

# 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 2000, the estimated value<sup>1</sup> of nonfuel mineral production for Ohio was \$1.06 billion, based upon preliminary U.S. Geological Survey (USGS) data. This was a 2% increase from that of 1999<sup>2</sup> and followed a 1% increase from 1998 to 1999. The State ranked 14th in the Nation (13th in 1999) in total nonfuel mineral production value, of which Ohio accounted for more than 2.5% of the U.S. total.

In 2000, Ohio's rise in value resulted mostly from a \$30 million increase in crushed stone plus an increase of about \$5 million in lime. These gains were offset somewhat by decreases of more than \$12 million, \$7 million, and about \$4 million, respectively, in salt, construction sand and gravel, and portland cement. All other changes in value were relatively small and had minimal impact on the State's total mineral production value. In 1999, decreases in crushed stone of about \$20 million and in lime of \$4 million were more than compensated by increases that occurred in cement (masonry and portland), salt, industrial sand and gravel, gypsum, and construction sand and gravel (in descending order) resulting in the State's overall gain for the year (table 1).

Compared with USGS estimates of the quantities produced in the other 49 States during 2000, Ohio remained second in fire clay, fourth in common clays, fifth in construction sand and gravel, and ninth in industrial sand and gravel. While the State rose to sixth from seventh in crushed stone, it dropped to fourth from third in both lime and salt. Additionally, Ohio was a significant producer of dimension stone. The State's mines exclusively produced industrial minerals and coal; any metals,

<sup>1</sup>The 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 2000 USGS mineral production data published in this chapter are preliminary estimates as of July 2001 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 of 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.

<sup>2</sup>Values, percentage calculations, and rankings for 1999 may vary from the Minerals Yearbook, Area Reports: Domestic 1999, Volume II, owing to the revision of preliminary 1999 to final 1999 data. Data for 2000 are preliminary and are expected to change; related rankings may also change.

especially aluminum and steel, 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 16.6 million metric tons (Mt) of raw steel, as reported by the American Iron and Steel Institute. Based upon USGS data, the State decreased to fifth from fourth in the production of primary aluminum in 2000.

The Ohio Department of Natural Resources, Division of Geological Survey (DGS), provided the following narrative information.<sup>3</sup> Aggregate production (crushed dolomite and limestone, crushed sandstone, and sand and gravel) continued to be strong, reaching 127 Mt. Consolidation in the aggregate industry continued. Hanson PLC acquired Davon, Inc. and the Sandusky Crushed Stone quarry in Erie County from Roger's Group Inc. Hanson's aggregate production in Ohio is expected to almost triple, making them the second leading limestone and dolomite producer in the State. The Melvin Stone Co. LLC began construction of a new limestone quarry in northeastern Greene County. It was one of the few greenfield quarry developments in Ohio in the past decade. Demand for aggregates should remain strong, particularly for road construction. The Ohio Department of Transportation's proposed budget of \$4.7 billion for 2002-2003 included \$300 million for new construction.

BPB, PLC of London, England, purchased the assets of Celotex Corp. gypsum board plants and ceiling tile facilities in 2000. The gypsum quarry and wallboard plant in Ottawa County was part of the transaction. The building brick and specialty clay industry remained strong, but with residential and commercial construction slowing, demand is expected to be adversely affected. Dimension sandstone production had a significant increase in 2000. Demand from institutional and governmental projects remained strong.

The DGS, in partnership with the Ohio Department of Transportation and the Ohio Aggregates and Industrial Mineral Association, hosted four Level II Aggregate Technician training classes at the Horace R. Collins Laboratory in Delaware County in early 2001. The 2-day training sessions included a day of classroom instruction and a day of hands-on laboratory testing. Topics covered included sieve analysis of fine and coarse aggregates, sieve analysis of long-graded material, unit weight and voids in aggregate, and determination of percentage of fractured particles in coarse aggregate.

