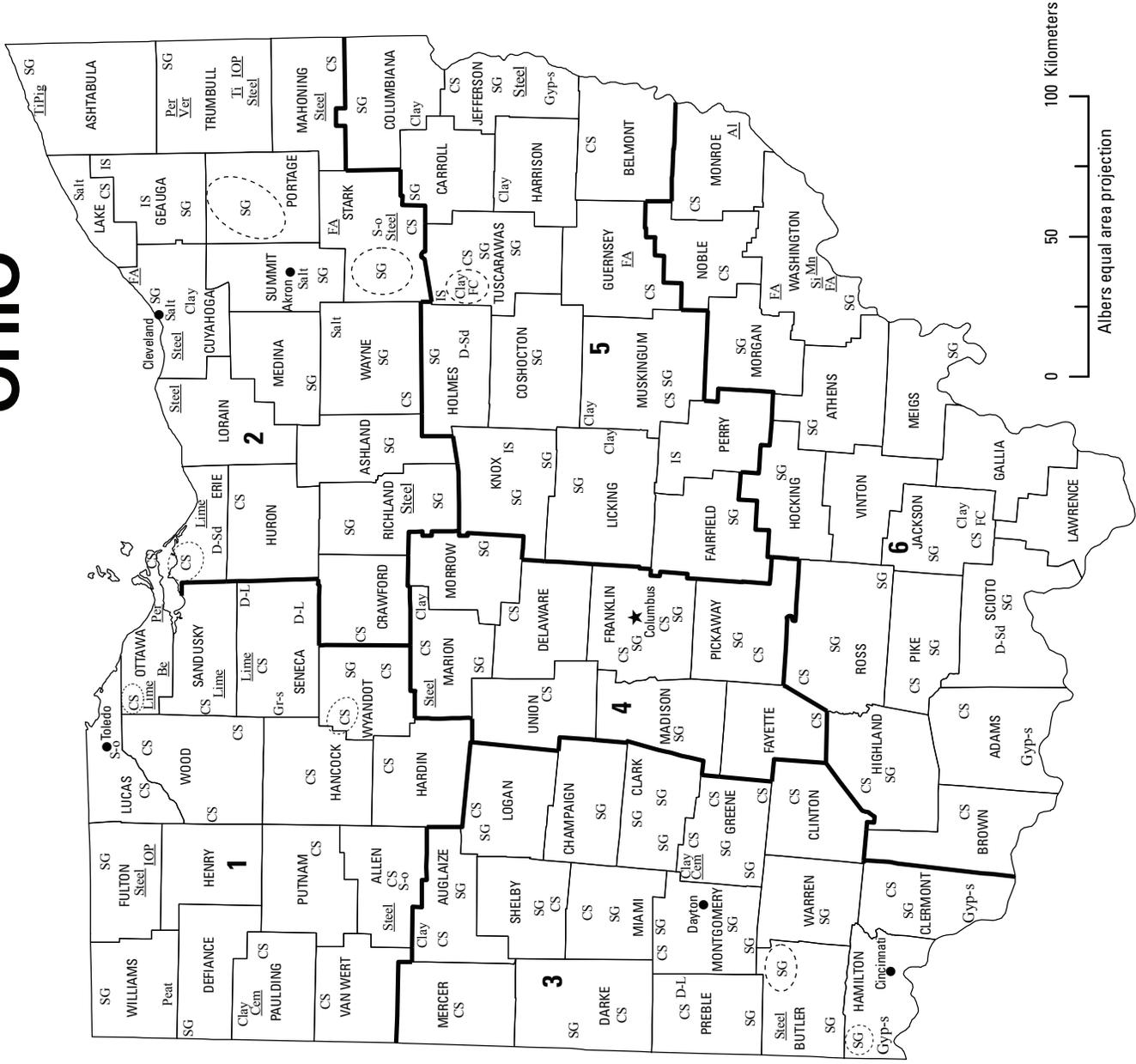




2010–2011 Minerals Yearbook

OHIO [ADVANCE RELEASE]

OHIO



LEGEND

- County boundary
- ★ Capital
- City
- Crushed 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
- Gr-s Synthetic graphite
- Gyp-s Synthetic gypsum
- IS Industrial sand
- IOP Iron oxide pigments
- 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
- Ti Titanium metal plant
- TiPig Titanium pigment plant
- Ver Vermiculite plant
- (dashed circle) Concentration of mineral operations

