

THE MINERAL INDUSTRY OF OKLAHOMA

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 Oklahoma Geological Survey for collecting information on all nonfuel minerals.

Oklahoma remained 34th in the Nation in total nonfuel mineral production value¹ in 1996, according to the U.S. Geological Survey (USGS). The estimated value for 1996 was \$372 million, a 4% increase from that of 1995. This increase followed a 4.9% increase from 1994 to 1995 (based on final 1995 data). The State accounted for 1% of the U.S. total nonfuel mineral production value.

In 1996, crushed stone continued as Oklahoma's leading nonfuel mineral commodity, accounting for about 34% of the State's total nonfuel mineral value. The combined values of construction materials—crushed stone, portland and masonry cements, construction sand and gravel, and gypsum—accounted for 79% of the total value. The increase in mineral value in 1996 mostly resulted from increases in portland cement, iodine, fire clays, and construction sand and gravel. Compared with 1995, all nonfuel minerals increased in value in 1996 except for salt, dimension stone, feldspar, and gemstones, all of which had relatively small decreases. In 1995, increases in portland cement and crushed stone (when crushed shell and traprock are included - see table 1) accounted for most of the year's increase in value.

Oklahoma's mines exclusively produced industrial minerals; no metals were mined in the State. Based on USGS estimates of the quantities produced in the 50 States during 1996, Oklahoma remained first in iodine and crude gypsum; second of 4 States to produce tripoli; third of 3 crude helium-producing States; fourth in feldspar; and ninth in industrial sand and gravel. The State was third in the production of fire clay after having no reported production in 1995. In addition, significant quantities of crushed stone, portland and masonry cements, and common clays were produced in the State.

The following narrative information was provided by the Oklahoma Geological Survey² (OGS). The OGS reported that industrial mineral activity in the State continued to increase during 1996. Over the past several years, some of the overall trends are those of increasing production of (1) gypsum for wallboard and plasters, (2) crushed stone for aggregate, railroad ballast, and fill, (3) dimension stone for houses and commercial buildings, and (4) sand and gravel for a variety of construction projects. Construction activities that held steady or increased somewhat during 1996 were highway construction (mainly

in the northeast and northwest), commercial and apartment building (in metropolitan areas), and airport/airbase runway projects.

Although the production of most minerals continued to increase, there were no major new operations, expansions, or technological gains during 1996. However, Global Stone Corp., an international mining company, acquired St. Clair Lime Co. The acquisition, initiated in July 1995, was finalized the following December. In 1996 Global Stone changed the name of the lime company to Global Stone St. Clair, Inc., which now operates both the underground mine in high-purity limestone near Marble City and the kiln facility in Sallisaw. Another example of industry activity was a significant increase in the number of permits for small companies to produce dimension stone in eastern Oklahoma. The thin-bedded, well-indurated sandstones are prized as a building material for homes and commercial structures.

The number of mining permits in Oklahoma has risen over the past few years. In 1996, the Oklahoma Department of Mines (ODM) issued a total of 482 mining permits covering a total of 15,753 hectares. ODM reported that the State's 1994 law on Life Expectancy Permits was well received. Under that law, a company may submit a mining plan only once to cover the mine's life expectancy, rather than undergoing a permit review every 5 years. Of the permits now on file, ODM reported that 127 have been secured under the Life Expectancy provision.

Oklahoma is the only State that produces iodine, an important trace element for human development. Iodine production continued to be an important activity in Oklahoma, all domestic production coming from three companies operating in the northwest part of the State. Oklahoma's iodine production value rose in 1996, spurred on largely by the price increase from about \$11 per kilogram to about \$15 per kilogram over the span of 12 months. North American Brine Resources reopened its iodine-producing facility in the Woodward area in the summer of 1996. The three iodine producers in Oklahoma, IOCHEM Corp., North American Brine Chemicals, and Woodward Iodine Corp., supplied approximately 34% of the U.S. domestic demand, the remainder being imported.

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>

²Kenneth S. Johnson, Associate Director of the Oklahoma Geological Survey, authored the text of State minerals information submitted by the agency. He may be contacted at the same address and telephone and fax numbers as Dr. Mankin.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1994		1995		1996 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	91	7,410	95	7,250	100	7,630
Portland	1,680	102,000	1,740	110,000	1,820	115,000
Clays	771	3,910	674	3,580	814	6,710
Gypsum (crude)	2,890	17,000	2,830	17,000	2,890	17,900
Iodine (crude) metric tons	1,630	12,800	1,210	12,500	1,170	15,800
Sand and gravel:						
Construction	8,480	27,200	7,800	25,100	8,330	27,500
Industrial	1,230	24,000	1,250	25,400	1,250	25,400
Stone:						
Crushed	29,900	125,000	31,100	125,000	29,600	126,000
Dimension metric tons	3,980 3/	1,250 3/	9,170 3/	2,350 3/	14,000	2,220
Combined value of feldspar, gemstones, helium [crude (1995-96)], lime, salt, stone [crushed shell and traprock (1995-96), dimension quartzite and sandstone (1995), dimension sandstone (1994)], and tripoli	XX	19,400	XX	28,700	XX	28,700
Total	XX	340,000	XX	357,000	XX	372,000

p/ Preliminary. 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 stones; kind and value included with "Combined value" figure.

