



# 2008 Minerals Yearbook

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OHIO

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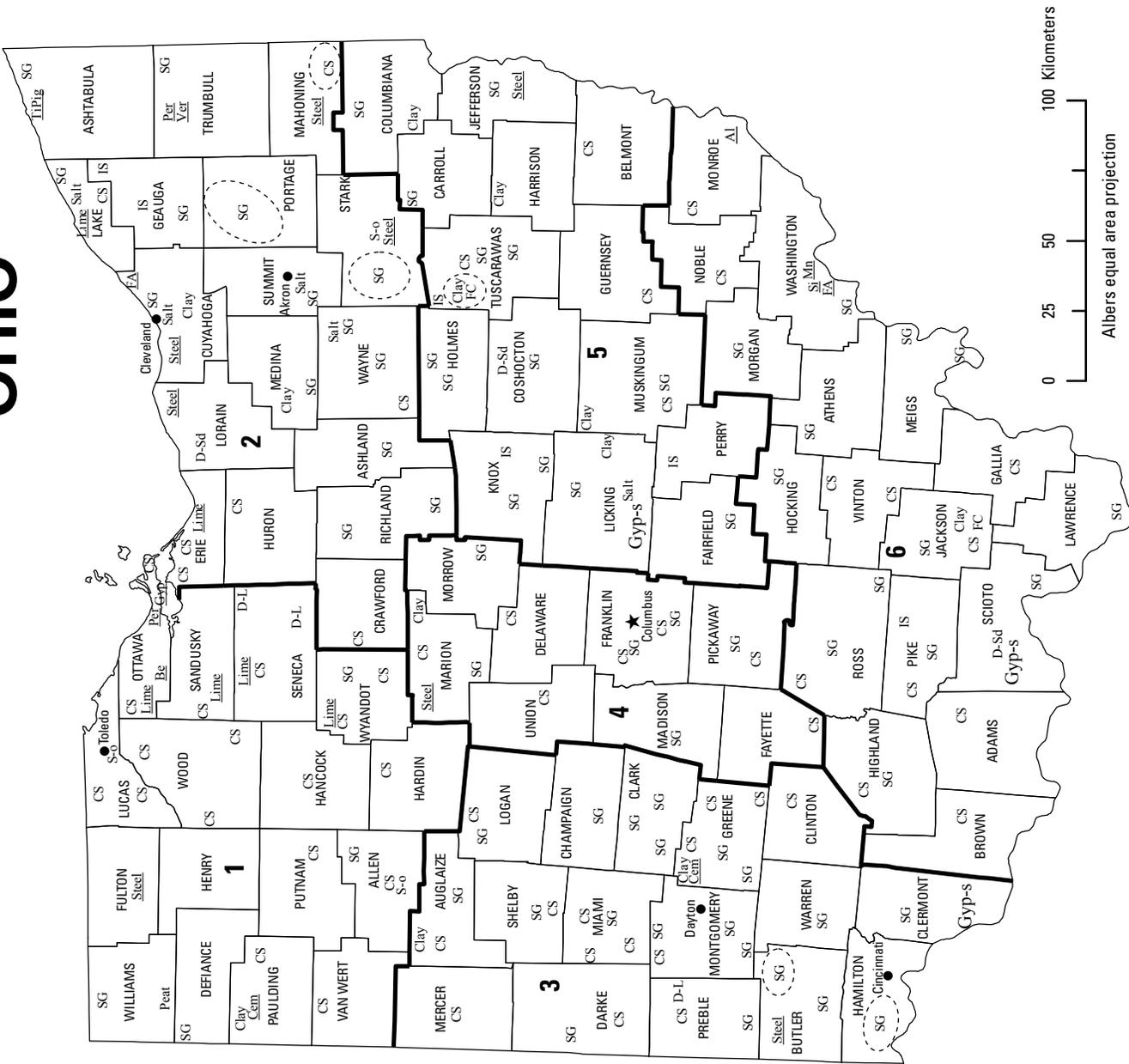
# OHIO

