

# THE MINERAL INDUSTRY OF OHIO

**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 Ohio Department of Natural Resources, Division of Geological Survey, for collecting information all nonfuel minerals.**

Ohio ranked 13th in the Nation in total nonfuel mineral production value<sup>1</sup> in 1996, climbing from 14th in 1995, according to the U.S. Geological Survey (USGS). The estimated value for 1996 was \$934 million, an increase of about 5% compared with the \$890 million of 1995. This followed an increase of more than 1% from 1994 to 1995 (based on final 1995 data). The State accounted for nearly 2.5% of the U.S. total nonfuel mineral production value.

In 1996, Ohio's increased nonfuel mineral value was attributable to significant increases in the values of salt and crushed stone and, relative to these changes, moderate increases in lime and construction sand and gravel. Compared with that of 1995, other values that increased in 1996 were: industrial sand and gravel, crude gypsum, and peat. Decreases occurred in portland and masonry cements and dimension stone. During 1995, the increase in crushed stone value together with smaller increases in portland cement and lime were, for the most part, responsible for the year's increased value.

Based on USGS estimates of the quantities produced in the United States during 1996, Ohio remained second in the production of lime, fourth in construction sand and gravel and common clays, and eighth in industrial sand and gravel. While the State climbed from fourth to third in salt, it dropped from sixth to seventh in the production of crushed stone. Additionally, significant quantities of portland and masonry cement were produced in the State. The State's mines exclusively produce industrial minerals and coal; any metals, especially steel and aluminum, produced in the State are processed from materials received from other domestic and foreign sources. Ohio continued to be the Nation's second leading raw steel-manufacturing State with an estimated output of almost 15.3 million metric tons<sup>2</sup> of raw steel, as reported by the American Iron and Steel Institute. The State remained the fourth leading producer of primary aluminum in the Nation in 1996.

The following narrative information was provided by the Ohio Department of Natural Resources, Division of Geological Survey<sup>3</sup> (DGS). The combined output of construction aggregates—crushed limestone, crushed sandstone, and sand and gravel—was estimated by the

DGS to reach 109 million tons in 1996. DGS attributed this record-setting production level to an increase in the construction of commercial buildings and highways and increases in highway repair.

Regarding developments in the mineral industry in 1996, several new crushed limestone quarries were opened in southwestern Ohio. These new quarries will make crushed stone available to the growing Cincinnati area. American Aggregates Corp. also was anticipating a change in management from the Australian-based CSR American Aggregates, its current owner. In the beginning of the year, the sand and gravel and crushed limestone operations of Dravo Basic Materials Co., Inc., were purchased by Martin Marietta Aggregates. Near the end of the year, Cargill Salt Co. negotiated with Akzo Nobel Salt, Inc., to purchase all of Akzo's North American salt operations including those based in Ohio.

Also potentially significant to Ohio's aggregate industry was a change in its leadership. The Ohio Aggregates Association (Ohio's trade association for aggregate producers) had been under the direction of one managing director for the past 20 years. A new executive, having a background in law and in handling legislative affairs and environmental compliance, became the new managing director.

The DGS reported that three issues were likely to have the most effect on Ohio's aggregate industry in 1997. The first was the decentralization of the Ohio Department of Transportation (ODOT). By giving the 12 ODOT districts more responsibility, consistency of material specifications throughout the State could become an issue. Second is that of the Federal Government "super pave" program. In Ohio, this highway construction material and specifications program is being discussed in relation to State highway construction projects. Under super pave specifications, different shapes and quantities of a material may be required for highway pavement as compared to the current practice. This would require aggregate producers to change how they crush rock. The third topic is that of the "New Source Performance Standards" (NSPS.) The NSPS is a body of environmental regulations from the Ohio Environmental Protection Agency that looks at the air quality of emissions from nonmetallic mineral processing plants of multi-State operations. In particular,

NSPS would target fugitive emissions (dust) from transfer points, such as crushers, conveyors, and bagging operations.

<sup>1</sup>The 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>

<sup>2</sup>All tons are metric tons unless otherwise specified.

<sup>3</sup>Sherry Weisgarber, Geologist and Mineral Statistician at the Ohio Division of Geological Survey, authored the text of Ohio minerals industry information.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1994		1995		1996 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement (portland)	1,050	69,700	1,050	72,700	1,030	71,300
Clays	2,080 3/	12,500 3/	1,930	10,700	2,110	9,090
Gemstones	NA	43	NA	3	NA	3
Lime	1,850	113,000	1,920	117,000	2,030	124,000
<b>Sand and gravel:</b>						
Construction	47,700	205,000	45,300	196,000	45,900	201,000
Industrial	1,260	27,700	1,270	28,800	1,480	31,600
<b>Stone:</b>						
Crushed	56,400	251,000	60,900	265,000	62,600	279,000
Dimension metric tons	W	W	17,900	1,670	18,800	1,610
Combined value of cement (masonry), clays [ball (1994)], gypsum (crude), peat, salt, stone [dimension limestone and sandstone (1994)], and value indicated by symbol W	XX	201,000	XX	200,000	XX	217,000
<b>Total</b>	<b>XX</b>	<b>880,000</b>	<b>XX</b>	<b>891,000</b>	<b>XX</b>	<b>934,000</b>

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" data.