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 2011, nonfuel mineral production¹ in Ohio was valued at \$962 million, based upon annual U.S. Geological Survey (USGS) data. This was a \$218 million (18.5%) decrease from the State's total nonfuel mineral production value of \$1.18 billion in 2010, which followed an \$81 million (7.4%) increase from \$1.1 billion in 2009. However, the combined production value for masonry cement, peat, and salt was withheld from the 2011 total in order to protect proprietary company data. In 2010, those mineral commodity production values could be published combined with fire clay. If only the subset of nonfuel mineral commodities individually publishable in 2011 (those listed in table 1) are compared, nonfuel mineral production increased by 6% in 2011 and 10% in 2010 from 2009. Ohio dropped in rank from 16th in 2009 to 17th in 2010 and to 22d in 2011 among the 50 States in total nonfuel mineral production value, but only because of the partial total in 2011. It accounted for approximately 1.8% and 1.3% of the total U.S. value in 2010 and 2011, respectively. On a per capita basis, Ohio ranked 39th in the Nation in publishable nonfuel mineral production in 2011 with a value of \$83; the national average was \$240.

In 2010 and 2011, the leading nonfuel mineral commodities in Ohio, by descending order of production value, were crushed stone, salt, construction sand and gravel, lime, and portland cement. Of these, only construction sand and gravel and portland cement decreased in production value in 2011, by 5% and 3%, respectively. Construction sand and gravel was the only one to decrease in production quantity, by 2.5 million metric tons (Mt) (8.5%). In 2010, crushed stone and salt were the only ones to decrease in value, by less than 5%, and salt was the only one to decrease in production quantity (value withheld—company proprietary data). Of the leading mineral commodities, all finished 2011 higher in production value than 2009. The largest increases in production value took place with lime, up by almost \$80 million (62%) in 2011 compared to 2009, and construction sand and gravel, up by \$20 million (10%). These changes corresponded to an additional 600,000 metric tons (t) of lime produced (53% increase) and 196,000 t more construction sand and gravel (0.7%) compared to 2009, despite the production drop between 2010 and 2011. The most substantial rise in production quantity took place in the crushed stone industry, where production increased by 4.9 million metric

tons (Mt) (11%), resulting in a gain of \$11.6 million (3%) in the production value. Of the leading mineral commodities, only lime and salt reached levels higher than those before the recent recession; with the exception of a drop in 2009, the production value of lime has risen in every year since 2003.

Among the remainder of the commodities in 2011, only masonry cement and fire clay decreased in production value; fire clay was not reported at all in 2011. Masonry cement, despite the drop in quantity and value in 2011, was still higher than in 2009 due to increases in 2010, but did not reach the levels seen in 2008. In 2010, common clay and dimension stone decreased in value, but ended 2011 at levels close to or above those of 2009.

In 2010 and 2011, Ohio continued to rank fourth by quantity in the production of salt (out of 16 States) and lime (out of 34 States). The State rose in rank from 9th in 2009 to 6th in 2010 and 2011 for crushed stone production, and from 11th in 2009 to 9th in 2011 for construction sand and gravel. Ohio fell slightly to 5th in common clay from 4th in 2009 and 2010, and fell to 12th in industrial sand and gravel from 10th in 2009. 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 Survey² (OGS), provided the following narrative information based upon its own surveys and estimates³ (Wolfe, 2011 and Wolfe, 2012).

Overview

Industrial minerals were produced in 87 Ohio counties in 2010 and 2011. A total of 334 companies operated 521 industrial mineral mining operations in 2010 (228 companies reported production or sales from 346 active operations) while 344 companies operated 549 industrial mineral mining operations in 2011 (243 companies reported production or sales from 367 active operations). The combined value of all industrial minerals sold was approximately \$865 million in 2010 and \$886 million in 2011 (Wolfe, 2011, p. 12; Wolfe, 2012, p. 14).

The total average annual employment reported in 2010 for industrial mineral operations was about 3,350 people (nearly 2,330 production employees and 1,020 nonproduction employees). Total wages for all employees at industrial mineral

¹The 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 USGS mineral production data published in this chapter are those available as of May 2013. Data in this report are rounded to three significant digits and percentages are calculated from unrounded data. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at <http://minerals.usgs.gov/minerals>.

²Mark 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.

