

THE MINERAL INDUSTRY OF OHIO

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Ohio Department of Natural Resources, Division of Geological Survey, for collecting information on all nonfuel minerals.

In 1999, the preliminary estimated value¹ of nonfuel mineral production for Ohio was \$1.04 billion, according to the U.S. Geological Survey (USGS). This was a 1% increase from that of 1998,² and followed an increase of 2.8% from 1997 to 1998. The State ranked 14th in the Nation (13th in 1998) in total nonfuel mineral production value, of which Ohio accounted for more than 2.5% of the U.S. total.

In 1999, Ohio's rise in value resulted mostly from a \$13 million increase in construction sand and gravel plus a total combined increase of about \$5 million in industrial sand and gravel and portland cement. These gains were offset somewhat by decreases of \$4 million and \$3 million, respectively, in lime and crushed stone. All other changes in value were relatively small, and had minimal impact on the State's total mineral value. In 1998, significant increases occurred in the values of construction sand and gravel (up \$33 million) and portland cement; a \$5 million decrease in crushed stone, along with smaller decreases in masonry cement and lime, somewhat reduced the State's overall gain for the year (table 1).

Compared with USGS estimates of the quantities produced in the other 49 States during 1999, Ohio remained second in fire clay; fourth in construction sand and gravel (virtually tied with Arizona), salt, and lime; fifth in common clays; and ninth in industrial sand and gravel. The State dropped to seventh from fifth in crushed stone and lime, and was a significant producer of dimension stone and portland cement. The State's mines exclusively produced industrial minerals and coal; any metals, especially steel and aluminum, produced in the State were 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 about 15.8 million metric tons (Mt) of raw steel, as reported by the American Iron and Steel Institute. Based upon USGS

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon 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 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000, and are expected to change. For some mineral commodities, such as, 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. A telephone listing for the specialists may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/contacts/comdir.html>, by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists), or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

data, the State remained the fourth leading producer of primary aluminum in the Nation in 1999.

The Ohio Department of Natural Resources, Division of Geological Survey (DGS), provided the following narrative information.³ Aggregate production (crushed limestone and dolomite, crushed sandstone, and sand and gravel) continued to be strong, reaching 128 Mt. The Ohio Department of Transportation awarded \$1 billion in contracts in 1999. New construction and resurfacing accounted for more than \$481 million. The 10-year \$535 million reconstruction of I-71 between Columbus and Cleveland continued with increased activity planned for 2000. Railroad delays associated with Norfolk Southern Corp. and CSX Corp. assuming operational control of Conrail caused production slowdowns at some limestone quarries, but several million dollars invested in additional rail capacity should begin to alleviate the bottlenecks. Commercial, residential, and retail construction continued to be strong, particularly in the Columbus area. Belden Brick Co. completed the construction of a new high-tech brick plant at Sugarcreek in Tuscarawas County. Kilns, dryers, production equipment, and environmental controls are computer-controlled for graphical and tabular evaluation and for optimal control of the plant.

Carmeuse North American Group shutdown its lime kiln at Woodville, OH, but will continue to produce stone at the facility. This action was due in part to the startup in October 1999 of Carmeuse's newly renovated dolomitic lime plant at Maple Grove, OH, which will have the advantage of being newer, larger, and able to produce the higher purity lime required by Carmeuse's customers.

The Sun Coke Co. of Knoxville, TN, proposed building a \$1 billion coke plant in Scioto County. It could be the largest brick construction project in U.S. history (Drietzler, 1999). CAES Development Group of Houston purchased land and storage rights to most of the former PPG Industries, Inc.'s underground limestone mine in Barberton. It plans to spend \$100 million to develop a powerplant. CAES will pressurize the mine at night with compressed air, when power is cheap, and release the air through turbines to produce electricity when power is more expensive (Dorell, 1999).

Ohio will begin the most extensive warranty system for highway construction in the Nation during 2000. Specifications developed for warranties in 1999 include 7-years for new construction and major rehabilitation, 5 years for repaving, and 2 years for remaining work. Twenty percent of new construction and 10% of the total payments for contracts awarded each year must have warranties. The Ohio Department of Transportation will assume responsibility for any road-base defects (Jacomet, 1999).

³David Stith, Geologist and Supervisor, and Mark Wolfe, Geologist, authored the text of the Ohio mineral industry information submitted by the Division of Geological Survey.