**LEGEND**

- County boundary
- ★ Capital
- City
- Gravel stone/sand and gravel district boundary

**MINERAL SYMBOLS**  
(Principal producing areas)

- Al Aluminum plant
- Be Beryllium plant
- Cem Cement plant and quarry
- Clay Common clay
- CS Crushed stone
- D-L Dimension limestone
- D-Sd Dimension sandstone
- FA Ferroalloys plant
- FC Fire clay
- GYP Gypsum plant
- Gyp-s Synthetic gypsum
- IS Industrial sand
- Lime Lime plant and quarry
- Mn Manganese plant
- Peat Peat
- Per Perlite
- Salt Salt
- S-o Sulfur (oil)
- SG Construction sand and gravel
- Si Silicon metal plant
- Steel Steel plant
- TiPig Titanium pigment plant
- Verm Vermiculite plant
- Concentration of mineral operations



Source: Ohio Geological Survey/U.S. Geological Survey (2008).

# 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 2008, Ohio's nonfuel raw mineral production was valued<sup>1</sup> at \$1.27 billion, based upon annual U.S. Geological Survey (USGS) data. This was a 0.5% decrease from the State's total nonfuel mineral production value of \$1.28 billion for 2007, which was the same value as in 2006. The State remained 19th in rank among the 50 States in total nonfuel raw mineral production value and accounted for more than 1.8% of the U.S. total value.

Crushed stone, by value, remained Ohio's leading nonfuel mineral, followed by, salt, construction sand and gravel, lime, portland cement, and industrial sand and gravel (in descending order of value). Construction sand and gravel, crushed stone, and lime accounted for 66% of the State's total nonfuel mineral production value. In 2008, salt was the leading mineral commodity in terms of its increase in production value, followed by increases in the production values of lime, up by 4.6%, and industrial sand and gravel, up by 4.1%. Significant decreases took place in the production values of dimension stone, down by 84.5%, portland cement, down by 19.6%, and construction sand and gravel, down by 12.8%; followed by decreases in fire clays and masonry cement (data withheld—company proprietary data). Smaller yet significant decreases also took place in common clays and crushed stone, down by 1.3% and 3.7%, respectively.

In 2008, Ohio continued to rank fourth in the quantity of salt, fourth in the quantity of lime, and third in the quantity of fire clays that were produced in the United States. The State rose in rank to 4th from 5th in the production of common clays. Crushed stone production decreased in rank to 9th from 8th, followed by 10th from 9th in the production of industrial sand and gravel, and to 11th from 9th in the production of construction sand and gravel. Additionally, significant quantities of cement and dimension stone were produced in the State.

In 2008, the State continued to be the Nation's second leading raw steel-manufacturing State with an estimated output of more than 13.4 million metric tons (Mt), down about 9% from the nearly 14.6 Mt that was produced in 2007, as reported by the American Iron and Steel Institute (American Iron and Steel Institute, 2009, p. 74). With a significant increase in the production, Ohio rose to 5th from 10th in rank among 11 producing States in the production of primary aluminum. Metals produced in the State, including aluminum, beryllium, ferroalloys, raw steel, and silicon, were processed from

materials received from foreign and other State domestic sources.

The Ohio Department of Natural Resources, Division of Geological Survey<sup>2</sup> (ODGS), provided the following narrative information based upon its own surveys and estimates<sup>3</sup> (Ohio Division of Geological Survey, 2009).

## Employment

In 2008, Ohio's total annual average employment for its nonfuel mineral industry was 4,269 people (3,023 production employees and 1,246 nonproduction employees). The total wages for all employees at industrial mineral operations was \$185 million. The average annual wage based on those employees was \$43,421 (Ohio Division of Geological Survey, 2009, p.10).