³Includes reported and estimated values and published production figures. 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.

operations were \$142 million, and the average annual wage, based on those employees for whom wages were reported, was \$42,600. In 2011, the average annual employment reported for industrial mineral operations was 3,190 people (2,310 production employees and 880 nonproduction employees). Total wages for all employees at industrial mineral operations were \$147 million, and the average annual wage was \$46,000 (Wolfe, 2011, p. 12; Wolfe, 2012, p. 14).

In addition to the minerals discussed below, Ohio is a major processor of metallic and nonmetallic minerals produced elsewhere in the United States or imported from around the world. Minerals processed in the State include aluminum, beryllium, cadmium, chromium, fluorspar, lead, magnesium, manganese, nickel, titanium, tungsten, vermiculite, and zircon. The largest producer of synthetic industrial diamonds in the United States is located in central Ohio.

Commodity Review

Industrial Minerals

Clay and Shale.—Clay was reported to be sold or produced by 21 companies at 26 operations in 13 Ohio counties during 2010, and by 23 companies at 27 operations in 15 counties during 2011. Reported production of clay totaled approximately 523,000 metric tons (t) in 2010 and 2011 while clay sales (including material for captive use) totaled about 588,000 t valued at \$5.47 million. Combined clay and shale production in 2010 was the lowest since 1935. Tuscarawas, Lucas, Columbiana, Jackson, and Muskingum Counties accounted for 94% of the total sales in 2010, while Tuscarawas, Mahoning, Columbiana, Jackson, and Lucas Counties accounted for 87% percent of the total sales in 2011. The average prices of clay per metric ton in 2010 and 2011 were \$9.58 and \$9.74, respectively. Clay mined in Ohio was largely for captive use in the production of common clay products, such as building bricks, and the landfill industry (Wolfe, 2011, p. 24; Wolfe, 2012, p. 26).

Shale was reported to be sold or produced by 12 companies at 16 operations in 11 Ohio counties during 2010, and by 17 companies at 21 operations in 13 counties during 2011. Sales of shale in 2010 and 2011 (including material for captive use) totaled about 1.14 Mt with a value of \$17.7 million. Tuscarawas, Cuyahoga, Paulding, Marion, and Harrison Counties accounted for 90% of the total sales in 2010, while Tuscarawas, Cuyahoga, Paulding, Marion, and Columbiana Counties accounted for 87% percent of the total sales in 2011. The average prices of shale per metric ton in 2010 and 2011 were \$18.42 and \$13.87, respectively. Shale was mined predominantly for captive use in the production of common clay products, for lightweight aggregate, and in the cement industry (Wolfe, 2011, p. 25; Wolfe, 2012, p. 27).

Sand and Gravel.—In 2010, sand and gravel were reportedly sold or produced by 157 companies at 227 operations in 52 Ohio counties. The total estimated production was 24.3 Mt, whereas the estimated sales of sand and gravel totaled approximately 24.5 Mt, down by 3.9% from 2009. Sand accounted for about 13.6 Mt of the total sand and gravel sold, and gravel accounted for the remaining 10 Mt. Stark, Portage, Hamilton, Butler,

and Tuscarawas Counties led in sales, accounting for nearly 44% of the total. The total value of sand and gravel sold was \$171 million, and the average price per metric ton was \$6.97 (Wolfe, 2011, p. 19).

In 2011, sand and gravel were reportedly sold or produced by 160 companies at 224 operations in 57 counties. Estimated production totaled 25.2 Mt and estimated sales totaled 24.8 million Mt, up by 1.1% from 2010. Sand accounted for 13.8 million Mt of the total sand and gravel sold while gravel accounted for 10.9 million Mt. Portage, Hamilton, Stark, Butler, and Franklin Counties led in sales, accounting for 45% of the total. The total value of sand and gravel sold was \$179 million, and the average price per metric ton was \$7.21 (Wolfe, 2012, p. 21). No sand was reported to have been dredged from Lake Erie in either 2010 or 2011. Ohio sand and gravel were predominantly utilized for commercial and residential building, portland cement concrete, asphaltic concrete, and road construction/resurfacing (Wolfe, 2011, p. 19; Wolfe, 2012, p. 21).