DGS opened the Horace R. Collins Laboratory and core sample warehouse at Alum Creek State Park (Delaware County) in October 1999. A large conference room, geologic learning center, offices for the Industrial Minerals Group, core examination room, and aggregate testing laboratories are included in the 3,500 square meter building. This new facility replaces inadequate rental properties, and promises to be a valuable tool for the mineral industry.

References:

- Dorell, Oren, 1999, Firm moves ahead in mine project: The Akron Beacon Journal, November 6.
 Dreitzler, Bob, 1999, Jobless find hope in plant: The Columbus Dispatch, December 27.
 Jacomet, P.A., 1999, Specification update: Ohio Aggregates and Industrial Minerals Association Annual Meeting, November 9-10, 1999, Columbus, OH.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement: Portland	1,040	76,900 e/	W	W	W	W
Clays:						
Common	1,450	7,050	1,530	7,290	1,540	7,100
Fire	61	2,860	62	2,810	62	2,810
Gemstones	NA	3	NA	3	NA	3
Lime	1,960	111,000	1,870	109,000	1,810	105,000
Sand and gravel:						
Construction	47,000	222,000	52,600	255,000	54,400	268,000
Industrial	1,140	28,600	1,110	27,700	1,170	30,200
Stone:						
Crushed	74,100	357,000 r/	75,600	352,000	73,000	349,000
Dimension metric tons	24,900	3,260	24,100	2,360	21,900	2,360
Combined values of cement (masonry), gypsum (crude), peat, salt, silica stone and values indicated by symbol W	XX	193,000	XX	276,000	XX	279,000
Total	XX	1,002,000 r/	XX	1,030,000	XX	1,040,000

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined values" data. XX Not applicable.

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

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

TABLE 2
 OHIO: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	93 r/	59,800 r/	\$295,000 r/	\$4.93 r/	104	58,800	\$270,000	\$4.59
Dolomite	16 r/	12,100 r/	54,900 r/	4.56 r/	16	12,500	59,900	4.79
Limestone-dolomite	3 r/	2,220 r/	7,580 r/	3.41 r/	3	2,640	12,500	4.73
Sandstone	4	44	197	4.48	10	1,640	9,340	5.70
Total or average	XX	74,100	357,000 r/	4.82 r/	XX	75,600	352,000	4.65

r/ Revised. XX Not applicable.

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

TABLE 3
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	846	\$4,730	\$5.58
Filter stone	26	148	5.69
Other coarse aggregate	1,870	6,790	3.63
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,370	15,100	4.49
Bituminous aggregate, coarse	2,940	13,800	4.68
Bituminous surface-treatment aggregate	391	2,080	5.31
Railroad ballast	464	1,920	4.13
Other graded coarse aggregate	2,760	12,100	4.40
Fine aggregate (-3/8 inch):			
Stone sand, concrete	629	2,190	3.48
Stone sand, bituminous mix or seal	586	2,330	3.97
Screening, undesignated	385	1,380	3.59
Other fine aggregate	158	667	4.22
Coarse and fine aggregates:			
Graded road base or subbase	17,600	75,500	4.29
Unpaved road surfacing	2,000	8,560	4.27
Crusher run or fill or waste	453	1,780	3.92
Other coarse and fine aggregates	2,720	12,100	4.44
Other construction materials	W	W	5.00
Agricultural: Agricultural limestone	1,020	4,520	4.45
Chemical and metallurgical:			
Cement manufacture	(3/)	(3/)	4.70
Flux stone	(3/)	(3/)	5.58
Glass manufacture	(3/)	(3/)	12.17
Other chemical and metallurgical	2,170	12,000	5.51
Special:			
Asphalt fillers or extenders	(3/)	(3/)	4.55
Whiting or whiting substitute	(3/)	(3/)	25.08
Other fillers or extenders	(3/)	(3/)	6.84
Other special uses	417	3,400	8.16
Other miscellaneous uses:			
Building products	5	80	8.16
Other specified uses not listed	W	W	15.92
Unspecified: 4/			
Actual	24,700	116,000	4.71
Estimated	9,780	53,000	5.41
Total or average	75,600	352,000	4.65

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

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

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

3/ Withheld to avoid disclosing company proprietary data; included with "Other" listing.

