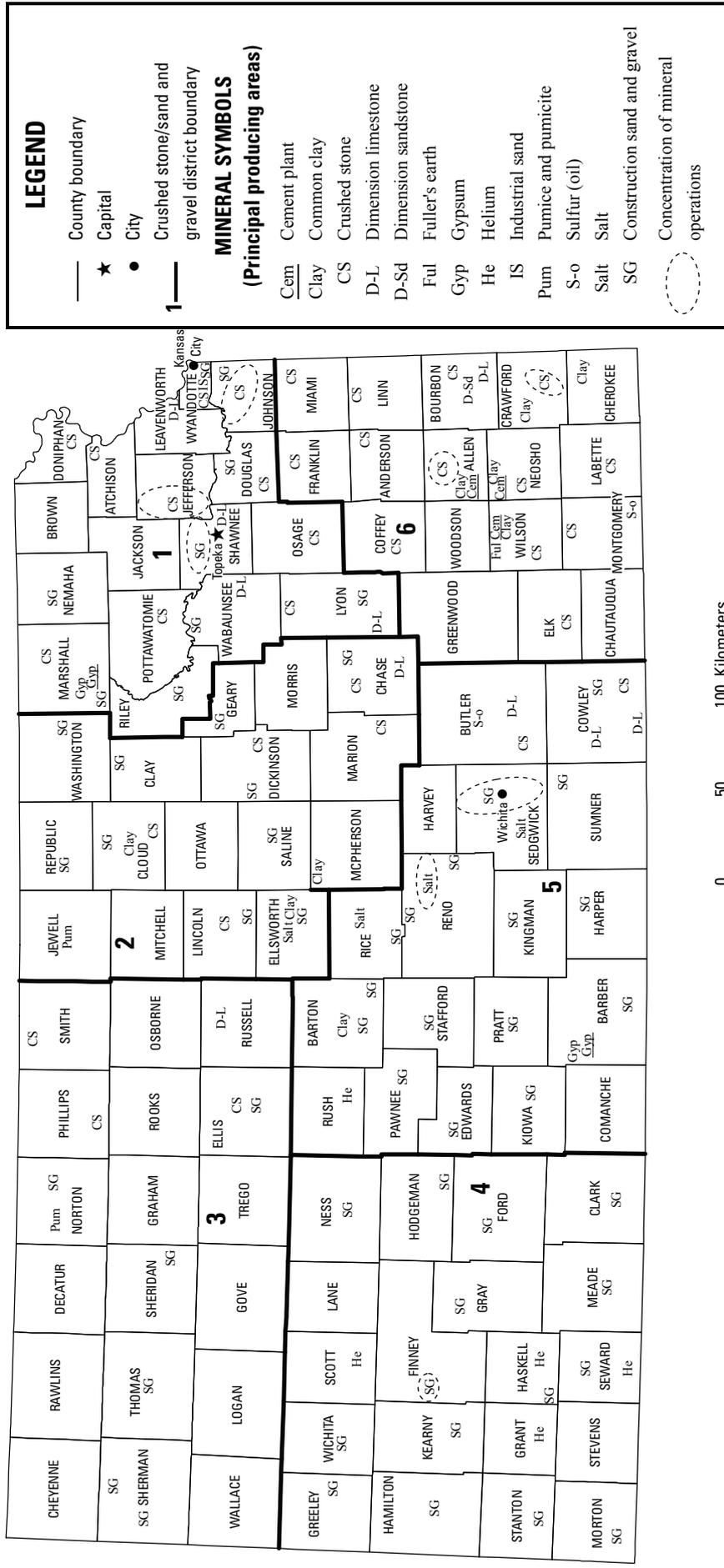




2010–2011 Minerals Yearbook

KANSAS [ADVANCE RELEASE]

KANSAS



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 2011, Kansas' nonfuel mineral production¹ was valued at \$1.12 billion, based upon annual U.S. Geological Survey (USGS) data. This represented an \$18.9 million (1.7%) increase from the State's total nonfuel mineral production value of \$1.1 billion in 2010, which followed a \$146 million (15%) increase from the State's total nonfuel mineral production value of \$953 million in 2009. Production of nonfuel minerals in Kansas in 2010 and 2011 consisted entirely of industrial minerals, as it has since 1970, after nearly a century of metal production that began in 1877.

