1,710	4.35
Crusher run or fill or waste	111	730	6.58
Other coarse and fine aggregates	2,900	16,300	5.62
Other construction materials	755	4,010	5.31
Agricultural:			
Agricultural limestone	197	1,130	5.72
Other agricultural uses	14	68	4.86
Chemical and metallurgical: Cement manufacture	2,050	8,070	3.94
Special:			
Other fillers or extenders	1	5	5.10
Roofing granules	W	W	7.96
Other miscellaneous uses:			
Waste material	5	11	2.15
Other specified uses not listed	5	22	4.45
Unspecified: 3/			
Actual	5,560	26,600	4.77
Estimated	3,780	17,200	4.55
Total or average	21,800	115,000	5.28

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

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes limestone, limestone-dolomite, miscellaneous stone, and sandstone and quartzite.

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

TABLE 4
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998,
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/	216	1,400	112	831	--	--	W	W	174	1,060
Coarse aggregate, graded 4/	1,980	13,500	698	6,810	--	--	--	--	567	3,080
Fine aggregate (-3/8 inch) 5/	650	3,350	250	2,000	--	--	W	W	163	547
Coarse and fine aggregate 6/	1,490	9,020	751	3,990	W	W	466	2,200	1,770	9,450
Other construction materials	--	--	--	--	--	--	--	--	760	4,020
Agricultural 7/	42	267	14	82	--	--	--	--	155	846
Chemical and metallurgical 8/	--	--	--	--	--	--	--	--	2,050	8,070
Special 9/	--	--	--	--	--	--	--	--	1	5
Other miscellaneous uses	--	--	--	--	W	W	--	--	5	22
Unspecified: 10/										
Actual	2,730	13,500	1,170	5,440	--	--	W	W	1,490	6,720
Estimated	1,550	7,180	--	--	W	W	W	W	2,130	9,570
Total	8,660	48,400	3,000	19,100	168	613	735	3,630	9,260	43,400

W Withheld to avoid disclosing company proprietary data, included in "Total." -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ No crushed stone reported for District 4.

3/ Includes macadam, riprap and jetty stone.

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

5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated).

6/ Includes graded road base or subbase, unpaved road surfacing, terrazzo and exposed aggregates, and crusher run (select material or fill).

7/ Includes agricultural limestone and other agricultural uses.

8/ Includes cement manufacture, lime manufacture, flux stone, and chemical stone or alkali works.

9/ Includes mine dusting or acid water treatment, asphalt fillers or extenders, whiting or whiting substitute, and other fillers or extenders.

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

TABLE 5
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value	Unit
	(thousand metric tons)		
Concrete aggregate and concrete products	2,300	\$6,970	\$3.03
Plaster and gunite sands	74	202	2.73
Asphaltic concrete aggregates and other bituminous mixtures	1,180	3,790	3.20
Road base and coverings 2/	1,900	5,220	2.76
Fill	807	1,560	1.93
Snow and ice control	59	196	3.32
Other miscellaneous uses	(3/)	2	16.59
Unspecified: 4/			
Actual	1,040	3,810	3.67
Estimated	3,440	9,670	2.81
Total or average	10,800	31,400	2.91

1/ Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

2/ Includes road and other stabilization (cement).

3/ Less than 1/2 unit.

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

TABLE 6
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
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/	W	W	342	1,330	W	W
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W	51	150
Road base and coverings 3/	57	473	250	899	399	752
Fill	147	317	92	271	15	41
Other miscellaneous uses 4/	5	17	W	W	W	W
Unspecified: 5/						
Actual	977	3,670	--	--	24	71
Estimated	1,590	4,970	189	561	26	43
Total	3,270	11,100	986	3,420	593	1,280
	District 4		District 5			
	Quantity	Value	Quantity	Value		
Concrete aggregate and concrete products 2/	192	849	1,360	3,440		
Asphaltic concrete aggregates and other bituminous mixtures	108	582	848	2,440		
Road base and coverings 3/	746	1,700	443	1,400		
Fill	81	249	474	677		
Other miscellaneous uses 4/	17	63	12	40		
Unspecified: 5/						
Actual	--	--	38	72		
Estimated	373	1,030	1,260	3,070		
Total	1,520	4,480	4,430	11,100		

W Withheld to avoid disclosing company proprietary data, included in "Total." -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes plaster and gunite sands.

3/ Includes road and other stabilization (cement).

4/ Includes snow and ice control.

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