



2010–2011 Minerals Yearbook

ARIZONA [ADVANCE RELEASE]

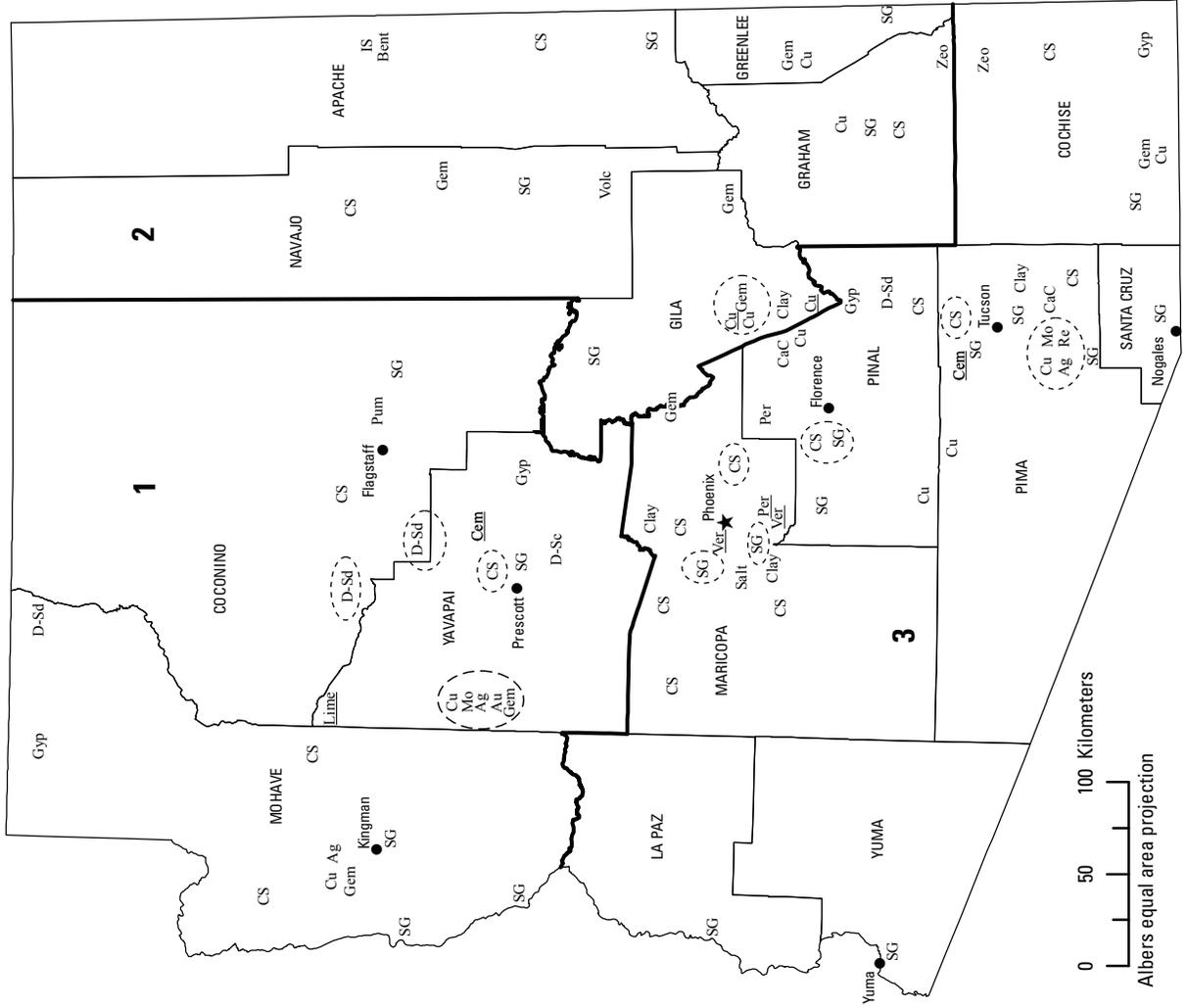
ARIZONA

LEGEND

- County boundary
- ★ Capital
- City
- 1— Crushed stone/sand and gravel district boundary

**MINERAL SYMBOLS
(Principal producing areas)**

- Ag Silver
- Au Gold
- Bent Bentonite
- CaC Calcium carbonate
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- Cu Copper
- Cu Copper plant
- D-Sd Dimension sandstone
- D-Sc Dimension schist/onyx
- Gem Gemstones
- Gyp Gypsum
- IS Industrial sand
- Lime Lime plant
- Mo Molybdenum
- Per Perlite
- Per Perlite plant
- Pum Pumice and pumicite
- Re Rhenium (byproduct)
- Salt Salt
- SG Construction sand and gravel
- Ver Vermiculite plant
- Volc Volcanic cinder
- Zeo Zeolites
- Concentration of mineral operations



Source: Arizona Department of Mines and Mineral Resources/U.S. Geological Survey (2010–11).