The State rose to 19th in 2010 from 20th in 2009 in rank among the 50 States in total nonfuel mineral production value, but then fell to 20th in 2011. Kansas accounted for 1.5% of the U.S. total nonfuel mineral production value of \$74.7 billion in 2011. On a per capita basis, Kansas ranked 10th in the Nation in nonfuel mineral production with a value of \$390 in 2011, well above the national average of \$240.

Grade-A helium, salt, portland cement, and crushed stone, in order of descending production value, continued to be Kansas' leading nonfuel mineral commodities in 2010 and 2011, and together accounted for 85% of the State's total nonfuel mineral production value in 2010. Grade-A helium alone accounted for 38% of the State's total nonfuel mineral production value in 2010, up from 35% in 2009, and has been the State's leading mineral commodity by production value since 2007.

The production values of both Grade-A helium and crude helium increased in 2010 and 2011. In 2010, the production and production value of Grade-A helium increased by 10 million cubic meters (15%) and \$88 million (27%), respectively. The production and production value of Grade-A helium increased again in 2011 (actual Grade-A helium values withheld for 2011—company proprietary data). Similarly, the production and production value of crude helium increased in 2010, up by 41% and 52%, respectively. In 2011, the production value of crude helium increased by 3.5%, even with a 12% decrease in crude helium production (actual crude helium values withheld—company proprietary data). Fuller's earth (montmorillonite) was the only other mineral commodity to increase in production value in both 2010 and 2011, up by 1.2% in 2010 and up by 33% in 2011 (actual Fuller's earth values withheld—company proprietary data).

¹The 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 USGS mineral production data published in this chapter are those available as of May 2013. Data in this report are rounded to three significant digits and percentages are calculated from unrounded data. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the internet at <http://minerals.usgs.gov/minerals>.

Salt, portland cement, and crushed stone production values fluctuated through 2010 and 2011, increasing in 2010 then decreasing in 2011. In 2010, the production value of salt grew by \$6.8 million (3.6%), portland cement rose by \$8.1 million (4.8%), and crushed stone increased by \$6.3 million (4.5%). Conversely, in 2011, the production value of salt decreased by \$8.7 million (4.4%), portland cement decreased by \$26.5 million (15%), and crushed stone decreased by \$2.2 million (12%). In 2011, the quantity produced and production value of construction sand and gravel decreased by 343,000 t (3%) and \$4.8 million (9%), respectively, which followed increases of 835,000 t (9%) and an increase of \$5.7 million (12%) in the production value of construction sand and gravel in 2010 from that of 2009. The production of crude gypsum decreased by 18% in 2010, and then increased by 27% in 2011. Masonry cement production decreased in 2010 and 2011, down 13% and 14%, respectively (actual crude gypsum and masonry cement values withheld—company proprietary data).

The State rose in rank to 11th from 15th in dimension stone production in 2010 and remained 11th in rank in 2011 among 34 producing States. In 2011, Kansas rose in rank in the production of fuller's earth (montmorillonite) to 9th from 10th among 10 producing States and decreased in rank in the production of common clay to 17th from 13th among 39 producing States. The State decreased to 14th from 9th in the production of gypsum in 2010, before returning to 9th in 2011 among 16 producing States. Kansas fell to 13th from 11th in the production of portland cement in 2011 and 2010, up from 12th in 2009. In 2010–11, Kansas continued to be ranked fifth in the production of salt among 16 producing States, and seventh in the production of pumice and pumicite among seven producing States.

The following narrative information was provided by the Kansas Geological Society (KGS).²

Employment, Mining Activities, and Reclamation

The State's mining industry employed an average of nearly 1,200 personnel in 2010, with an average annual salary of about \$43,400. This represented a 3.6% increase in average annual salary and a 7.3% increase in the total number of mining employees in the State compared to those of 2009. There were approximately 1,170 mining sites in Kansas for nonfuel minerals, with 142 private companies operating at about 500 sites and 60 county government operations operating at almost 670 sites. This represents an increase of 1 operator and 11 mining sites in the private sector and an increase of 1 county

