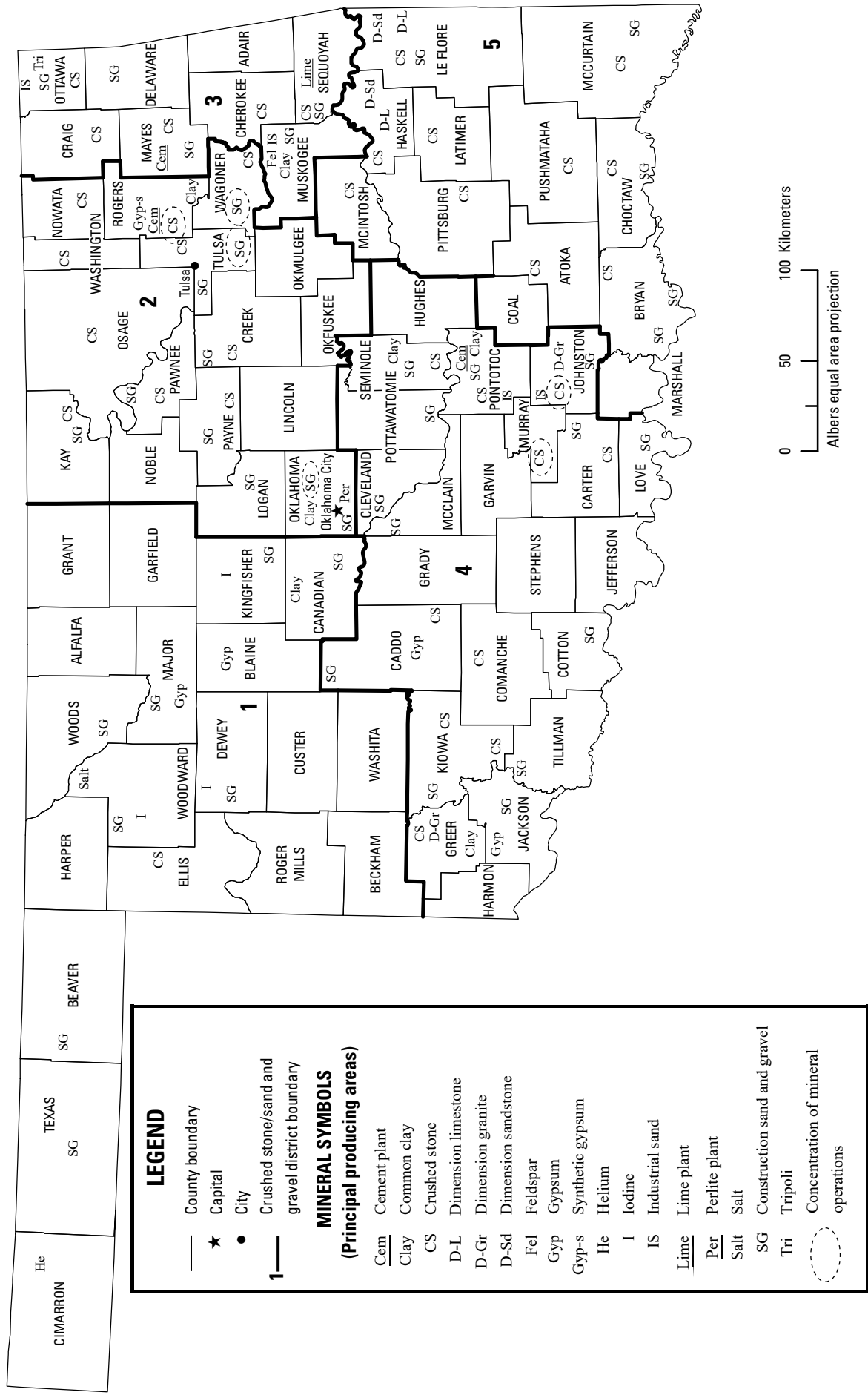




2010–2011 Minerals Yearbook

OKLAHOMA

OKLAHOMA



THE MINERAL INDUSTRY OF OKLAHOMA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Oklahoma Geological Survey for collecting information on all nonfuel minerals.