THE MINERAL INDUSTRY OF ARIZONA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Arizona Geological Survey for collecting information on all nonfuel minerals.

In 2011, Arizona's nonfuel mineral production¹ was valued at \$8.39 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$1.58 billion (23%) increase from the State's total nonfuel mineral production value of \$6.81 billion in 2010, which had increased by \$1.61 billion (31%) from a total of \$5.19 billion in 2009. In 2011, Arizona ranked second, for the third consecutive year, among the 50 States in total nonfuel mineral production value. The State accounted for 11% of the U.S. total nonfuel mineral production value in 2011. In 2010 and 2009, the State accounted for 10% and 9% of the U.S. total nonfuel mineral production values, respectively. During 2004 through 2008, the State ranked first in the Nation based on total nonfuel mineral production value. On a per capita basis, Arizona ranked sixth in the Nation in nonfuel mineral production with a value of \$1,290, about five times the national average of \$240.

Arizona has led the Nation in copper production since 1910, and has continued to be the leading copper-producing State among eight producing States, producing 67% and 63% of the total U.S. copper production of 1.11 million metric tons (Mt) in 2011 and 2010, respectively. Copper continued to be the State's leading mineral commodity by value, accounting for nearly 80% of Arizona's total nonfuel mineral production value (table 1). Molybdenum concentrates were the second leading nonfuel mineral commodity (in descending order of value), followed by construction sand and gravel, silver, and portland cement. These five mineral commodities combined account for 97% of the State's total nonfuel mineral production value in both 2011 and 2010. In 2011 and 2010, Arizona's substantial increase in production value resulted primarily from the increased production value of copper, with molybdenum concentrates, industrial sand and gravel, and silver contributing smaller yet significant increases. Copper's production value rose significantly although there was minor change in production, owing to a sharp rise in copper prices. In 2011, copper production increased by 48,000 metric tons (t) (7%) and its production value increased by \$1.62 billion (43%), and in 2010, the quantity of copper produced decreased by 8,000 t (1%) but its value increased by \$1.32 billion (24%). In 2011, silver production decreased by 15% but its production value increased 50% (values withheld—company proprietary data.). In 2010, the production of silver increased by 70%, with a corresponding increase in production value

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>.

of 140% (values withheld—company proprietary data.). In 2011, the production of molybdenum concentrates increased by 30% with a corresponding 30% increase in production value (values withheld—company proprietary data). In 2010, the production of molybdenum concentrates increased by 5% with a corresponding 5% increase in production value (values withheld—company proprietary data). Both silver and molybdenum were byproducts of copper mining. In 2010, both the production and production value of industrial sand and gravel decreased by 7%. In both 2011 and 2010, construction sand and gravel had the largest decrease in production value while other significant decreases took place in portland cement and crushed stone. In 2011, the production of construction sand and gravel decreased by 3 million metric tons (Mt); however, production value decreased by \$33 million (11%). Crushed stone decreased in production value by \$17 million (21%) whereas production increased by 38,000 t (less than 1%). Portland cement production value decreased by \$4.3 million (4%) but the quantity produced increased by 43,000 t (4%). In 2010, the production of construction sand and gravel decreased by 5 Mt (12%) with a corresponding decrease in production value of \$66 million (18%). Portland cement decreased in quantity and production value by 155,000 t (14%) and by \$26.7 million (20%), respectively. For crushed stone, the quantity produced decreased 990,000 t (11%), with a corresponding decrease in production value of \$4.4 million (5%).