²Daniel R. Suchy, Geologist with the Kansas Geological Survey, along with Dr. Dennis Baker of the State Conservation Commission, authored the text of the State's mineral industry information provided by the Kansas Geological Survey.

operator and 11 mining sites in the public sector from 2009 to 2010. In 2010, nearly 606 hectares (ha) (about 1,500 acres) of land were mined and 250 ha (620 acres) of land were reclaimed. Since the start of the State nonfuel mining reclamation program in July 1994, there has been a total of almost 2,500 ha (6,200 acres) of mined land reclaimed and released from regulatory review (Scott B. Carlson, Assistant Director/Land Reclamation Program Manager, Division of Conservation, Kansas Department of Agriculture, written commun., August 12, 2011).

The “Kansas Governor’s Mined Land Reclamation Award” for 2010 was presented to Bayer Construction Co. Inc. (Manhattan, KS) for reclaiming the 8-ha Stevens Quarry limestone quarry along Highway 177 in Riley County. The land was returned to grazing pasture by contouring the land, adding topsoil, and seeding to smooth brome grass (Kansas Division of Conservation, 2014).

Government Programs

The KGS continued a major geologic mapping program supported in part by the STATEMAP program of the National Cooperative Geologic Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through 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 in 2010 was conducted in Atchison, Harvey, Jefferson, McPherson, Morris, and Reno Counties.

In cooperation with the KGS, the University of Kansas conducted geologic mapping for the EDMAP program in Barton, Pratt, and Stafford Counties. New geologic maps of Finney County (Johnson and Arbogast, 2010) and Geary County (Sawin and West, 2010) were published by the KGS in 2010. Several additional county geologic maps for which field geologic mapping has been completed were in various stages of preparation and review during the year.

References Cited

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- Sawin, R.S., and West, R.R., 2010, Surficial geology of Geary County, Kansas: Kansas Geological Survey, Map M-122. (Accessed November 20, 2014, at <http://www.kgs.ku.edu/General/Geology/County/ghigeary.html>.)

TABLE 1
NONFUEL MINERAL PRODUCTION IN KANSAS^{1,2}

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2009		2010		2011	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	1,670	170,000 ^e	1,820	178,000 ^e	1,570	152,000 ^e
Clays, common	381	2,430	353	1,850	291	1,880
Gemstones, natural	NA	1	NA	1	NA	1
Helium, Grade-A million cubic meters	68	332,000	78	421,000	W	W
Salt	2,710	188,000	3,080	194,000	3,060	186,000
Sand and gravel, construction	9,130 ^f	46,300 ^f	9,970	52,000	9,620	47,100
Stone:						
Crushed	16,900 ^f	140,000 ^f	17,600	146,000	15,400	126,000
Dimension	29	4,650	47	4,720	52	4,640
Combined values of cement (masonry), clays (fuller's earth), gypsum (crude), helium (crude), pumice and pumicite, sand and gravel (industrial), and values indicated by symbol W	XX	70,200 ^f	XX	102,000	XX	602,000
Total	XX	953,000	XX	1,100,000	XX	1,120,000

^eEstimated. ^fRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in “Combined values” data. XX Not applicable.

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

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

TABLE 2
KANSAS: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE¹

Type	2009				2010				2011			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone ²	97	16,600 ^r	\$139,000 ^r	\$8.37	96	16,700	\$139,000	\$8.31	84	14,100	\$115,000	\$8.16
Sandstone and quartzite ³	3	291	2,570	8.82	3	874	7,190	8.22	3	1,270	10,600	8.31
Total or average	XX	16,900 ^r	140,000 ^r	8.28	XX	17,600	146,000	8.30	XX	15,400	126,000	8.17

^rRevised. XX Not applicable.

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

²Includes limestone-dolomite reported with no distinction between the two kinds of stone.

³Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

TABLE 3
 KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS
 IN 2010, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	4	\$76
Filter stone	5	28
Other coarse aggregate	36	516
Coarse aggregate, graded:		
Concrete aggregate, coarse	280	3,180
Bituminous aggregate, coarse	121	1,610
Other graded coarse aggregate	W	W
Fine aggregate (-¾ inch):		
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	88	460
Other fine aggregate	W	W
Coarse and fine aggregates:		
Graded road base or subbase	576	3,620
Unpaved road surface	122	431
Crusher run or fill or waste	262	2,000
Other coarse and fine aggregates	347	1,650
Other construction materials	17	95
Agricultural:		
Agricultural, limestone	63	227
Other agricultural uses	W	W
Chemical and metallurgical, cement manufacture	W	W
Unspecified:²		
Reported	3,780	32,300
Estimated	8,280	72,000
Total	17,600	146,000

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

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

²Reported and estimated production without a breakdown by end use.

TABLE 4
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2011, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	67	1,100
Filter stone	31	376
Unspecified coarse aggregate	413	3,810
Coarse aggregate, graded:		
Concrete aggregate, coarse	W	W
Unspecified graded coarse aggregate	720	7,340
Fine aggregate (-¾ inch):		
Screening, undesignated	224	630
Unspecified fine aggregate	W	W
Coarse and fine aggregates:		
Graded road base or subbase	342	2,220
Unpaved road surface	461	2,840
Crusher run or fill or waste	386	3,730
Unspecified coarse and fine aggregates	W	W
Agricultural:		
Agricultural, limestone	166	799
Unspecified and other agricultural uses	1	24
Chemical and metallurgical, cement manufacture	W	W
Unspecified: ²		
Reported	3,650	31,100
Estimated	6,220	50,900
Total	15,400	126,000

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

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

²Reported and estimated production without a breakdown by end use.

TABLE 5
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2010, BY USE AND DISTRICT^{1,2}

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ³	W	W	--	--	W	W
Coarse aggregate, graded ⁴	W	W	--	--	--	--
Fine aggregate (-¾ inch) ⁵	W	W	--	--	--	--
Coarse and fine aggregates ⁶	W	W	9	\$2	W	W
Other construction materials	17	\$95	--	--	--	--
Agricultural ⁷	--	--	--	--	W	W
Chemical and metallurgical ⁸	--	--	--	--	--	--
Unspecified: ⁹						
Reported	884	7,770	1,220	9,910	--	--
Estimated	3,970	35,400	499	3,440	55	\$216
Total ¹⁰	5,680	50,900	1,730	13,400	82	696
Use	District 5		Unspecified District			
	Quantity	Value	Quantity	Value		
Construction:						
Coarse aggregate (+1½ inch) ²	--	--	23	\$287		
Coarse aggregate, graded ⁴	163	\$1,850	W	W		
Fine aggregate (-¾ inch) ⁵	--	--	245	2,050		
Coarse and fine aggregates ⁶	344	2,160	679	4,340		
Other construction materials	--	--	--	--		
Agricultural ⁷	42	151	W	W		
Chemical and metallurgical ⁸	--	--	W	W		
Unspecified: ⁹						
Reported	770	7,000	905	7,600		
Estimated	707	6,290	3,040	26,600		
Total ¹⁰	2,030	17,500	7,250	60,300		

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

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

²No production for District 4.

³Includes riprap and jetty stone, filter stone, and other coarse aggregates.

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

⁵Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesigned), and other fine aggregate.

⁶Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁷Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁸Includes cement manufacture and lime manufacture.

⁹Reported and estimated production without a breakdown by end use.

¹⁰District totals may not add up to the published State total, owing to revisions made after the production of the table and (or) proprietary data being withheld.

TABLE 6
KANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2011, BY USE AND DISTRICT^{1,2}

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ³	W	W	--	--	7	128
Coarse aggregate, graded ⁴	W	W	--	--	11	192
Fine aggregate (-¾ inch) ⁵	W	W	--	--	--	--
Coarse and fine aggregates ⁶	W	W	10	43	85	375
Other construction materials	--	--	--	--	--	--
Agricultural ⁷	W	W	--	--	1	24
Chemical and metallurgical ⁸	--	--	--	--	--	--
Unspecified: ⁹						
Reported	949	8,060	1,240	10,000	--	--
Estimated	3,140	25,500	558	4,530	8	64
Total	4,830	40,400	1,800	14,600	112	783
Use	District 5		District 6			
	Quantity	Value	Quantity	Value		
Construction:						
Coarse aggregate (+1½ inch) ²	195	2,130	259	2,240		
Coarse aggregate, graded ⁴	338	2,900	W	W		
Fine aggregate (-¾ inch) ⁵	W	W	--	--		
Coarse and fine aggregates ⁶	W	W	662	4,920		
Other construction materials	--	--	--	--		
Agricultural ⁷	98	439	W	W		
Chemical and metallurgical ⁸	--	--	W	W		
Unspecified: ⁹						
Reported	766	6,910	699	6,130		
Estimated	--	--	2,520	20,800		
Total	1,940	16,000	6,720	54,200		

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

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

²No production for District 4.