## Commodity Review

### Industrial Minerals

**Clay and Shale.**—Belden Brick Co. was the leading producer of building brick in the State. Several other operators produced millions of additional bricks and other ceramic products at plants in Columbiana, Harrison, Licking, and Marion Counties. Large quantities of Ohio clay and shale continued to be used in cement manufacture and lightweight aggregate applications. In 2008, based upon ODGS production and sales data and estimates, clay and shale production was 1.4 Mt.

**Salt.**—Rock salt was produced from two large underground mines beneath Lake Erie. Cargill Inc. (Cargill Salt Division) and Morton Salt, Inc. were the major salt producers in Ohio. Salt solution mining operations (vacuum pan salt) were in production in two counties.

**Sand and Gravel, Construction.**—In 2008, the largest sand and gravel operation was Olen Corp.'s Columbus Plant, which produced 1.4 Mt of aggregate from glacial outwash and kame terraces in southern Franklin County. Martin Marietta Aggregates led the State in the production of sand and gravel with 3 Mt. The total sand and gravel production was 29.7 Mt.

**Sand and Gravel, Industrial.**—The State has an abundance of high silica sandstone that can be used for glass manufacture and other industrial applications. Best Sand Corp. produced 660,000 metric tons (t) of industrial sand from Pennsylvania

<sup>1</sup>The 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 2008 USGS mineral production data published in this chapter are those available as of June 2010. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

<sup>2</sup>Mark E. Wolfe, a Senior Geologist with the Ohio Division of Geological Survey, authored the text of the State mineral industry information provided by that State agency.

<sup>3</sup>Includes reported and estimated values. Some operations reporting sales did not report a value for those sales. A countywide- or statewide-average price per ton was calculated for each industrial mineral commodity based on sales for which the value was reported. . . . These calculated averages were used to estimate the value of the sales for which the actual values were not reported.

age Sharon conglomerate in Geauga County. Ogleby Norton Industrial Sands, Inc. produced more than 260,000 t of high silica sand from operations in Knox and Perry Counties. Production came from the Mississippian age Black Hand Sandstone and Pennsylvania-age Massillon Sandstone, respectively.

**Stone, Crushed (limestone and dolomite).**—In 2008, 105 active quarries produced limestone and dolomite in the State. In 2008, the largest limestone quarry was the Marblehead Limestone Quarry in Ottawa County, operated by Lafarge North America Inc., which produced 3.0 Mt of aggregate from Devonian-age Columbus Limestone. National Lime & Stone Co. led the State in limestone and dolomite production, with 8.4 Mt from 11 quarries.

### Government Programs

The 2008 Report on Ohio Mineral Industries, prepared by the ODGS, contains detailed production, employment, and geologic information on each industrial mineral operation in the

State (Ohio Division of Geological Survey, 2009). A Web-based Geographic Information System (GIS) version of the Ohio mineral industries map from the report allows a user to directly access a summary of industrial information listed by permitted operation (Ohio Division of Geological Survey, 2010).

### References Cited

- American Iron and Steel Institute, 2009, Table 24—Raw steel production by States, *in* American Iron and Steel Institute—AISI 2008 ASR: Washington, DC, American Iron and Steel Institute, 126 p.
- Ohio Division of Geological Survey, 2009, 2008 report on Ohio mineral industries—An annual summary of the State's economic geology: Columbus, OH, Ohio Division of Geological Survey, 101 p. (Accessed December 9, 2010, at [http://www.dnr.state.oh.us/Portals/10/pdf/min\\_ind\\_report/MinInd08.pdf](http://www.dnr.state.oh.us/Portals/10/pdf/min_ind_report/MinInd08.pdf).)
- Ohio Division of Geological Survey, 2010, 2008 map of active mineral industry operations in Ohio: Columbus, OH, Ohio Division of Geological Survey, 1 p. (Accessed December 9, 2010, at <http://www.dnr.state.oh.us/website/geosurvey/INDUSTRIAL/viewer.htm> and via <http://www.dnr.state.oh.us/geosurvey/ogcim/minstat/minstat1/tabid/7798/Default.aspx>.)