Arizona rose in rank for the quantities of silver, pumice and pumicite, and industrial sand and gravel (in order of rank among producing States) produced in comparison with other producing States. In 2011, Arizona rose in silver production rank to 4th from 5th among 11 producing States, and rose in industrial sand and gravel production rank to 17th from 31st among 33 producing States. Among seven producing States, Arizona rose in rank to fourth in pumice and pumicite production, in 2011 and 2010, from ranking sixth in 2009. In 2011, the State rose in rank in gemstones (by value) and molybdenum concentrates to first and to second place, after placing second and third in 2010, among 50 and 7 producing States, respectively. Arizona dimension stone production rose to sixth in 2011, after ranking at seventh in 2010, among 36 producing States. In both 2010 and 2011, Arizona salt production continued to rank 14th among 16 producing States, and zeolite continued ranking 4th of 5 and 6 producing States, respectively. In 2011, Arizona gold production fell to ninth among 10 producing States, after placing eighth in 2010. In 2011, both construction sand and gravel and crude perlite production fell to fourth from ranking third in 2010 and 2009, among 50 and 6 producing States. Bentonite clays declined to 10th in 2010 and 2011 after ranking 8th in 2009.

The following narrative information was provided by the Arizona Geological Survey² (AGS). The AGS production data

²Nyal Niemuth of the Arizona Geological Survey authored the report by the AGS.

and information, except where otherwise noted, were based upon that agency's own surveys and mine inquiries, company annual reports, and data and information derived from other State government agency sources. These data may differ from USGS annual production figures, which were based upon company responses to USGS surveys and upon USGS estimates.

Mineral Exploration and Development

In 2010, exploration activity throughout the State increased. About 44,000 Federal mining claims in the State remained valid, despite a large number of uranium claims being abandoned as a result of the Secretary of the Interior's moratorium on uranium mining and proposed withdrawal of large areas of the Colorado Plateau (Bureau of Land Management, 2009). Mining and exploration companies conducted exploration activities for copper in nine Arizona counties. Exploration for iron, manganese, rare earths, and silver was also reported.

Copper.—At the Safford Mine, Freeport-McMoRan Copper & Gold Inc. (FCX) (Phoenix, AZ) constructed a \$150 million sulfur burner to supply sulfuric acid to the leach operation, which was completed in the second quarter of 2011 (Freeport-McMoRan, 2010a, p. 35). Freeport-McMoRan reported that the newly acquired Twin Buttes deposit, adjacent to its Sierrita Mine, contained 318,000 t (700 million pounds) of mineralized material with average grades of 0.43% copper and 0.024% molybdenum (Freeport-McMoRan Copper and Gold Inc., 2010b, p. 5).

In 2010, three in-situ leach projects were announced in the State. In February 2010, Curis Resources Ltd. (Vancouver, British Columbia, Canada, a subsidiary of Hunter Dickinson, Inc.) acquired 100% interest of the Florence copper deposit (also known as the Poston Butte Copper deposit), Pinal County, and announced plans for in-situ copper recovery (Curis Resources Ltd., 2010a). The deposit was estimated to contain measured and indicated resources of 430 Mt grading 0.331% copper (Curis Resources, Ltd., 2010b, p. 1). In November 2010, Excelsior Mining Corp. (Vancouver, British Columbia, Canada) announced drilling, hydrological, and metallurgical tests to confirm the use of in-situ recovery at the Gunnison deposit (also known as the I-10 deposit), Cochise County (Excelsior Mining Corp., 2010). In August 2010, Bell Copper Corp. (Vancouver, British Columbia, Canada) announced its intent to purchase the Van Dyke project (Bell Copper Corp., 2010a). Based on historical drill-core samples, the resource was estimated at 150 Mt (167 million short tons) grading 0.41% copper. The company expected to acquire the project in early 2011, and planned to explore the feasibility of in-situ copper recovery (Bell Copper Corp., 2010b).

Resolution Copper Mining, LLC (Superior, AZ) continued preproduction work on the Resolution copper sulfide deposit. The company was a 55–45 joint venture between Rio Tinto (London, United Kingdom) and BHP-Billiton (London, United Kingdom). The deposit is located more than 2,100 meters below the surface and beneath BHP Billiton's Magma Mine, Pinal County. Rio Tinto estimated the undeveloped copper

resource to contain about 1.6 billion metric tons (Gt) grading 1.47% copper (Rio Tinto plc, 2011, p. 53). In 2010, Resolution was seeking a land exchange of public land needed for the project through a bill pending in the U.S. Congress. Resolution continued sinking mine shafts concurrently with the pending Congressional approval of a land exchange (Rio Tinto plc, 2011, p. 23; Resolution Copper Mining, LLC, 2011, p. 6). Rio Tinto expected annual production of more than 600,000 t (1.3 million pounds) of copper (Rio Tinto, plc., 2011, p. 23).