³Includes macadam, riprap and jetty stone, filter stone, and other coarse aggregates.

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

⁵Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

⁶Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁷Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁸Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁹Reported and estimated production without a breakdown by end use.

TABLE 7
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2010,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	1,150	\$7,380	\$6.42
Plaster and gunite sands	23	180	7.83
Concrete products (blocks, bricks, pipe, decorative, etc.)	42	612	14.57
Asphaltic concrete aggregates and other bituminous mixtures	316	2,140	6.78
Road base and coverings ²	1,950	7,730	3.96
Fill	463	2,000	4.32
Snow and ice control	54	371	6.87
Other miscellaneous uses ³	62	710	11.45
Unspecified: ⁴			
Reported	679	3,470	5.11
Estimated	4,870	25,700	5.28
Total or average	9,970	52,000	5.22

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

²Includes road and other stabilization (lime).

³Includes filtration.

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

TABLE 8
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2011,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and concrete products ²	1,510	\$8,410	\$5.57
Asphaltic concrete aggregates and other bituminous mixtures	337	1,770	5.25
Road base and coverings ³	1,470	6,240	4.24
Fill	489	1,760	3.60
Snow and ice control	134	1,110	8.28
Other miscellaneous uses	43	518	12.05
Unspecified: ⁴			
Reported	695	3,360	4.83
Estimated	4,940	23,900	4.84
Total or average	9,620	47,100	4.90

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

²Includes plaster and gunite sands.

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

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

TABLE 9
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2010, BY USE AND DISTRICT¹

(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	W	W	W	W
Asphaltic concrete aggregates and road base materials ³	W	W	629	\$2,720	W	W
Fill	135	\$580	140	778	(6)	(6)
Other miscellaneous uses ⁴	51	519	46	421	1	\$2
Unspecified: ⁵						
Reported	478	2,510	--	--	12	63
Estimated	1,750	11,400	361	2,070	261	1,520
Total ⁷	2,980	15,000	1,390	5,990	482	1,580
	District 4		District 5		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	232	\$2,040	453	\$2,840	--	--
Asphaltic concrete aggregates and road base materials ³	615	2,910	564	2,460	--	--
Fill	42	122	147	518	--	--
Other miscellaneous uses ⁴	3	11	15	128	--	--
Unspecified: ⁵						
Reported	--	--	183	871	5	\$24
Estimated	1,010	6,090	1,490	9,720	--	--
Total ⁷	1,900	11,200	2,860	16,500	5	24

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (lime).

⁴Includes filtration, and snow and ice control.

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

⁶Less than ½ unit.

⁷District totals may not add up to the published State total, owing to revisions made after the production of the table and (or) proprietary data being withheld.

TABLE 10
KANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2011, BY USE AND DISTRICT¹

(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	W	W	W	W
Asphaltic concrete aggregates and road base materials ³	W	W	W	W	W	W
Fill	91	360	176	684	3	3
Other miscellaneous uses ⁴	39	417	27	236	2	4
Unspecified: ⁵						
Reported	445	2,160	2	47	12	59
Estimated	1,820	8,940	517	2,030	32	159
Total	2,710	13,400	1,510	8,030	390	900
Use	District 4		District 5		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	110	998	650	3,390	--	--
Asphaltic concrete aggregates and road base materials ³	461	2,150	659	2,620	--	--
Fill	8	26	211	683	--	--
Other miscellaneous uses ⁴	1	6	108	964	--	--
Unspecified: ⁵						
Reported	12	27	218	1,040	6	29
Estimated	1,110	5,580	1,470	7,240	--	--
Total	1,700	8,790	3,320	15,900	6	29

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

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

²Includes plaster and gunite sands.

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

⁴Includes snow and ice control.

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