<sup>3</sup>Mark Wolfe, Geologist, authored the text of the Ohio mineral industry information submitted by the Ohio's Division of Geological Survey.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1998		1999		2000 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	W	W	1,130	90,800 e/	1,100	87,000 e/
Clays:						
Common	1,530	7,290	1,710	8,170	1,710	8,170
Fire	62	2,810	W	W	W	W
Gemstones	NA	3	NA	3	NA	3
Lime	1,870	109,000	1,820	105,000	1,910	110,000
Sand and gravel:						
Construction	52,000	255,000	52,000	257,000	49,400	250,000
Industrial	1,110	27,700	1,150	30,700	1,130	30,600
Stone:						
Crushed	74,900 r/	348,000 r/	73,200	328,000	78,000	358,000
Dimension metric tons	24,100	2,360	25,600	2,390	25,300	2,350
Combined values of cement (masonry), gypsum (crude), peat, salt, silica stone 3/ (1998), and values indicated by symbol W	XX	276,000	XX	220,000	XX	211,000
Total	XX	1,030,000	XX	1,040,000	XX	1,060,000

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.

3/ Grindstones, pulpstones, and sharpening stones; excludes grinding pebbles and mill liners.

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

Kind	1998 r/				1999			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	100	57,500	\$268,000	\$4.92	90	57,100	\$259,000	\$4.53
Dolomite	14	10,100	45,100	4.48	13	9,100	42,300	4.65
Limestone-dolomite	8	6,460	29,700	4.59	8	6,510	24,300	3.73
Sandstone	8	891	5,010	5.63	7	506	2,420	4.78
Total or average	XX	74,900	348,000	4.64	XX	73,200	328,000	4.47

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 1999, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Construction:</b>			
<b>Coarse aggregate (+1 1/2 inch):</b>			
Macadam	W	W	\$3.73
Riprap and jetty stone	680	\$3,630	5.34
Filter stone	101	409	4.05
Other coarse aggregate	466	2,010	4.32
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	3,260	15,100	4.61
Bituminous aggregate, coarse	1,600	7,160	4.47
Bituminous surface-treatment aggregate	326	1,560	4.78
Railroad ballast	244	959	3.93
Other graded coarse aggregate	1,780	8,890	5.01
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	403	1,480	3.67
Stone sand, bituminous mix or seal	610	2,730	4.47
Screening, undesignated	334	1,260	3.77
Other fine aggregate	211	966	4.58
<b>Coarse and fine aggregates:</b>			
Graded road base or subbase	12,500	51,200	4.08
Unpaved road surfacing	2,260	10,500	4.66
Crusher run or fill or waste	1,260	4,930	3.91
Other coarse and fine aggregates	8,790	38,400	4.37
Other construction materials	1,110	4,250	3.84
Agricultural, agricultural limestone	961	4,820	5.01
<b>Chemical and metallurgical:</b>			
Cement manufacture	1,850	8,730	4.71
Lime manufacture	W	W	4.29
Dead-burned dolomite manufacture	W	W	4.41
Flux stone	W	W	5.34
Chemical stone	W	W	11.44
<b>Special:</b>			
Asphalt fillers or extenders	W	W	7.50
Whiting or whiting substitute	W	W	11.31
Other fillers or extenders	W	W	5.79
Other miscellaneous uses, pipe bedding	2	11	5.50
<b>Unspecified: 3/</b>			
Reported	25,300	114,000	4.53
Estimated	7,200	32,000	4.40
Total or average	73,200	328,000	4.47

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 shown.