Polymetallic Projects.—Rosemont Copper Co.'s (a subsidiary of Augusta Resource Corp. of Vancouver, British Columbia, Canada) mine project remained in the planning stages as the U.S. Forest Service continued work on the project's Environmental Impact Statement (EIS). In September 2011, the draft EIS released by the U.S. Forest Service proposed approval of the Rosemont Mine (U.S. Department of Agriculture, 2011, p. xiv). In the EIS, the mine's production was estimated to total 110,000 t (234 million pounds) of copper, 2,500 t (5.4 million pounds) of molybdenum, and 90,000 kg (2.9 million troy ounces) of silver per year over a 20-year mining period (U.S. Department of Agriculture, 2011, p. xi).

In October 2010, American Bonanza Gold Corp. (Vancouver, British Columbia, Canada) worked to reopen the Copperstone Mine, an underground gold mine approximately 15 kilometers (km) north of Quartzsite in La Paz County (American Bonanza Gold Corp., 2011, p. 26). A National Instrument (NI) 43–101 report stated that the mine had proven and probable reserves of about 820,000 t (900,000 short tons) grading 9.7 grams per metric ton (g/t) (0.28 troy ounces per short ton) gold at a cutoff grade of 4.5 g/t (Fayram, 2010, p. 14). The company continued construction of a milling and flotation plant purchased in 2010 and continued to develop underground operations (American Bonanza Gold Corp., 2011, p. 36, 39–40, 45).

Early in 2010, Patriot Gold Corp. (Las Vegas, NV) announced that the Moss Mine gold project had an indicated gold-silver resource of 19 Mt (21 million short tons) grading 0.86 g/t (0.025 troy ounces per short ton) of gold and 9 g/t (0.263 troy ounces per short ton) of silver (Patriot Gold Corp., 2010). The project was located 16 km east of Bullhead City, Mohave County. In March 2011, Northern Vertex Mining Corp. (Vancouver, British Columbia, Canada) acquired a 70% interest in the property and conducted additional exploratory drilling (Patriot Gold Corp., 2011).

Following a 2008 drill campaign at the Burro Creek Mine, 16 km south of Wikieup in Mohave County, Northern Freegold Resources Ltd. released an NI 43–101-compliant technical report on January 31, 2011, which identified an indicated resource of about 2.3 Mt grading 1 g/t (0.34 troy ounces/short ton) gold and 37 g/t (1.08 troy ounce/short ton) silver (Pautler and others, 2011, p. 51).

Potash.—Owing to a tenfold increase in the price of potash, exploration activities and property acquisition increased in the Holbrook evaporate basin. An Arizona Geological Survey assessment estimated the total resource at between 680 Mt and 2.27 Gt with an average grade between 6% and 10% (Rauzi, 2008, p. 3).

Commodity Review

Industrial Minerals

Cement.—In 2010, Drake Cement, LLC (Scottsdale, AZ), a subsidiary of Cementos Selva S.A. of Lima, Peru, completed construction of a \$300 million integrated cement plant approximately 60 km north of Prescott (Ayers, 2011).

Metals

Copper and Molybdenum.—In 2010, three mines accounted for the molybdenum concentrate extracted in Arizona: Mercator Minerals Ltd.'s (Vancouver, British Columbia, Canada) Mineral Park Mine produced 2,000 t (4.4 million pounds), Freeport-McMoRan Copper & Gold Inc.'s Sierrita Mine produced 8,200 t (18 million pounds), and Bagdad Mine produced 3,200 t (7 million pounds) (Mercator Minerals Ltd., 2011; Freeport-McMoRan Copper & Gold Inc., 2010b, p. 8–9). In March 2010, Freeport-McMoRan Copper & Gold Inc. increased the mining rate and restarted the processing mill at the Morenci Mine, which was expected to increase production of copper by approximately 57,000 metric tons per year (t/yr) (125 million pounds per year) by 2011 (Freeport-McMoRan Copper & Gold Inc., 2010a, p. 9; Freeport-McMoRan Copper & Gold Inc., 2010b, p. 6). At the company's Miami Mine, in addition to continued reclamation projects, production of copper was expected to increase to approximately 45,000 t/yr (100 million pounds per year) by late 2012. The Miami Mine had an approximate 5-year mine life (Freeport-McMoRan Copper & Gold Inc., 2010a, p. 10).

Gold.—In September 2010, Addwest Minerals International Ltd. (formally Mohave Desert Minerals) reopened the Gold Road underground mine, in Oatman, Mohave County. The company installed a filter-press used to extract water from mine tailings, which allowed for dry stacked tailings (Adams-Ockrassa, 2010).