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

TABLE 4
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998, BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 2/	606	3,050	1,370	4,740	276	1,430	87	428
Coarse aggregate, graded 3/	5,210	23,500	2,530	11,800	1,020	4,020	273	1,540
Fine aggregate (-3/8 inch) 4/	691	2,660	W	W	185	724	23	127
Coarse and fine aggregate 5/	9,730	44,400	2,860	13,500	2,990	13,000	4,640	16,000
Other construction materials	W	W	--	--	--	--	W	W
Agricultural 6/	429	1,950	145	654	120	475	31	163
Chemical and metallurgical 7/	W	W	W	W	W	W	--	--
Special 8/	158	1,890	W	W	W	W	--	--
Other miscellaneous use 9/	W	W	--	--	--	--	--	--
Unspecified: 10/								
Actual	8,350	40,100	2,490	12,200	2,770	12,400	6,300	27,800
Estimated	2,710	15,000	153	867	1,870	9,820	W	W
Total	29,500	142,000	10,200	46,700	10,200	46,700	12,700	52,800
	District 5		District 6		Unspecified districts			
	Quantity	Value	Quantity	Value	Quantity	Value		
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 2/	321	1,560	73	391	14	63		
Coarse aggregate, graded 3/	W	W	304	1,500	W	W		
Fine aggregate (-3/8 inch) 4/	192	735	W	W	153	506		
Coarse and fine aggregate 5/	1,430	6,370	W	W	W	W		
Other construction materials	--	--	--	--	--	--		
Agricultural 6/	171	565	120	712	--	--		
Chemical and metallurgical 7/	--	--	--	--	--	--		
Special 8/	--	--	--	--	--	--		
Other miscellaneous use 9/	--	--	--	--	--	--		
Unspecified: 10/								
Actual	W	W	W	W	W	W		
Estimated	W	W	1,950	10,600	--	--		
Total	4,160	20,500	8,060	40,400	798	3,210		

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

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

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

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

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

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

6/ Includes agricultural limestone.

7/ Includes cement manufacture, flux stone, and glass manufacture.

8/ Includes asphalt fillers or extenders, whiting or whiting substitute, and other fillers or extenders.

9/ Includes building products and other specified uses not listed.

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

TABLE 5
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY MAJOR USE CATEGORY 1/

Use	Quantity		Unit value
	(thousand metric tons)	Value (thousands)	
Concrete aggregate 2/	8,290	\$39,400	\$4.75
Concrete products (blocks, bricks, pipe, decorative, etc.)	577	3,550	6.14
Asphaltic concrete aggregates and other bituminous mixtures	3,790	17,800	4.71
Road base and coverings 3/	2,970	14,700	4.93
Fill	3,710	15,700	4.23
Snow and ice control	69	250	3.62
Filtration	164	834	5.09
Other miscellaneous uses 4/	2,890	15,800	5.49
Unspecified: 5/			
Actual	20,000	96,500	4.83
Estimated	10,200	50,000	4.90
Total or average	52,600	255,000	4.84

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

2/ Includes plaster and gunite sand.

3/ Includes road and other stabilization (cement).

4/ Includes railroad ballast and roofing granules.

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

TABLE 6
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
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 2/	182	1,160	3,260	16,000	2,320	10,100
Concrete products (blocks, bricks, pipe, decorative, etc.)	--	--	338	1,580	135	1,430
Asphaltic concrete aggregate and other bituminous mixtures	W	W	1,690	7,590	668	2,570
Roadbase and coverings 3/	8	34	852	5,320	356	2,060
Fill	W	W	1,450	8,080	1,830	5,390
Snow and ice control	--	--	22	103	W	W
Other miscellaneous uses 4/	W	W	227	1,250	W	W
Unspecified: 5/						
Actual	W	W	2,360	13,400	11,500	52,800
Estimated	261	1,070	1,620	9,720	2,580	12,300
Total	958	4,440	11,800	63,000	19,700	88,800
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate 2/	979	4,130	1,260	7,030	280	984
Concrete products (blocks, bricks, pipe, decorative, etc.)	W	W	W	W	W	W
Asphaltic concrete aggregate and other bituminous mixtures	W	W	744	4,550	191	929
Roadbase and coverings 3/	862	2,460	769	4,090	126	703
Fill	W	W	129	627	62	129
Snow and ice control	W	W	33	93	--	--
Other miscellaneous uses 4/	W	W	W	W	W	W
Unspecified: 5/						
Actual	2,830	14,200	W	W	944	4,140
Estimated	326	1,640	3,180	14,300	2,230	11,000
Total	7,160	34,600	8,540	42,100	4,420	21,700

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

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

2/ Includes plaster and gunite sands.

3/ Includes road and other stabilization (cement).

4/ Includes filtration, railroad ballast, and roofing granules.

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