



# 2006 Minerals Yearbook

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## KANSAS

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# 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 2006, Kansas' nonfuel raw mineral production<sup>1</sup> was valued at \$973 million, based upon annual U.S. Geological Survey (USGS) data. This represents an increase of \$101 million, or 11.6%, from the State's total nonfuel mineral production value of 2005, following a \$104 million, or 13.5%, increase from 2004 to 2005. The State was 24th in rank among the 50 States in total nonfuel mineral production value, of which Kansas accounted for nearly 1.5% of the U.S. total. Yet, per capita, the State ranked 12th in the Nation in its minerals industry's value of nonfuel mineral production; with a population of slightly more than 2.76 million, the value of production was about \$352 per capita.

Portland cement, Grade-A helium, crushed stone, and salt were Kansas' leading nonfuel mineral commodities in 2006, accounting for about 29%, 25%, 18%, and 15%, respectively, of the State's total nonfuel mineral production value, and collectively about 87%. In 2006, all of Kansas' nonfuel mineral commodities increased in value except for gemstones, which was unchanged. The most substantial increases took place in the values of portland cement (up by about \$42 million), Grade-A helium (up by \$19 million), construction sand and gravel (up by \$13 million), and crushed stone (up by \$10 million), and salt (up by \$9 million); the unit values of each also showed significant increases. Although the increases in the values of common clays and industrial sand and gravel were comparatively small, by percentage of increase, these two commodities showed the largest increases, up 62% and 53%, respectively (table 1).

In 2006, Kansas continued to be the Nation's leading producer of Grade-A helium and of crude helium (first of 2 producing States). The State decreased to sixth from fifth in the quantities of salt produced. Additionally, significant quantities of portland cement, crushed stone, construction sand and gravel, crude gypsum, and common clays (in descending order of value) were produced in the State. Production of nonfuel minerals in Kansas has consisted entirely of industrial minerals since 1970, following nearly a century (since 1877) of metallic mineral mining.

The following narrative information was provided by the Kansas Geological Survey (KGS)<sup>2</sup>.

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 2006 USGS mineral production data published in this chapter are those available as of March 2008. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

<sup>2</sup>Lawrence L. Brady, Senior Scientific Fellow at the Kansas Geological Survey, in consultation with Dr. Dennis Baker of the State Conservation Commission, authored the text of the State's mineral industry information provided by that agency.

## Mine Development and Employment

During 2006, there were a total of 1,113 permitted mining sites for nonfuel minerals. The private sector operated 133 mines at 465 sites, while 59 county governments conducted mining operations at 648 mining sites. There was a decrease by 10 in the number of private operators and a decrease in the number of mining sites by 41. Most of these decreases took place in limestone and sand and gravel operations. The number of county government operations remained the same during 2006; however, the number of mining sites operating throughout the State increased by 59. The State had an overall increase of 15.4% in mining employment including employment in oil and gas. Excluding employees in the oil and gas industry, mining industry employees totaled 1,209, with an average salary of \$41,261. This salary represents a 2.7% increase from that of 2005. There was a decrease of 4.6% in total number of mining employees, mainly in the limestone and gravel industries.

## Exploration Activities, Mine Reclamation and Awards

In 2006, the Kansas Department of Transportation funded several studies of limestone units in search of high-quality limestone for use in high-quality concrete and highway construction. The studies took place in Douglas, Franklin, and Miami Counties. Mining of nonfuel minerals in Kansas during 2006 resulted in 337 mined hectares (ha) and 145 reclaimed ha. The State nonfuel mining reclamation program was started in 1994. Since that time, a total of 1,600 mined hectares have been reclaimed and released. The Kansas Governor's Mined Land Reclamation Award for 2006 went to Hamm Quarries, Inc. of Perry, KS, for reclamation operations at its Grantville Quarry.

## Legislation and Government Activities

During the 2006 legislative session, the "Silica and Asbestos Claims Act" was signed into law by the Governor. This act specifies that physical impairment of an exposed person is to be an essential element in any civil action alleging a silica or asbestos claim.

