

THE MINERAL INDUSTRY OF KANSAS

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

In 1996, Kansas moved up three places in rank from 27th to 24th among the 50 States in total nonfuel mineral production value,¹ according to the U.S. Geological Survey (USGS). The estimated value for 1996 was \$524 million, a 5% increase from that of 1995. This followed a marginal increase from 1994 to 1995 (based on final 1995 data). The State accounted for about 1.4% of the U.S. total nonfuel mineral production value.

Portland cement, grade-A helium, and crushed stone were Kansas' leading nonfuel mineral commodities accounting for about 25%, 21%, and 20%, respectively, of the State's total nonfuel mineral production value. Salt followed close behind with about 18% of the value. In 1996, a substantial decrease in the value of salt was more than balanced out by a nearly \$21 million increase in portland cement (*see table 1*). The increase in portland cement combined with more moderate increases in crushed stone and construction sand and gravel accounted for the large majority of the State's overall increase in nonfuel mineral value. Other nonfuel mineral values that increased in 1996 were: grade-A and crude helium, industrial sand and gravel, crude gypsum, masonry cement, common clays, and dimension stone. In addition to salt, other nonfuel mineral commodities that decreased in value in 1996 were fuller's earth clays and pumice and pumicite. In 1995, increases in portland cement and salt slightly more than equaled decreases in crude helium and crushed stone, resulting in a marginal increase for the year.

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 1996 in the 50 States, Kansas continued as the Nation's leading producer of crude and grade-A helium and remained fifth in salt production. Significant quantities of portland cement, crushed stone, construction and industrial sand and gravel, crude gypsum, and common clays were produced in the State.

The following narrative information was provided by the Kansas Geological Survey² (KGS). A number of mergers and acquisitions occurred during 1996; the KGS reported that the competitive nature of the aggregate business in its State was a driving factor for these business transactions. Hunt-Midwest Corp., headquartered in the Kansas City, MO, area continued expanding its market in Kansas by acquiring McAdam Construction Co. and

McAdam Limestone Co., both in Allen County. The Walter Keeler Co. of Wichita, Sedgewick County, announced in November that it had sold its sand and gravel assets to Allen's Concrete, also in Wichita. Allen is a division of the Ritchie Corp. Martin Marietta Corp. acquired both Criqui Limestone Co. in Osage County and Service Mining Co. The latter company, located in Oklahoma, had one quarry in Cowley County, Kansas.

The major industrial mineral news during the year involved the sand and gravel industry, in particular dredging on the Kansas River. Environmental and recreational groups were attempting to establish a recreational corridor and effectively ban dredging in portions of the river. The main area being considered appeared to be the section of the river between Topeka and Lawrence. Here, a proposal to place a 2-year moratorium on any new operations was introduced but failed to have the required legislative support. However, the Kansas legislature did ask for a study to delineate potential corridor areas. Several State agencies were specifically named to the study group including the KGS. The U.S. Army Corps of Engineers currently reviews all proposed dredging permits in the river. Following approximately 2 years of debate, a permit to produce sand and gravel dredging at a location between Topeka and Lawrence was denied by the Corps. The Corps, however, did approve dredging permits for a location on the Republican River, another on the Walnut River near Wichita, and a gravel bar excavation on the Neosho River.

Numerous articles concerning dredging in the Kansas River appeared in the State's newspapers³ during the year. Two articles included information about the poor water quality of the river and dredging, but did not recognize that the poor quality in the specified areas was directly related to runoff of the agricultural chemicals from farmland adjacent to the river. Also stated was the fact that dredging stirs up the river bed and releases adsorbed toxic chemicals. While this is true, the Kansas River sand, according to the KGS, is relatively free from clay minerals that have the capability to adsorb these chemicals. A team of scientists from the KGS began the planning process for a formal study of the problem from a variety of perspectives. KGS felt that the study was necessary because of the advantages of dredging on the

river as compared with relative costs for river dredging versus floodplain dredging; the locations of reserves; area demand for sand and gravel including population growth in the area; and other related topics. To be implemented in the first half of 1997, completion of the study is expected by yearend.