Salt.—Salt production was reported by four companies at six operations in five Ohio counties during 2010 and 2011. Total estimated salt production was 4.77 Mt in 2010 and 5.11 Mt in 2011 while an estimated 4.75 Mt of salt was sold in 2010 (down by 12% from 2009) and 5.06 Mt was sold in 2011 (up by 6.4% from 2010). Rock salt sales from two underground mines, one each in Cuyahoga and Lake Counties, totaled 4.14 Mt in 2010 and 4.44 Mt tons in 2011. Four brining operations, two in Licking County and one each in Summit and Wayne Counties, sold an estimated total of 270 Mt tons of salt in brine and 609,000 Mt of evaporated salt in 2010, as well as 710 Mt and 614,000 Mt, respectively, in 2011. The total value of salt sold was \$212 million in 2010 and \$177 million in 2011. Average prices per metric ton in 2011 were \$25.23 for rock salt (down from \$35.21 in 2010), \$104.91 for evaporated salt and salt in brine (up from \$91.79 in 2010), and \$34.91 for all salt sold (down from \$44.49 in 2010). The primary use for Ohio salt was ice control, but it was also used as an additive in animal feed, for cattle blocks, and as a commercial and residential water softening agent (Wolfe, 2011, p. 26; Wolfe, 2012, p. 28).

Stone, Crushed, and Dimension.—Limestone and dolomite were reported to have been sold or produced by 53 companies at 99 operations in 48 Ohio counties during 2010, and by 57 companies at 103 operations in 46 counties during 2011. In 2010, the reported production of limestone and dolomite totaled 44.3 Mt, while estimated sales totaled 45.4 Mt, an increase of 12.7% from 2009. The total value of limestone and dolomite sold in 2010 was \$436 million, and the average price per metric ton was \$9.60. Reported production of limestone and dolomite totaled 47.8 Mt in 2011, while estimated sales totaled 48.6 Mt, up by 7% from 2010. The total value of limestone and dolomite sold in 2011 was \$476 million, and the average price per metric ton was \$9.80. Erie, Franklin, Ottawa, Sandusky, and Wyandot Counties accounted for 36% of sales in 2010 and 39% in 2011. About 1.18 Mt of lime originating from four operations in Ottawa, Sandusky, and Seneca Counties was produced from Ohio limestone and dolomite in both 2010 and 2011. Crushed limestone and dolomite were primarily utilized for road construction and resurfacing while other major uses for various

forms of limestone and dolomite included commercial building, portland cement concrete, and stone for asphaltic concrete (Wolfe, 2011, p. 15; Wolfe, 2012, p. 17).

Sandstone and conglomerate were reportedly sold or produced by 15 companies at 19 operations in 13 Ohio counties during 2010, and by 20 companies at 23 operations in 19 counties in 2011. In 2010, reported production was 1.07 Mt, sales totaled 982,000 t (a decrease of 2.8% from 2009), and the total value of sandstone and conglomerate sold was \$34.3 million. Geauga, Perry, Tuscarawas, Mahoning, and Lake Counties accounted for 95% of the total sales. Nearly 953,000 t of the total sales consisted of crushed sandstone and conglomerate while dimension stone accounted for 29,000 t. Crushed stone averaged \$31.72 per metric ton and dimension stone had an average value of \$141.24. Reported production of sandstone and conglomerate was 1.3 Mt in 2011, sales totaled 1.08 Mt (a 10% gain from 2010), and \$42.9 million worth of sandstone and conglomerate was sold. Geauga, Mahoning, Perry, Knox, and Lake Counties accounted for about 91% of the total sales. Crushed sandstone and conglomerate accounted for 1.05 Mt of the total sales and dimension stone accounted for 28,500 t. Average prices per metric ton were \$36.68 and \$152.44 for crushed stone and dimension stone, respectively. Crushed sandstone was used primarily for glass sand, construction, aggregate, industrial sand, foundry sand, and hydraulic-fracturing proppant, whereas dimension stone was used primarily for rough construction purposes (Wolfe, 2011, p. 22; Wolfe, 2012, p. 24).

Government Programs

The 2010 and 2011 Reports on Ohio Mineral Industries (MIRs), prepared by the OGS, summarize the importance of geology and contributions of the fuel and nonfuel mineral industries to the overall State economy. They contain detailed production, employment, and geological information on each industrial mineral operation in Ohio (Wolfe, 2011, and Wolfe, 2012). Links to electronic information are also provided for individuals seeking additional data outside the scope of the MIR. The Ohio Geological Survey continually strives to improve the availability of data to the public; the interactive State map of mining operations (available on the OGS Web site: www.OhioGeology.com) has been updated with locations verified by aerial photography (where applicable) and also contains additional features that supplement the MIR. Electronic reporting was initiated in 2010, with resulting efficiencies for industry and the OGS.