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

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

TABLE 4  
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1999, 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:								
Coarse aggregate (+1 1/2 inch) 2/	535	2,340	26	131	307	1,680	W	W
Coarse aggregate, graded 3/	4,130	18,800	1,140	5,960	1,150	5,200	209	1,060
Fine aggregate (-3/8 inch) 4/	988	4,190	--	--	184	754	90	355
Coarse and fine aggregate 5/	12,300	50,800	1,560	8,160	2,960	13,200	4,910	18,300
Other construction materials	W	W	--	--	808	2,890	W	W
Agricultural 6/	466	2,480	W	W	99	357	W	W
Chemical and metallurgical 7/	1,880	9,810	W	W	W	W	--	--
Special 8/	W	W	W	W	W	W	--	--
Unspecified: 9/								
Reported	6,870	32,700	7,800	34,600	2,180	9,700	6,590	29,100
Estimated	1,800	7,600	10	46	600	2,600	1,200	5,400
Total	29,200	130,000	10,900	50,800	9,240	40,700	13,100	54,700
Use	District 5		District 6		Unspecified districts			
	Quantity	Value	Quantity	Value	Quantity	Value		
Construction:								
Coarse aggregate (+1 1/2 inch) 2/	248	1,190	43	205	W	W		
Coarse aggregate, graded 3/	337	1,550	246	1,100	--	--		
Fine aggregate (-3/8 inch) 4/	214	825	81	311	--	--		
Coarse and fine aggregate 5/	W	W	1,360	6,280	W	W		
Other construction materials	W	W	--	--	--	--		
Agricultural 6/	W	W	136	874	--	--		
Chemical and metallurgical 7/	--	--	--	--	W	W		
Special 8/	--	--	--	--	W	W		
Unspecified: 9/								
Reported	138	656	1,690	7,710	--	--		
Estimated	23	100	3,500	16,000	--	--		
Total	2,830	12,500	7,090	32,200	843	6,810		

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, macadam, riprap and jetty stone, and other coarse aggregate.

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

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

6/ Includes agricultural limestone.

7/ Includes cement manufacture, chemical stone, dead-burned manufacture, flux stone, and lime manufacture.

8/ Includes asphalt fillers or extenders, pipe bedding, whitening or whitening substitute, and other fillers or extenders.

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

TABLE 5  
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1999,  
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	8,520	\$38,400	\$4.51
Plaster and gunite sands	17	125	7.35
Concrete products (blocks, bricks, pipe, decorative, etc.)	578	3,520	6.08
Asphaltic concrete aggregates and other bituminous mixtures	4,150	21,400	5.16
Road base and coverings	2,850	16,000	5.61
Road stabilization (cement)	81	556	6.86
Fill	2,930	11,200	3.82
Snow and ice control	124	609	4.91
Railroad ballast	3	31	10.30
Roofing granules	6	75	12.50
Filtration	44	288	6.55
Other miscellaneous uses	2,740	15,600	5.68
Unspecified: 2/			
Reported	21,300	103,000	4.84
Estimated	8,600	46,000	5.35
Total or average	52,000	257,000	4.95

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

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

TABLE 6  
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1999,  
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 (including concrete sand)	489	2,070	2,480	12,400	3,050	13,500
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	W	W	406	2,340	73	664
Asphaltic concrete aggregate and other bituminous mixtures	71	201	1,670	8,490	880	3,180
Roadbase and coverings 3/	W	W	974	6,080	536	2,970
Fill	117	461	846	4,290	1,790	5,700
Snow and ice control	--	--	32	194	35	149
Railroad ballast	--	--	3	31	--	--
Roofing granules	--	--	6	75	--	--
Other miscellaneous uses 4/	66	344	105	621	863	4,630
Unspecified: 5/						
Reported	354	1,200	3,220	17,500	11,600	53,300
Estimated	--	--	2,100	13,000	1,700	8,200
Total	1,150	4,550	11,900	64,900	20,600	92,800
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	1,190	4,850	1,060	4,530	254	1,110
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	W	W	45	198	W	W
Asphaltic concrete aggregate and other bituminous mixtures	W	W	887	5,300	W	W
Roadbase and coverings 3/	335	1,850	742	3,620	W	W
Fill	86	435	66	267	16	35
Snow and ice control	W	W	39	184	W	W
Railroad ballast	--	--	--	--	--	--
Roofing granules	--	--	--	--	--	--
Other miscellaneous uses 4/	1,270	7,750	403	2,000	80	528
Unspecified: 5/						
Reported	2,720	14,200	2,090	9,660	1,290	7,190
Estimated	87	420	2,400	13,000	2,300	11,000
Total	6,210	32,200	7,750	39,100	4,440	23,600

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 gunite sands and plaster.

3/ Includes road and other stabilization (cement).

4/ Includes filtration.

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