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN OHIO<sup>1,2</sup>

(Thousand metric tons and thousand dollars)

Mineral	2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	966	96,100 <sup>e</sup>	916	92,000 <sup>e</sup>	762	74,000 <sup>e</sup>
Clays, common	1,580	17,800	1,190	16,500	983	15,900
Gemstones, natural	NA	4	NA	4	NA	4
Lime	1,850	150,000	1,690	159,000	1,670	166,000
Sand and gravel:						
Construction	46,300	289,000	40,800	271,000	33,000	237,000
Industrial	1,110	33,800	1,080	33,000	1,010	34,300
Stone:						
Crushed	70,100 <sup>f</sup>	437,000 <sup>f</sup>	68,000 <sup>f</sup>	448,000 <sup>f</sup>	53,600	442,000
Dimension	50 <sup>f</sup>	7,900 <sup>f</sup>	37 <sup>f</sup>	6,050 <sup>f</sup>	25	940,000
Combined values of cement (masonry), clays (fire), peat, salt	XX	251,000	XX	254,000	XX	303,000
Total	XX	1,280,000 <sup>f</sup>	XX	1,280,000 <sup>f</sup>	XX	1,270,000

<sup>e</sup>Estimated. <sup>f</sup>Revised. NA Not available. XX Not applicable.

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

<sup>2</sup>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 TYPE<sup>1</sup>

Type	2007			2008		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone <sup>2</sup>	103 <sup>r</sup>	64,000 <sup>r</sup>	\$431,000 <sup>r</sup>	92	50,400	\$416,000
Dolomite	5 <sup>r</sup>	3,540	14,000	6	2,720	22,400
Sandstone & quartzite	6	494 <sup>r</sup>	3,460 <sup>r</sup>	6	444	3,820
Total	XX	68,000 <sup>r</sup>	448,000 <sup>r</sup>	XX	53,600	442,000

<sup>r</sup>Revised. XX Not applicable.

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

<sup>2</sup>Includes limestone-dolomite reported with no distinction between the two.

TABLE 3  
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
<b>Construction:</b>		
<b>Coarse aggregate (+1½ inch):</b>		
Macadam	W	W
Riprap and jetty stone	761	6,160
Filter stone	W	W
Other coarse aggregate	726	6,100
<b>Coarse aggregate, graded:</b>		
Concrete aggregate, coarse	404	2,600
Bituminous aggregate, coarse	5,690	42,300
Bituminous surface-treatment aggregate	1,170	9,320
Railroad ballast	60	358
Other graded coarse aggregate	5,420	34,200
<b>Fine aggregate (-¾ inch):</b>		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	185	1,050
Other fine aggregate	2,050	17,000
<b>Coarse and fine aggregates:</b>		
Graded road base or subbase	5,580	40,500
Unpaved road surfacing	1,020	8,280
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	W	W
Other coarse and fine aggregates	8,120	56,200
Other construction materials	1,470	10,900
<b>Agricultural:</b>		
Limestone	1,580	12,000
Poultry grit and mineral food	W	W
Other agricultural uses	184	1,350
<b>Chemical and metallurgical:</b>		
Cement manufacture	W	W
Lime manufacture	W	W
Flux stone	W	W
Glass manufacture	W	W
<b>Special:</b>		
Asphalt fillers or extenders	W	W
Other fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	2,770	58,000
<b>Unspecified:<sup>2</sup></b>		
Reported	7,330	69,600
Estimated	3,700	31,000
<b>Total</b>	<b>53,600</b>	<b>442,000</b>