In 2011, Oklahoma's nonfuel mineral production¹ was valued at \$608 million, based upon annual U.S. Geological Survey (USGS) data. This was an \$83 million (12%) decrease from the State's total nonfuel mineral value of \$691 million in 2010, which followed a \$31 million (5%) increase from 2009. The State decreased in rank to 32d in 2011 from 30th in 2010 and from 28th in 2009 among the 50 States in total nonfuel mineral production value, accounting for just over 0.8% of the U.S. total value of \$74.7 billion in 2011. On a per capita basis, the State ranked 23d with a value of \$160; the national average was \$240.

In 2011, crushed stone continued to be Oklahoma's leading nonfuel mineral commodity, based upon production value. Although the production value decreased by \$15.3 million (5%), crushed stone still accounted for 50% of the State's total nonfuel mineral production value, a slightly higher percentage than in previous years. Other leading mineral commodities in the State included portland cement, industrial sand and gravel, construction sand and gravel, and crude iodine (in descending order of production value). In 2011, industrial sand and gravel had the largest increase in production value, up by \$4.8 million (7%), despite a decrease in production of 281,000 metric tons (t) (14%). The production value of dimension stone increased by \$3.8 million (150%), with production increasing by 7,000 t (25%). The production value of crude gypsum increased more than 15% as production quantity increased by 5% (actual data withheld—company proprietary data). Other mineral commodities that increased in production value and quantity were construction sand and gravel and clays, with the remainder decreasing in production value.

In 2011, the largest decrease in publishable production value took place in crushed stone, down by \$15.3 million (5%). Of the commodities having production data that could not be disclosed in order to avoid revealing company proprietary data, portland cement and iodine decreased in value the most significantly, each decreasing by more than 25%. Feldspar and masonry cement, production values decreased by 19% and 16%, respectively, with decreases of less than 5% for salt and lime (values withheld—company proprietary data). No Grade-A helium or tripoli production was reported in Oklahoma in 2011; helium had been produced in 2010 and tripoli was last produced in 2009.

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>.

In 2010, crushed stone had the largest increase in production value among mineral commodities, by \$25.3 million (9%), to \$321 million and accounted for about half of the State's total nonfuel mineral production value. Industrial sand and gravel had the second largest increase, by \$17.8 million (38%), and had a 524,000 t (34%) increase in production quantity. Grade-A helium increased in production value by more than 10% (production value data withheld—company proprietary data). The only other commodities to increase in production value were salt, by 11%; iodine, by 3%; and masonry cement, by less than 2%.

In 2010, the largest decrease in production value took place in construction sand and gravel, down by \$7 million (10%), accounting for 23% of the total decrease in the State's total nonfuel mineral production value. Dimension stone decreased by \$1.8 million (42%). Among commodities with production data that were concealed to protect proprietary data, significant decreases occurred in the value of masonry cement, by 42%; feldspar, by 24%; gypsum, by 13%; and portland cement, by 4%.

In 2010 and 2011, Oklahoma remained the primary domestic producer of iodine. The State continued to be the Nation's leading producer of crude gypsum among 19 and 16 producing States in 2010 and 2011, respectively. The State rose from seventh in 2010 to sixth in 2011 in the production of common clays among 40 and 41 common-clay-producing States, respectively. In 2011, Oklahoma rose to 12th from 13th in the production of crushed stone. The State remained ranked fourth among six Grade-A helium-producing States in 2010. Grade-A helium was not produced in the State in 2011. Oklahoma continued to rank 11th among 26 masonry cement-producing States, and 13th among 16 salt-producing States. The State declined in rank in the production of industrial sand and gravel, from fifth in 2010 to eighth in 2011 and from fourth in 2009.

The narrative information that follows was provided by the Oklahoma Geological Survey² (OGS). Production and other data in the text that follow are those reported by the OGS based upon that agency's own surveys and estimates, and may differ from USGS data.

Overview

The Oklahoma Department of Mines (ODOM) recorded nonfuel mineral production from 475 mines in the State during 2010, from a total of 502 mine operators and 761 permitted mining sites on file. Most of the producing mines were open

²Stanley T. Krukowski, Industrial Minerals Geologist IV and Chief, Industrial Minerals Unit, Geologic Resources Section, of the Oklahoma Geological Survey, authored the text of the State mineral industry information provided by that agency.

pit mines. Exceptions were brine wells from which iodine and salt were produced, natural gas wells from which helium was produced, and one underground mine from which limestone was produced. Out of 77 counties in Oklahoma, 70 had existing mining permits in 2010. The downturn in home construction resulted in decreased demand and production of construction materials, including crushed stone, construction sand and gravel, masonry and portland cement, common clay for brick manufacture, and gypsum used in portland cement and wallboard production.