References Cited

- Wolfe, M.E., 2011, 2010 report on Ohio mineral industries—An annual summary of the State's economic geology: Columbus, OH, Ohio Department of Natural Resources, Division of Geological Survey, 111 p. (Accessed September 26, 2014, at http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/Mineral_Industries_Reports/MinInd10.pdf.)
- Wolfe, M.E., 2012, 2011 report on Ohio mineral industries—An annual summary of the State's economic geology: Columbus, OH, Ohio Department of Natural Resources, Division of Geological Survey, 119 p. (Accessed September 26, 2014, at http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/Mineral_Industries_Reports/MinInd11.pdf.)

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN OHIO^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2009		2010		2011	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	550	53,000 ^e	627	57,800 ^e	636	56,100 ^e
Clays, common	770	13,400	671	12,600	633	13,300
Gemstones, natural	NA	4	NA	4	NA	4
Lime	1,130	129,000	1,610	189,000	1,730	208,000
Sand and gravel:						
Construction	27,200	199,000 ^r	29,900	232,000	27,400	219,000
Industrial	849	26,300	821	27,800	1,100	54,000
Stone:						
Crushed	44,300 ^r	394,000 ^r	47,000	380,000	49,300	406,000
Dimension	26	4,790	25	4,440	25	5,100
Combined values of cement (masonry), clays [fire (2009–10)], peat, salt	XX	277,000	XX	274,000	XX	W
Total	XX	1,100,000 ^r	XX	1,180,000	XX	962,000

^eEstimated. ^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data; excluded from "Total." XX Not applicable.

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

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

TABLE 2
OHIO: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE¹

Type	2009				2010				2011			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone ²	90 ^r	40,900 ^r	\$375,000 ^r	\$9.17	91	44,200	\$357,000	\$8.08	92	47,300	\$390,000	\$8.25
Dolomite	5	1,680 ^r	12,400 ^r	7.38	5	2,300	19,100	8.33	2	1,430	11,000	7.69
Sandstone and quartzite ³	4 ^r	423 ^r	3,840 ^r	9.06	4	145	1,320	9.10	4	172	1,590	9.24
Miscellaneous stone	2	326	4,060	12.48	5	328	2,650	8.07	5	383	3,100	8.08
Total or average	XX	43,300 ^r	394,000 ^r	9.12	XX	47,000	380,000	8.09	XX	49,300	406,000	8.23

^rRevised. XX Not applicable.

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

²Includes limestone-dolomite reported with no distinction between the two kinds of stone.

³Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

TABLE 3
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2010, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	1	21
Riprap and jetty stone	220	2,570
Filter stone	205	1,860
Other coarse aggregate	5,450	48,600
Coarse aggregate, graded:		
Concrete aggregate, coarse	783	6,120
Bituminous aggregate, coarse	1,970	16,800
Bituminous surface-treatment aggregate	173	1,410
Railroad ballast	156	1,160
Other graded coarse aggregate	6,560	61,100
Fine aggregate (-¾ inch):		
Stone sand, concrete	154	1,230
Stone sand, bituminous mix or seal	60	493
Screening, undesignated	90	199
Other fine aggregate	1,270	11,300
Coarse and fine aggregates:		
Graded road base or subbase	2,530	18,500
Unpaved road surface	260	2,150
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	225	1,550
Other coarse and fine aggregates	2,340	16,700
Other construction materials	568	4,260
Agricultural:		
Agricultural, limestone	864	8,430
Other agricultural uses	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Flux stone	W	W
Glass manufacture	W	W
Special, other fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	181	3,800
Unspecified:²		
Reported	11,000	90,900
Estimated	10,100	81,200
Total	47,000	380,000