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

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

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

TABLE 4  
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Districts 1 and 2 <sup>2</sup>		Districts 3 and 4 <sup>2</sup>		Districts 5 and 6 <sup>2</sup>	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) <sup>3</sup>	1,080	8,580	287	2,290	343	2,720
Coarse aggregate, graded <sup>4</sup>	8,830	60,200	2,670	19,000	1,240	9,620
Fine aggregate (-¾ inch) <sup>5</sup>	1,390	11,300	822	6,730	580	4,200
Coarse and fine aggregate <sup>6</sup>	9,490	67,200	3,440	23,800	2,030	16,700
Other construction materials	1,410	10,500	58	422	--	--
Agricultural <sup>7</sup>	W	W	W	W	W	W
Chemical and metallurgical <sup>8</sup>	2,470	14,000	W	W	W	W
Special <sup>9</sup>	W	W	--	--	W	W
Other miscellaneous uses	2,000	41,900	759	15,900	11	141
Unspecified: <sup>10</sup>						
Reported	340	2,680	4,840	44,700	2,150	22,200
Estimated	2,500	21,000	847	7,200	367	3,100
Total	30,300	244,000	15,800	134,000	7,460	64,400

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

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

<sup>2</sup>Districts 1 and 2, 3 and 4, and 5 and 6 are combined to avoid disclosing company proprietary data.

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

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

<sup>5</sup>Includes screening (undesignated), stone sand (bituminous mix or seal), stone sand (concrete), and other fine aggregate.

<sup>6</sup>Includes crusher run or fill or waste, graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, and other coarse and fine aggregates.

<sup>7</sup>Includes limestone, poultry grit and mineral food, and other agricultural uses.

<sup>8</sup>Includes cement, lime, and glass manufacture and flux stone.

<sup>9</sup>Includes asphalt fillers or extenders and other fillers or extenders.

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

TABLE 5  
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity	Value (thousands)	Unit value
	(thousand metric tons)		
Concrete aggregate (including concrete sand)	7,150	\$49,500	\$6.91
Plaster and gunite sands	16	150	9.38
Concrete products (blocks, bricks, pipe, decorative, etc.)	173	1,320	7.64
Asphaltic concrete aggregates and other bituminous mixtures	2,540	18,400	7.23
Road base and coverings <sup>2</sup>	1,730	11,000	6.37
Fill	2,390	13,600	5.70
Snow and ice control	108	576	5.33
Railroad ballast	1	11	11.00
Filtration	46	582	12.65
Other miscellaneous uses <sup>3</sup>	1,330	8,770	6.58
Unspecified: <sup>4</sup>			
Reported	10,600	83,100	7.82
Estimated	6,900	49,800	7.21
Total or average	33,000	237,000	7.17

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

<sup>2</sup>Includes road and other stabilization (cement and lime).

<sup>3</sup>Includes roofing granules.

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

TABLE 6  
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,  
BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products <sup>2</sup>	472	3,020	646	4,050	2,810	21,800
Asphaltic concrete aggregates and road base materials <sup>3</sup>	W	W	1,100	7,470	1,210	8,880
Fill	W	W	599	4,040	739	3,290
Snow and ice control	--	--	33	197	W	W
Other miscellaneous uses <sup>4</sup>	489	2,950	154	1,480	1,130	7,070
Unspecified: <sup>5</sup>						
Reported	62	790	2,340	16,700	4,180	34,500
Estimated	110	805	3,620	25,900	990	7,160
Total	1,130	7,560	8,490	59,900	11,100	82,600
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products <sup>2</sup>	1,530	11,100	810	4,200	1,080	6,750
Asphaltic concrete aggregates and road base materials <sup>3</sup>	510	3,740	W	W	W	W
Fill	W	W	223	1,340	24	103
Snow and ice control	25	137	42	209	W	W
Other miscellaneous uses <sup>4</sup>	605	3,920	989	6,610	276	1,510
Unspecified: <sup>5</sup>						
Reported	57	379	2,140	16,900	1,850	14,000
Estimated	84	615	1,480	10,900	613	4,390
Total	2,810	19,900	5,690	40,100	3,840	26,700

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

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

<sup>2</sup>Includes plaster and gunite sands.

<sup>3</sup>Includes road and other stabilization (cement and lime).

<sup>4</sup>Includes filtration, railroad ballast, and roofing granules.

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