TABLE 2
OKLAHOMA: 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):			
Riprap and jetty stone	552	\$3,280	\$5.94
Filter stone	399	1,840	4.61
Other coarse aggregate	5	41	8.20
Coarse aggregate, graded:			
Concrete aggregate, coarse	2,610	12,300	4.71
Bituminous aggregate, coarse	1,250	5,820	4.64
Bituminous surface-treatment aggregate	554	2,830	5.11
Railroad ballast	W	W	3.34
Other graded coarse aggregate	W	W	5.47
Fine aggregate (-3/8 inch):			
Stone sand, concrete	W	W	3.54
Stone sand, bituminous mix or seal	W	W	2.68
Screening, undesignated	4,970	20,900	4.21
Other fine aggregate	W	W	5.46
Coarse and fine aggregates:			
Graded road base or subbase	1,830	6,640	3.62
Unpaved road surfacing	178	651	3.66
Crusher run or fill or waste	5,020	15,700	3.13
Other coarse and fine aggregates	347	1,390	4.79
Other construction materials 3/	2,460	8,910	3.63
Agricultural:			
Agricultural limestone	169	590	3.49
Poultry grit and mineral food	(4/)	(4/)	9.38
Other agricultural uses	(4/)	(4/)	3.69
Chemical and metallurgical:			
Cement manufacture	2,450	6,850	2.79
Flux stone	306	1,380	4.51
Special: Mine dusting or acid water treatment	(4/)	(4/)	8.63
Unspecified: 5/			
Actual	4,450	20,200	4.54
Estimated	3,410	14,600	4.28
Total	31,100	125,000	4.02

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

1/ Includes dolomite, granite, limestone, miscellaneous stone, sandstone, and slate; excludes shell and traprock, value only, from State total to avoid disclosing company proprietary data.

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

3/ Includes lightweight aggregate (slate) and roofing granules.

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

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

TABLE 3
OKLAHOMA: 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	43 r/	21,700 r/	\$87,400 r/	\$4.03 r/	47	21,800	\$88,800	\$4.07
Dolomite	4 r/	2,680 r/	11,400 r/	4.24 r/	4	3,740	15,700	4.20
Granite	2	W	W	5.29	3	W	W	5.21
Traprock	1	W	W	4.18	1	1,490	(2/)	(2/)
Sandstone	5	2,170	10,400	4.81	5	W	W	4.93
Shell	--	--	--	--	(2/)	(2/)	(2/)	(2/)
Slate	1	W	W	1.08	1	12	66	5.50
Miscellaneous stone	1	23	99	4.30	1	27	118	4.37
Total	XX	29,900	125,000	4.18	XX	31,100	125,000	4.02

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

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

2/ Excludes shell and traprock, value only, from State total to avoid disclosing company proprietary data.

TABLE 4
OKLAHOMA: CRUSHED STONE 1/ 2/ SOLD OR USED BY PRODUCERS IN 1995, BY USE AND DISTRICT 3/

(Thousand metric tons and thousand dollars)

Use	District 2		District 3		District 4		District 5	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 4/	222	1,400	347	W	318	W	70	446
Coarse aggregate, graded 5/	1,550	8,870	W	W	W	W	W	W
Fine aggregate (-3/8 inch) 6/	886	2,310	W	W	W	W	755	3,240
Coarse and fine aggregate 7/	1,230	4,760	399	1,570	W	W	W	W
Other construction materials 8/	--	--	590	3,760	9,910	36,100	3,910	17,900
Agricultural 9/	(10/)	(10/)	111	(10/)	--	--	(10/)	(10/)
Chemical and metallurgical 11/	(10/)	(10/)	(10/)	(10/)	(10/)	(10/)	(10/)	(10/)
Special	--	--	(10/)	(10/)	--	--	--	--
Unspecified: 12/								
Actual	2,690	12,700	(10/)	(10/)	(10/)	(10/)	--	--
Estimated	104	149	148	620	1,470	6,020	1,690	7,810
Total	7,690	32,300	2,670	9,880	13,900	51,600	6,820	31,100

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

1/ No crushed stone was produced in District 1.

2/ Excludes shell and traprock, value only, from State total 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, railroad ballast, and other graded coarse aggregate.

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

7/ Includes graded road base or subbase, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

8/ Includes lightweight aggregate (slate) and roofing granules.

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

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

11/ Includes cement manufacture and flux stone.

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

TABLE 5
OKLAHOMA: 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)	4,180	\$14,300	\$3.43
Plaster and gunite sands	79	230	2.91
Concrete products (blocks, bricks, pipe, decorative, etc.)	50	184	3.68
Asphaltic concrete aggregates and other bituminous mixtures	316	779	2.47
Road base and coverings	308	848	2.75
Fill	1,270	2,120	1.67
Snow and ice control	16	50	3.13
Other	38	245	6.45
Unspecified: 2/			
Actual	631	2,960	4.68
Estimated	909	3,370	3.71
Total or average	7,800	25,100	3.22

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

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

TABLE 6
OKLAHOMA: CONSTRUCTION SAND AND GRAVEL 1/ SOLD OR USED IN 1995, BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 3/	789	3,250	1,810	5,420	1,710	6,070
Asphaltic concrete aggregates and road base materials 4/	360	803	939	1,850	613	1,150
Other miscellaneous uses	3	39	--	--	35	206
Unspecified: 5/						
Actual	--	--	--	--	631	2,960
Estimated	117	599	541	1,630	251	1,140
Total	1,270	4,690	3,290	8,900	3,240	11,500

1/ Production reported in District 3 and 5 was included with "District 4" to avoid disclosing company proprietary data.

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

3/ Includes plaster and gunite sands.

4/ Includes fill and snow and ice control.

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