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

Use	Quantity (thousand metric tons)	Value (thousands)	Unit Value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Riprap and jetty stone	705	\$3,040	\$4.31
Filter stone	22	91	4.14
Other coarse aggregate 3/	530	2,540	4.79
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	3,650	13,000	3.56
Bituminous aggregate, coarse	2,380	8,760	3.68
Bituminous surface-treatment aggregate	354	2,380	6.71
Railroad ballast	2,780	11,400	4.12
Other graded coarse aggregate	809	3,380	4.18
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	453	1,600	3.52
Stone sand, bituminous mix or seal	3,390	13,800	4.06
Screening, undesignated	1,860	5,660	3.04
Other fine aggregate	719	3,260	4.53
<b>Coarse and fine aggregates:</b>			
Graded road base or subbase	904	33,000	36.54
Unpaved road surfacing	4,160	18,800	4.52
Crusher run or fill or waste	817	3,750	4.59
Other coarse and fine aggregates	106	485	4.58
Other construction materials 4/	173	833	4.82
Agricultural: Agricultural limestone 5/	925	5,130	5.55
<b>Chemical and metallurgical:</b>			
Cement manufacture	1,360	4,960	3.64
Lime manufacture	W	W	4.13
Flux stone	828	6,410	7.74
Sulfur oxide removal	W	W	11.17
<b>Special:</b>			
Asphalt fillers or extenders	W	W	10.43
Other fillers or extenders	W	W	8.69
Other specified uses not listed	515	3,430	6.66
<b>Unspecified: 6/</b>			
Actual	20,600	97,600	4.73
Estimated	4,710	21,400	4.54
Total	60,900	265,000	4.35

W Withheld to avoid disclosing company proprietary data; included with "Other specified uses not listed."

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

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

3/ Includes macadam.

4/ Includes building products and roofing granules.

5/ Includes poultry grit and mineral food.

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

TABLE 3  
OHIO: 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 2/	83	41,700	\$190,000	\$4.56	83	46,000	\$206,000	\$4.47
Dolomite	21	14,500	59,900	4.15	20	14,900	58,800	3.95
Sandstone	5	232	832	3.59	3	74	419	5.66
Total	XX	56,400	251,000	4.45	XX	60,900	265,000	4.35

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  
OHIO: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS IN 1995, BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:										
Coarse aggregate (+1 1/2 inch) 3/	353	1,290	W	W	W	W	23	116	366	2,190
Coarse aggregate, graded 4/	4,070	14,000	W	W	W	W	W	W	W	W
Fine aggregate (-3/8 inch) 5/	2,170	6,710	W	W	W	W	W	W	W	W
Coarse and fine aggregate 6/	7,510	25,500	W	W	1,950	9,480	W	W	2,980	15,700
Other construction materials 7/	149	703	5,870	21,300	1,530	6,670	3,820	16,500	1,150	5,720
Agricultural 8/	386	1,880	(9/)	(9/)	(9/)	(9/)	101	603	215	1,200
Chemical and metallurgical 10/	(9/)	(9/)	(9/)	(9/)	(9/)	(9/)	--	--	--	--
Special 11/	(9/)	(9/)	--	--	(9/)	(9/)	--	--	--	--
Unspecified: 12/										
Actual	5,830	26,000	1,500	6,230	3,530	17,600	6,590	33,800	3,180	13,900
Estimated	2,900	12,300	562	2,840	951	4,350	148	622	151	1,260
Total	25,100	98,400	8,190	31,900	8,850	42,800	10,700	51,600	8,050	40,000

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

1/ Production reported in District 5 was included with "District 6" to avoid disclosing company proprietary data.

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

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

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

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

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

7/ Includes building products and roofing granules.

8/ Includes agricultural limestone and poultry grit and mineral food.

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

10/ Includes cement manufacture, flux stone, lime manufacture, and sulfur oxide removal.

11/ Includes asphalt fillers or extenders, other fillers or extenders, and other specified uses not listed.

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

TABLE 5  
OHIO: 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)	8,410	\$36,100	\$4.30
Plaster and gunite sands	171	660	3.86
Concrete products (blocks, bricks, pipe, decorative, etc.)	1,210	5,430	4.50
Asphaltic concrete aggregates and other bituminous mixtures	4,560	19,000	4.16
Road base and coverings 2/	3,200	14,700	4.61
Fill	4,630	17,800	3.84
Snow and ice control	181	589	3.25
Filtration	125	711	5.69
Other 3/	168	833	4.96
Unspecified: 4/			
Actual	17,000	76,400	4.49
Estimated	5,620	23,700	4.22
Total or average	45,300	196,000	4.33

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 roofing granules.

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

TABLE 6  
OHIO: 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/	305	1,080	3,420	14,600	3,260	14,000
Asphaltic concrete aggregates and road base materials 3/	82	277	4,280	18,600	3,350	11,500
Other miscellaneous uses 4/	--	--	128	712	102	503
Unspecified: 5/						
Actual	309	1,360	2,080	10,900	10,800	46,100
Estimated	385	1,220	1,540	7,920	1,420	5,650
Total	1,080	3,940	11,400	52,800	19,000	77,800
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	1,150	5,140	806	3,000	851	4,350
Asphaltic concrete aggregates and road base materials 3/	1,810	9,010	1,770	6,880	1,290	5,770
Other miscellaneous uses 4/	16	70	44	238	3	21
Unspecified: 5/						
Actual	1,900	9,250	985	5,710	903	3,100
Estimated	599	2,480	1,150	4,190	527	2,240
Total	5,470	25,900	4,750	20,000	3,570	15,500

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

2/ Includes plaster and gunite sands.

3/ Includes fill, road and other stabilization (cement and lime), and snow and ice control.

4/ Includes filtration and roofing granules.

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