A major, multi year program at the KGS is the remapping of much of the geology in the State. During the year, several new county surface geology maps were issued including those for the county's of Elk (M-49), Ellis (revised from 1988 M-19 version), Montgomery (M-44), Ness (M-47), Russell (M-37), and Stafford (M-46). These maps are available through the publications and sales office of the KGS. The mapping is being done using previously collected data in combination with current fieldwork. A related and free publication, *Geological Mapping in Kansas*, was released as Public Information Circular 4. Additionally, the publication *Surficial Geology and Stratigraphy of Russell County, Kansas*, was issued as Technical Series 7.

Other new and available publications of interest related to industrial minerals include: Open File: *Distribution and Thickness of the Cimarron Salt in Southern Stafford and Northern Pratt Counties* (11 p),

and Educational Series 11: *Wichita's Building Blocks - A Guide to Building Stones and Geologic Features* (32 p).

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 1996 USGS mineral production data published in this chapter are estimates as of February 1997. For some commodities (e.g., 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>

²David A. Grisafe, Industrial Minerals Specialist with the Kansas Geological Survey authored the text of minerals industry information submitted by that agency. He may be contacted at the same address and telephone and fax numbers as Mr. Gerhard, e-mail: dGrisafe@kgs.ukans.edu

³For more specific information or references contact Mr. David A. Grisafe at the Kansas Geological Survey.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1994		1995		1996 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	24	2,090	31	2,650	32	2,710
Portland	1,640	101,000	1,730	109,000	2,050	129,000
Clays 3/	556	2,150	620	2,390	656	2,490
Gemstones	NA	W	NA	W	NA	1
Helium:						
Crude million cubic meters	32	31,400	30	26,600	30	27,200
Grade-A do.	53	105,000	53	105,000	54	108,000
Salt	2,660	108,000	2,770	113,000	2,710	93,000
Sand and gravel (construction)	11,200	29,600	11,100	29,400	13,500	38,500
Stone:						
Crushed	21,500	103,000	20,400	95,800	22,200	106,000
Dimension 4/ metric tons	23,700	1,730	19,800	1,810	20,400	2,140
Combined value of clays (fuller's earth), gypsum (crude), pumice and pumicite, sand and gravel (industrial), stone (dimension sandstone), and values indicated by symbol W	XX	11,900	XX	12,200	XX	15,200
Total	XX	497,000	XX	498,000	XX	524,000

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 clays; kind and value included with "Combined value" figure.

4/ Excludes certain stones; kind and value included with "Combined value" figure.

TABLE 2
KANSAS: CRUSHED STONE 1/ SOLD OR USED
BY PRODUCERS IN 1995, BY USE 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	\$4.75
Riprap and jetty stone	59	\$469	7.95
Filter stone	281	1,560	5.57
Other coarse aggregate	154	903	5.86
Coarse aggregate, graded:			
Concrete aggregate, coarse	970	6,060	6.25
Bituminous aggregate, coarse	703	4,650	6.61
Bituminous surface-treatment aggregate	W	W	6.30
Other graded coarse aggregate	60	353	5.88
Fine aggregate (-3/8 inch):			
Stone sand, concrete	W	W	5.00
Stone sand, bituminous mix or seal	W	W	2.77
Screening, undesignated	214	622	2.91
Other fine aggregate	W	W	4.97
Coarse and fine aggregate:			
Graded road base or subbase	699	3,240	4.64
Unpaved road surfacing	1,200	5,370	4.46
Terrazzo and exposed aggregate	W	W	4.46
Crusher run or fill or waste	402	1,820	4.52
Other construction materials 3/	755	4,030	5.33
Agricultural:			
Agricultural limestone	174	724	4.16
Other agricultural uses	2	9	4.50
Chemical and metallurgical: Cement manufacture			
Other specified uses not listed	81	604	7.46
Unspecified: 4/			
Actual	8,440	38,900	4.62
Estimated	4,180	19,200	4.59
Total	20,400	95,800	4.69

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

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

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

3/ Includes roofing granules and waste material.