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

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

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

TABLE 4
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2011, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	1	19
Riprap and jetty stone	266	2,240
Filter stone	W	W
Unspecified coarse aggregate	409	4,490
Coarse aggregate, graded:		
Concrete aggregate, coarse	1,810	13,900
Bituminous aggregate, coarse	789	6,870
Bituminous surface-treatment aggregate	256	2,790
Railroad ballast	112	835
Unspecified graded coarse aggregate	5,760	60,600
Fine aggregate (-¾ inch):		
Stone sand, concrete	261	1,680
Stone sand, bituminous mix or seal	176	812
Screening, undesignated	72	174
Unspecified fine aggregate	1,000	8,140
Coarse and fine aggregates:		
Graded road base or subbase	3,170	22,900
Unpaved road surface	110	820
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	346	2,660
Unspecified coarse and fine aggregates	9,220	69,100
Unspecified and other construction materials	1,630	11,800
Agricultural:		
Agricultural, limestone	786	6,710
Unspecified and other agricultural uses	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Flux stone	W	W
Glass manufacture	W	W
Other fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	4,600	33,100
Unspecified:²		
Reported	4,460	36,400
Estimated	12,700	101,000
Total	49,300	406,000

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

¹Data are rounded to no more than three significant digits.

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

TABLE 5
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2010, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	662	5,820	277	2,670
Coarse aggregate, graded ³	3,300	28,700	1,920	17,000	832	6,910
Fine aggregate (-¾ inch) ⁴	W	W	690	6,410	137	817
Coarse and fine aggregates ⁵	1,080	8,380	1,220	9,150	1,550	11,000
Other construction materials	482	3,550	--	--	--	--
Agricultural ⁶	W	W	W	W	W	W
Chemical and metallurgical ⁷	W	W	W	W	W	W
Special ⁸	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed ⁹	--	--	--	--	181	3,800
Unspecified: ¹⁰						
Reported	6,050	50,900	W	W	2,040	16,600
Estimated	4,710	35,300	916	7,870	2,210	17,200
Total ¹¹	19,700	161,000	7,460	62,500	7,320	59,800
Use	District 4		District 5		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	179	1,620	W	W
Coarse aggregate, graded ³	W	W	W	W	W	W
Fine aggregate (-¾ inch) ⁴	9	75	10	23	W	W
Coarse and fine aggregates ⁵	73	499	66	457	1,410	9,770
Other construction materials	16	118	--	--	70	593
Agricultural ⁶	W	W	12	114	215	2,330
Chemical and metallurgical ⁷	W	W	--	--	--	--
Special ⁸	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed ⁹	--	--	--	--	--	--
Unspecified: ¹⁰						
Reported	630	5,160	W	W	677	5,700
Estimated	422	3,560	646	5,440	1,240	11,800
Total ¹¹	6,380	55,700	1,880	17,500	4,430	37,700

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

¹Data are rounded to no more than three significant digits.

²Includes macadam, riprap and jetty stone, filter stone, and other coarse aggregates.

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

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

⁵Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁶Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁷Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁸Includes mine dusting or acid water treatment, whitening or whitening substance, and other fillers or extenders.

⁹Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

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

¹¹District totals may not add up to the published State total, owing to revisions made after the production of the table and (or) proprietary data being withheld.

TABLE 6
OHIO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2011, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ²	158	1,800	W	W	103	1,200
Coarse aggregate, graded ³	1,110	9,560	1,750	17,600	998	8,220
Fine aggregate (-¾ inch) ⁴	350	1,820	742	6,960	W	W
Coarse and fine aggregates ⁵	W	W	1,500	13,300	3,120	24,100
Other construction materials	W	W	W	W	W	W
Agricultural ⁶	W	W	W	W	23	185
Chemical and metallurgical ⁷	W	W	--	--	W	W
Special ⁸	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed ⁹	W	W	W	W	W	W
Unspecified: ¹⁰						
Reported	1,370	11,600	W	W	865	6,940
Estimated	8,900	71,100	1,090	8,680	561	4,490
Total	21,800	171,000	7,380	65,100	6,730	54,300
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	W	W	95	1,100
Coarse aggregate, graded ³	W	W	W	W	W	W
Fine aggregate (-¾ inch) ⁴	W	W	--	--	W	W
Coarse and fine aggregates ⁵	W	W	73	547	1,770	14,000
Other construction materials	W	W	326	2,360	W	W
Agricultural ⁶	W	W	--	--	107	1,170
Chemical and metallurgical ⁷	--	--	--	--	--	--
Special ⁸	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed ⁹	W	W	W	W	W	W
Unspecified: ¹⁰						
Reported	97	1,060	W	W	745	5,950
Estimated	254	2,030	1,340	10,800	550	4,400
Total	6,760	61,100	2,670	22,000	3,900	32,200

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

¹Data are rounded to no more than three significant digits.