The Oklahoma Miner Training Institute (OMTI) (operated under the direction of the Oklahoma Mining Commission) provided free mine safety and health classes both at mine sites throughout the State and at Eastern Oklahoma State College in Wilburton, Latimer County, for all mining companies that held active mining permits in Oklahoma. In 2010, based on preliminary data, the OMTI provided mine safety and health instruction through 267 classes, totaling more than 1,760 classroom hours of instruction for 95 coal miners and almost 4,300 metal and nonmetal miners.

Commodities Review

Industrial Minerals

Sand and Gravel, Construction, and Stone, Crushed.— In October, 2010, Dolese Bros. Co. (Oklahoma City, OK) expanded its construction materials business into Tulsa and northeast Oklahoma through its acquisition of A&M Concrete, Inc. Dolese was among Oklahoma's largest construction materials companies. With this acquisition, Dolese expanded to 40 ready-mix concrete plants in Oklahoma and Louisiana, with 300 concrete mixer trucks. In 2010, Dolese operated 15 construction sand and gravel and crushed stone facilities (Mecoy, 2010).

In December, 2010, the building material company, Summit Materials, LLC (Denver, CO), announced that it had concluded the acquisition of RK Hall Construction Ltd., Paris, Texas, Buster Crushed Stone, LLC, and other associated companies

(Blackstone Group, 2010). R.K. Hall had four operations in southeast Oklahoma in 2010 and the company had focused on aggregates, asphalt production, paving, and construction.

Government Actions and Legislation

In June 2010, the Governor of Oklahoma signed into law House Bill 1281, which raised the current noncoal production fees to \$0.009 per metric ton (\$0.01 per short ton) from \$0.007 per metric ton (\$0.0075 per short ton) and reduced the number of times the ODOM is required to inspect certain mines, from at least once a month to four to six times annually. The rate change, for noncoal mineral production, was permanent and became effective for every quarter thereafter. The last prior fee increase took place in July 1986 (Marks, 2010).

The U.S. Office of Surface Mining Reclamation and Enforcement awarded the Mid-Continent Regional Award to the Oklahoma Conservation Commission's Abandoned Mine Land Program for the 61st Street North S.W. AML Reclamation Project in Wagoner County. Wildlife habitat improvement at the site projects included the planting of 2,000 trees and the addition of 1.6 hectares (ha) wetlands to the 2.4 ha that previously existed (Renner and Brown, 2010).

References Cited

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- Renner and Brown, 2010, Newsletter: National Association of Abandoned Mine Land Programs Newsletter, v. 32, no. 2, p. 3. (Accessed September 26, 2014, at http://naamp.net/Newsletter/Fall_2010.pdf.)

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN OKLAHOMA^{1,2}
(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2009		2010		2011	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	572	2,800	554	2,600	570	2,720
Gemstones, natural	NA	4	NA	4	NA	4
Gypsum, crude	W	W	W	W	W	W
Sand and gravel:						
Construction	12,100 ^r	71,700 ^r	10,600	64,600	10,700	65,900
Industrial	1,530 ^r	47,000 ^r	2,060	64,800	1,780	69,600
Stone:						
Crushed	36,100 ^r	296,000 ^r	39,200	321,000	39,100	306,000
Dimension	35	4,330	28	2,520	35	6,310
Combined values of cement, feldspar, gypsum (crude), helium [Grade-A (2009–10)], iodine (crude), lime, salt, tripoli (2009), and values indicated by symbol W	XX	239,000 ^r	XX	236,000	XX	158,000
Total	XX	660,000 ^r	XX	691,000	XX	608,000

^rRevised. 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 no more than three significant digits; may not add to totals shown.

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

Type	2009			2010			2011		
	Number of quarries	Quantity (thousand metric tons)	Unit value (thousands)	Number of quarries	Quantity (thousand metric tons)	Unit value (thousands)	Number of quarries	Quantity (thousand metric tons)	Unit value (thousands)
Limestone ²	51	30,900 ^r	\$8.33	48	34,000	\$8.17	46	33,700	\$7.77
Dolomite	--	--	--	1	2	16	1	1	8
Granite	4	2,810	8.70	4	2,580	8.47	4	2,550	8.59
Sandstone and quartzite ³	8 ^r	543 ^r	8.97	9	1,040	8.56	13	970	8.30
Miscellaneous stone	12 ^r	1,840	7.72	14	1,620	7.92	15	1,820	7.52
Total or average	XX	36,100 ^r	8.34	XX	39,200	8.19	XX	39,100	7.82