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

TABLE 3
KANSAS: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1994				1995			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	112 r/	20,900 r/	\$101,000 r/	\$4.83	109 2/	20,400 2/	\$95,600 2/	\$4.69 2/
Limestone-dolomite	2	W	W	5.06	--	--	--	--
Sandstone	--	--	--	--	1	W	W	4.39
Quartzite	2	W	W	5.04	1	W	W	5.06
Total	XX	21,500	103,000	4.79	XX	20,400	95,800	4.69

r/ Revised. W Withheld to avoid disclosing company proprietary data. 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 4
KANSAS: CRUSHED STONE 1/ 2/ SOLD OR USED BY PRODUCERS IN 1995,
BY USE AND DISTRICT 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/	W	W	140	823	--	--	W	W
Coarse aggregate, graded 5/	840	5,710	W	W	--	--	W	W
Fine aggregate (-3/8 inch) 6/	W	W	W	W	--	--	W	W
Coarse and fine aggregate 7/	553	3,090	691	3,270	215	323	885	3,920
Other construction materials 8/	243	1,350	389	2,600	--	--	1,550	7,970
Agricultural 9/	(10/)	(10/)	(10/)	(10/)	--	--	68	343
Chemical and metallurgical 11/	--	--	--	--	--	--	2,040	7,280
Other miscellaneous uses 12/	81	604	--	--	--	--	--	--
Unspecified: 13/								
Actual	(10/)	(10/)	(10/)	(10/)	--	--	2,220	8,620
Estimated	1,520	7,510	--	--	--	--	2,660	11,700
Total	7,670	41,600	3,120	14,100	215	323	9,410	39,800

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, 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 terrazzo and exposed aggregate.

8/ Includes roofing granules and waste material.

9/ Includes agricultural limestone and other agricultural uses.

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

11/ Includes cement manufacture.

12/ Includes other specified uses not listed.

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

TABLE 5
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1995,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	2,000	\$5,820	\$2.91
Plaster and gunite sands	35	98	2.80
Concrete products (blocks, bricks, pipe, decorative, etc.)	75	255	3.40
Asphaltic concrete aggregates and other bituminous mixtures	668	2,250	3.37
Road base and coverings 2/	2,390	5,600	2.34
Fill	973	2,160	2.21
Snow and ice control	55	165	3.00
Other 3/	16	83	5.19
Unspecified: 4/			
Actual	2,700	6,910	2.56
Estimated	2,180	6,100	2.80
Total or average	11,100	29,400	2.65

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 filtration, railroad ballast, and roofing granules.

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

TABLE 6
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1995,
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/	715	2,030	485	1,650	(3/)	(3/)
Asphaltic concrete aggregates and road base materials 4/	402	1,130	645	2,040	802	1,630
Other miscellaneous uses 5/	19	66	(3/)	(3/)	(3/)	(3/)
Unspecified: 6/						
Actual	717	1,840	--	--	13	34
Estimated	939	2,550	(3/)	(3/)	--	--
Total	2,790	7,620	1,280	4,190	877	1,840
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	349	1,020	507	1,330	(3/)	(3/)
Asphaltic concrete aggregates and road base materials 4/	1,140	2,740	994	2,330	53	133
Other miscellaneous uses 5/	12	63	16	45	--	--
Unspecified: 6/						
Actual	--	--	1,970	5,040	--	--
Estimated	282	682	767	2,120	(3/)	7/ (3/)
Total	1,780	4,510	4,250	10,900	104 7/	416

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

2/ Includes plaster and gunite sands.

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

4/ Includes fill, and road and other stabilization (cement and lime).

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

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

7/ Includes unspecified within all districts.