The 2006 Kansas Geological Survey Field Conference was organized and led primarily by members of the Kansas Geological Survey and cosponsored with several other State agencies. The conference's theme centered on environmental problems associated with the lead-zinc Tri-State Mining Region of southeast Kansas and border areas of Missouri and Oklahoma. The main objective of the field conference was to inform the Kansas Legislature and other State government officials on the environmental problems associated with past mining and the efforts taken to correct problems. Information on the field conference, including background material, is available

from the Kansas Geological Survey (Open-file Report 2006–21) (Sawin and others, 2006).

Geologic mapping continued, with Federal matching funding from the STATEMAP program, a component of the USGS National Cooperative Mapping Program, which is congressionally mandated by the National Cooperative Geologic Mapping Program (NCGMP). The USGS distributes Federal funds through NCGMP to support geologic mapping efforts utilizing a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers. Geologic mapping during 2006 was conducted in Dickerson, Edwards, Geary, Saline, and

Washington Counties. Additional geologic mapping in the EDMAP program was conducted in Jewell and Norton Counties by the University of Kansas with cooperation from the KGS. A map of Osborne County was published in 2006, with field mapping by Kenneth R. Neuhauser (Neuhauser, 2006). Several county geologic maps with completed field geologic mapping were in the preparation and review stages.

### References Cited

- Neuhauser, K.R., 2006, Geologic map of Osborne County: Kansas Geological Survey Map Series M-102, scale 1:5,000.  
 Sawin, R.S., Buchanan, R.C., Evans, C.S., McCauley, J.R., and Lyle, S.A., 2006, Kansas field conference, field guide, 2006 field conference, the Tri-State region-boundaries and natural resources: Kansas Geological Survey Open-file Report, 2006–21, variously paginated.

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

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	2,690	212,000 <sup>e</sup>	2,890	244,000 <sup>e</sup>	3,000	286,000 <sup>e</sup>
Clays:						
Common	621	7,460	654	4,590	697	7,440
Gemstones, natural	NA	1	NA	1	NA	1
Helium, Grade-A million cubic meters	82	189,000	90	226,000	85	245,000
Salt	2,890	127,000	2,890	135,000	2,630	144,000
Sand and gravel, construction	9,930	32,800	10,100	36,900	12,100	50,000
Stone:						
Crushed	20,600	122,000	22,300 <sup>r</sup>	160,000 <sup>r</sup>	22,000	171,000
Dimension	14	1,730	13	1,590	17	2,270
Combined values of cement (masonry), clays (fuller's earth), gypsum (crude), helium (crude), pumice and pumicite, sand and gravel (industrial)	XX	75,300	XX	63,100	XX	67,400
Total	XX	768,000	XX	872,000 <sup>r</sup>	XX	973,000

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available. XX Not applicable.

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

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

TABLE 2  
 KANSAS: CRUSHED STONE SOLD OR USED, BY KIND<sup>1</sup>

Kind	2005			2006		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	116 <sup>r</sup>	21,700 <sup>r</sup>	\$156,000 <sup>r</sup>	105	21,000	\$163,000
Quartzite	2	599	4,310	2	996	7,880
Total	XX	22,300 <sup>r</sup>	160,000 <sup>r</sup>	XX	22,000	171,000

<sup>r</sup>Revised. XX Not applicable.

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

TABLE 3  
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
<b>Construction:</b>		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	175	2,580
Filter stone	242	2,100
Other coarse aggregate	8	58
Total	425	4,740
Coarse aggregate, graded:		
Concrete aggregate, coarse	W	W
Bituminous aggregate, coarse	W	W
Railroad ballast	W	W
Fine aggregate (-¾ inch):		
Screening, undesignated	W	W
Other fine aggregate	1	6
Coarse and fine aggregates:		
Graded road base or subbase	(2)	(2)
Unpaved road surfacing	373	1,380
Terrazzo and exposed aggregate	(2)	(2)
Crusher run or fill or waste	46	431
Other coarse and fine aggregates	530	2,340
Total	1,880	9,540
Other construction materials	51	170
Agricultural, limestone	W	W
Chemical and metallurgical, cement manufacture	W	W
<b>Unspecified:<sup>3</sup></b>		
Reported	9,610	75,800
Estimated	7,200	57,000
Total	16,800	132,000
Grand total	22,000	171,000

W Withheld to avoid disclosing company proprietary data; included in "Grand total."