^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
OKLAHOMA: 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	157	2,170
Filter stone	159	1,660
Other coarse aggregate	184	1,420
Coarse aggregate, graded:		
Concrete aggregate, coarse	377	4,320
Bituminous aggregate, coarse	333	2,960
Bituminous surface-treatment aggregate	W	W
Railroad ballast	W	W
Other graded coarse aggregate	3,490	27,700
Fine aggregate (-¾ inch):		
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	180	1,180
Other fine aggregate	1	9
Coarse and fine aggregates:		
Graded road base or subbase	1,080	12,300
Unpaved road surface	188	1,330
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	674	6,560
Other coarse and fine aggregates	W	W
Agricultural:		
Agricultural, limestone	105	447
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Lime manufacture	W	W
Chemical Stone	W	W
Special:		
Mining dusting or acid water treatment	W	W
Asphalt fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	W	W
Unspecified: ²		
Reported	23,300	214,000
Estimated	6,330	53,400
Total	39,200	321,000

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
OKLAHOMA: 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	296	4,630
Filter stone	174	1,340
Unspecified coarse aggregate	547	4,480
Coarse aggregate, graded:		
Concrete aggregate, coarse	W	W
Bituminous aggregate, coarse	W	W
Bituminous surface-treatment aggregate	W	W
Railroad ballast	2	20
Unspecified graded coarse aggregate	7,040	56,300
Fine aggregate (-¾ inch):		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	4	33
Screening, undesignated	1,180	6,280
Unspecified fine aggregate	624	5,290
Coarse and fine aggregates:		
Graded road base or subbase	1,080	8,600
Unpaved road surface	89	791
Terrazzo and exposed aggregate	3	296
Crusher run or fill or waste	3,590	21,700
Unspecified coarse and fine aggregates	831	5,440
Unspecified and other construction materials	W	W
Agricultural:		
Agricultural, limestone	211	1,640
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Lime manufacture	W	W
Flux stone	233	1,990
Special:		
Mining dusting or acid water treatment	W	W
Asphalt fillers or extenders	W	W
Unspecified:²		
Reported	13,800	113,000
Estimated	8,640	67,800
Total	39,100	306,000

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
OKLAHOMA: CRUSHED STONE SOLD OR USED BY PRODUCERS 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
Construction:						
Coarse aggregate (+1½ inch) ²	--	--	W	W	102	1,030
Coarse aggregate, graded ³	--	--	W	W	W	W
Fine aggregate (-¾ inch) ⁴	--	--	15	119	14	93
Coarse and fine aggregates ⁵	--	--	619	6,210	W	W
Other construction materials	--	--	--	--	--	--
Agricultural ⁶	--	--	17	71	W	W
Chemical and metallurgical ⁷	--	--	--	--	W	W
Special ⁸	--	--	--	--	W	W
Other miscellaneous uses and specified uses not listed ⁹	--	--	3	5	--	--
Unspecified: ¹⁰						
Reported	65	295	5,970	56,800	816	7,570
Estimated	--	--	2,040	17,500	1,350	10,900
Total ¹¹	65	295	8,810	82,700	3,350	26,400
Use	District 4		District 5			
	Quantity	Value	Quantity	Value		
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	191	1,520		
Coarse aggregate, graded ³	W	W	133	1,170		
Fine aggregate (-¾ inch) ⁴	W	W	62	384		
Coarse and fine aggregates ⁵	W	W	638	6,000		
Other construction materials	--	--	--	--		
Agricultural ⁶	--	--	W	W		
Chemical and metallurgical ⁷	W	W	--	--		
Special ⁸	--	--	--	--		
Other miscellaneous uses and specified uses not listed ⁹	--	--	W	W		
Unspecified: ¹⁰						
Reported	11,800	107,000	4,740	42,300		
Estimated	1,310	11,200	1,640	13,800		
Total ¹¹	19,300	168,000	7,480	65,700		

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

³Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregates.

⁴Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregates.

⁵Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁶Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁷Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁸Includes mine dusting or acid water treatment, whitening or whitening substance, and other fillers or extenders.