²Includes macadam, riprap and jetty stone, filter stone, and other coarse aggregates.

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

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

⁵Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other coarse and fine aggregates.

⁶Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁷Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁸Includes mine dusting or acid water treatment, whiting or whitening substance, and other fillers or extenders.

⁹Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

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

TABLE 7
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2010,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	5,530	\$39,800	\$7.20
Plaster and gunite sands	422	1,700	4.03
Concrete products (blocks, bricks, pipe, decorative, etc.)	131	1,170	8.93
Asphaltic concrete aggregates and other bituminous mixtures	2,400	14,200	5.92
Road base and coverings ²	1,220	18,900	15.49
Fill	1,900	12,000	6.32
Snow and ice control	194	1,080	5.57
Other miscellaneous uses ³	468	4,240	9.06
Unspecified: ⁴			
Reported	15,000	126,000	8.40
Estimated	2,640	12,900	4.89
Total or average	29,900	232,000	7.76

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

²Includes road and other stabilization (cement and lime).

³Includes filtration, golf course, railroad ballast, and roofing granule.

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

TABLE 8
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2011,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	5,780	\$40,600	\$7.02
Plaster and gunite sands	16	267	16.69
Concrete products (blocks, bricks, pipe, decorative, etc.)	118	1,230	10.42
Asphaltic concrete aggregates and other bituminous mixtures	2,390	16,900	7.07
Road base and coverings ²	1,900	14,600	7.68
Fill	1,590	12,200	7.67
Snow and ice control	138	658	4.77
Other miscellaneous uses ³	1,760	18,200	10.34
Unspecified: ⁴			
Reported	12,800	107,000	8.36
Estimated	908	7,410	8.16
Total or average	27,400	219,000	7.99

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

²Includes road and other stabilization (cement and lime).

³Includes filtration, golf course, railroad ballast, and roofing granule.

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

TABLE 9
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2010,
BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	389	2,880	907	5,400	1,700	12,600
Asphaltic concrete aggregates and road base materials ³	W	W	1,380	10,200	W	W
Fill	158	585	524	3,710	727	3,620
Snow and ice control	W	W	45	290	W	W
Other miscellaneous uses ⁴	88	735	117	1,780	69	655
Unspecified: ⁵						
Reported	366	2,720	4,550	44,800	5,580	43,100
Estimated	70	529	1,010	7,870	175	960
Total ⁶	1,460	10,100	8,530	74,100	9,760	72,900
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	374	3,030	1,200	8,870	1,560	11,200
Asphaltic concrete aggregates and road base materials ³	191	1,470	394	2,520	383	2,210
Fill	34	219	743	4,980	24	73
Snow and ice control	37	201	35	173	13	72
Other miscellaneous uses ⁴	25	247	132	537	38	286
Unspecified: ⁵						
Reported	759	4,550	2,540	20,400	1,190	9,950
Estimated	--	--	44	357	427	3,180
Total ⁶	1,420	9,710	5,080	37,800	3,630	26,900

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

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement and lime).

⁴Includes filtration, golf course, railroad ballast, and roofing granules.

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

⁶District totals may not add up to the published State total, owing to revisions made after the production of the table and (or) proprietary data being withheld.

TABLE 10
OHIO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2011,
BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	W	W	1,440	9,230	1,350	12,200
Asphaltic concrete aggregates and road base materials ³	W	W	1,690	12,600	W	W
Fill	4	29	641	4,990	386	2,730
Snow and ice control	--	--	33	212	W	W
Other miscellaneous uses ⁴	14	81	128	3,100	73	711
Unspecified: ⁵						
Reported	108	852	3,240	25,600	5,680	48,300
Estimated	109	840	344	3,030	194	1,370
Total	818	5,080	7,520	58,800	8,610	72,800
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	W	W	674	3,470	893	5,700
Asphaltic concrete aggregates and road base materials ³	460	3,760	818	5,410	362	1,920
Fill	258	2,390	255	1,900	41	187
Snow and ice control	W	W	42	188	7	31
Other miscellaneous uses ⁴	41	513	559	4,960	944	8,850
Unspecified: ⁵						
Reported	92	742	2,410	19,900	1,250	11,800
Estimated	--	--	42	393	217	1,770
Total	1,910	16,200	4,800	36,200	3,710	30,300

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

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement and lime).

⁴Includes filtration, golf course, railroad ballast, and roofing granules.

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