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

<sup>2</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

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

TABLE 4  
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE AND DISTRICT<sup>1, 2</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) <sup>3</sup>	W	W	W	W	--	--
Coarse aggregate, graded <sup>4</sup>	W	W	W	W	--	--
Fine aggregate (-¾ inch) <sup>5</sup>	W	W	W	W	--	--
Coarse and fine aggregate <sup>6</sup>	W	W	W	W	122	373
Other construction materials	51	170	--	--	--	--
Agricultural <sup>7</sup>	W	W	W	W	--	--
Chemical and metallurgical <sup>8</sup>	--	--	--	--	--	--
Unspecified: <sup>9</sup>						
Reported	3,720	29,400	1,440	11,400	--	--
Estimated	3,000	24,000	--	--	--	--
Total	8,070	62,100	2,920	21,200	122	373
	District 5		District 6			
	Quantity	Value	Quantity	Value		
Construction:						
Coarse aggregate (+1½ inch) <sup>3</sup>	--	--	W	W		
Coarse aggregate, graded <sup>4</sup>	--	--	--	--		
Fine aggregate (-¾ inch) <sup>5</sup>	--	--	--	--		
Coarse and fine aggregate <sup>6</sup>	--	--	407	1,790		
Other construction materials	--	--	--	--		
Agricultural <sup>7</sup>	--	--	W	W		
Chemical and metallurgical <sup>8</sup>	--	--	W	W		
Unspecified: <sup>9</sup>						
Reported	151	1,190	4,290	33,900		
Estimated	830	6,600	3,300	26,000		
Total	984	7,760	9,940	79,300		

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

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

<sup>2</sup>No production for District 4.

<sup>3</sup>Includes filter stone, riprap and jetty stone, and other coarse aggregate.

<sup>4</sup>Includes concrete aggregate (coarse), bituminous aggregate (coarse), and railroad ballast.

<sup>5</sup>Includes screening (undesignated) and other fine aggregate.

<sup>6</sup>Includes crusher run or fill or waste, graded road base or subbase, unpaved road surfacing, terrazzo and exposed aggregate, and other coarse and fine aggregates.

<sup>7</sup>Includes agricultural limestone.

<sup>8</sup>Includes cement manufacture.

<sup>9</sup>Reported and estimated production without a breakdown by end use.

TABLE 5  
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and concrete products	1,910	\$8,230	\$4.32
Plaster and gunite sands	34	121	3.53
Asphaltic concrete aggregates and other bituminous mixtures	529	2,810	5.31
Road base and coverings <sup>2</sup>	1,430	6,010	4.21
Fill	1,140	3,360	2.96
Snow and ice control	45	210	4.68
Other miscellaneous uses	26	318	12.21
Unspecified: <sup>3</sup>			
Reported	1,970	7,530	3.83
Estimated	4,980	21,400	4.29
Total or average	12,100	50,000	4.15

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

<sup>2</sup>Includes road and other stabilization (lime).

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

TABLE 6  
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006, BY USE AND DISTRICT<sup>1,2</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		Districts 2 and 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products <sup>3</sup>	821	4,080	501	2,090	152	406
Asphaltic concrete aggregates and and road base materials <sup>4</sup>	140	796	457	2,390	714	3,320
Fill	293	1,060	241	1,010	27	70
Other miscellaneous uses <sup>5</sup>	33	280	21	189	7	25
Unspecified: <sup>6</sup>						
Reported	208	921	347	1,130	148	285
Estimated	2,200	9,090	642	2,660	695	3,650
Total	3,690	16,200	2,210	9,460	1,740	7,760
	District 5		District 6		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products <sup>3</sup>	467	1,770	--	--	--	--
Asphaltic concrete aggregates and and road base materials <sup>4</sup>	644	2,300	--	--	--	--
Fill	577	1,220	--	--	--	--
Other miscellaneous uses <sup>5</sup>	10	33	--	--	--	--
Unspecified: <sup>6</sup>						
Reported	1,000	4,120	--	--	262	1,080
Estimated	1,420	5,860	29	119	--	--
Total	4,120	15,300	29	119	262	1,080

-- Zero.

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

<sup>2</sup>Districts 2 and 3 are combined to avoid disclosing company proprietary data.

<sup>3</sup>Includes plaster and gunite sands.

<sup>4</sup>Includes road and other stabilization (lime).

<sup>5</sup>Includes snow and ice control.

<sup>6</sup>Reported and estimated production without a breakdown by end use.