⁹Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

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

¹¹District 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
OKLAHOMA: CRUSHED STONE SOLD OR USED BY PRODUCERS 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
Construction:						
Coarse aggregate (+1½ inch) ²	--	--	55	697	169	1,180
Coarse aggregate, graded ³	--	--	57	751	W	W
Fine aggregate (-¾ inch) ⁴	--	--	26	185	W	W
Coarse and fine aggregates ⁵	--	--	550	5,580	665	3,240
Other construction materials	--	--	--	--	--	--
Agricultural ⁶	--	--	25	108	W	W
Chemical and metallurgical ⁷	--	--	--	--	W	W
Special ⁸	--	--	--	--	W	W
Unspecified: ⁹						
Reported	--	--	6,190	50,700	670	5,490
Estimated	29	129	3,130	25,600	782	6,410
Total	29	129	10,000	83,700	3,230	22,700
Use	District 4		District 5			
	Quantity	Value	Quantity	Value		
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	W	W		
Coarse aggregate, graded ³	W	W	W	W		
Fine aggregate (-¾ inch) ⁴	W	W	W	W		
Coarse and fine aggregates ⁵	W	W	1,130	8,390		
Other construction materials	--	--	W	W		
Agricultural ⁶	W	W	W	W		
Chemical and metallurgical ⁷	--	--	233	1,990		
Special ⁸	--	--	--	--		
Unspecified: ⁹						
Reported	4,160	34,500	2,770	22,500		
Estimated	3,030	22,100	1,670	13,500		
Total	18,900	143,000	6,840	55,600		

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

³Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregates.

⁴Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesigned), and other fine aggregates.

⁵Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁶Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁷Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁸Includes mine dusting or acid water treatment, whitening or whitening substance, and other fillers or extenders.

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

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

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregates and concrete products ²	2,950	\$20,900	\$7.08
Asphaltic concrete aggregates and other bituminous mixtures	278	1,110	3.99
Road base and coverings	176	861	4.89
Fill	1,040	3,090	2.97
Other miscellaneous uses ³	33	572	17.33
Unspecified: ⁴			
Reported	1,500	9,300	6.20
Estimated	4,020	24,600	6.12
Total or average	10,600	64,600	6.09

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 snow and ice control.

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

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

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregates and concrete products ²	3,170	\$23,000	\$7.26
Asphaltic concrete aggregates and other bituminous mixtures	493	2,140	4.34
Road base and coverings	177	1,060	5.99
Fill	740	1,880	2.54
Other miscellaneous uses ³	21	224	10.67
Unspecified: ⁴			
Reported	1,940	12,800	6.60
Estimated	4,140	24,700	5.97
Total or average	10,700	65,900	6.16

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 snow and ice control.

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

TABLE 9
OKLAHOMA: 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 aggregates and concrete products ²	W	W	1,740	10,900	W	W
Asphaltic concrete aggregates and road base materials	W	W	98	456	W	W
Fill	W	W	543	1,470	W	W
Other miscellaneous uses ³	--	--	7	39	--	--
Unspecified: ⁴						
Reported	28	400	460	2,530	568	3,130
Estimated	675	4,650	1,020	6,250	338	1,970
Total ⁵	1,860	12,800	3,870	21,700	923	5,230

Use	District 4		District 5	
	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	W	W	120	757
Asphaltic concrete aggregates and road base materials	W	W	27	108
Fill	W	W	59	197
Other miscellaneous uses ³	W	W	--	--
Unspecified: ⁴				
Reported	--	--	448	3,240
Estimated	1,170	6,780	873	5,370
Total ⁵	1,830	11,100	1,520	9,670

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 snow and ice control.

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

⁵District 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
OKLAHOMA: 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 aggregates and concrete products ²	W	W	1,820	11,700	19	138
Asphaltic concrete aggregates and road base materials	W	W	504	2,240	--	--
Fill	269	542	367	981	5	15
Other miscellaneous uses ³	18	192	1	2	--	--
Unspecified: ⁴						
Reported	16	246	509	2,940	518	3,280
Estimated	515	3,210	1,280	7,020	681	4,240
Total	1,930	13,900	4,490	24,900	1,220	7,670

Use	District 4		District 5	
	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	W	W	--	--
Asphaltic concrete aggregates and road base materials	W	W	--	--
Fill	75	250	23	86
Other miscellaneous uses ³	3	30	--	--
Unspecified: ⁴				
Reported	490	3,210	412	3,080
Estimated	795	4,920	862	5,360
Total	1,740	10,800	1,300	8,530

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 snow and ice control.

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