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TABLE 1
NONFUEL MINERAL PRODUCTION IN ARIZONA^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2009		2010		2011	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, bentonite	17	913	W	W	W	W
Copper ³	711	3,780,000	703	5,400,000	751	6,720,000
Gemstones, natural	NA	1,540	NA	1,550	NA	2,500
Sand and gravel, construction	40,800 ^r	363,000 ^r	35,800	296,000	32,800	264,000
Stone:						
Crushed	9,210 ^r	85,400 ^r	8,220	81,000	8,260	63,900
Dimension	94	13,800	81	11,700	112	13,300
Combined values of cement, clays (common), gold, gypsum (crude), lime, molybdenum concentrates, perlite (crude), pumice and pumicite, salt, sand and gravel (industrial), silver, zeolites, and values indicated by symbol W	XX	944,000 ^r	XX	1,010,000	XX	1,320,000
Total	XX	5,190,000 ^r	XX	6,810,000	XX	8,390,000

^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" data. 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.

³Recoverable copper content of ores.

TABLE 2
ARIZONA: 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	12 ^r	3,860 ^r	\$38,500 ^r	\$9.97	6	3,200	\$33,100	10.36	6	3,250	\$27,200	\$8.37
Granite	23	2,440 ^r	24,300 ^r	9.96	23	2,130	23,400	10.97	22	2,480	18,700	7.53
Traprock	--	--	--	--	--	--	--	--	1	104	1,370	13.23
Sandstone and quartzite ³	5	744	7,400	9.94	5	528	5,350	10.13	5	759	5,860	7.72
Volcanic cinder and scoria	7	99	794	8.02	5	123	759	6.19	5	99	840	8.44
Miscellaneous stone	26 ^r	2,380 ^r	17,700 ^r	7.44	26	2,240	18,300	8.17	22	1,570	9,930	6.33
Total or average	XX	9,210 ^r	85,400 ^r	9.27	XX	8,220	81,000	9.85	XX	8,260	63,900	7.73

¹Revised. XX Not applicable. -- Zero.

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

³Includes limestone-dolomite reported with no distinction between the two kinds of stone.

⁴Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

TABLE 3
ARIZONA: 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):		
Riprap and jetty stone	17	\$240
Filter stone	W	W
Other coarse aggregate	W	W
Coarse aggregate, graded:		
Concrete aggregate, coarse	W	W
Bituminous aggregate, coarse	W	W
Bituminous surface-treatment aggregate	W	W
Railroad ballast	W	W
Other graded coarse aggregate	W	W
Fine aggregate (-¾ inch):		
Stone sand, concrete	23	720
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	W	W
Other fine aggregate	W	W
Coarse and fine aggregates:		
Graded road base or subbase	110	1,210
Unpaved road surface	14	190
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	57	235
Roofing granules	W	W
Other coarse and fine aggregates	623	6,510
Agricultural:		
Poultry grit and mineral food	W	W
Other agricultural uses	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Lime manufacture	W	W
Sulfur oxide removal	24	241
Unspecified:²		
Reported	659	1,460
Estimated	4,540	45,600
Total	8,220	81,000

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
ARIZONA: 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):		
Riprap and jetty stone	8	109
Filter stone	W	W
Unspecified coarse aggregate	W	W
Coarse aggregate, graded:		
Concrete aggregate, coarse	16	180
Bituminous aggregate, coarse	5	90
Bituminous surface-treatment aggregate	124	1,640
Railroad ballast	W	W
Unspecified graded coarse aggregate	260	3,500
Fine aggregate (-¾ inch):		
Stone sand, concrete	23	720
Stone sand, bituminous mix or seal	5	60
Screening, undesignated	W	W
Unspecified fine aggregate	W	W
Coarse and fine aggregates:		
Graded road base or subbase	73	742
Unpaved road surface	20	267
Terrazzo and exposed aggregate	765	3,590
Crusher run or fill or waste	81	336
Unspecified coarse and fine aggregates	W	W
Unspecified and other construction materials	W	W
Chemical and metallurgical, cement manufacture	647	7,530
Other miscellaneous uses and specified uses not listed	20	133
Unspecified: ²		
Reported	1,740	9,870
Estimated	4,110	32,300
Total	8,260	63,900

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 6
ARIZONA: 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	W	W	9	78	W	W
Coarse aggregate, graded ³	170	1,910	52	508	W	W
Fine aggregate (-¾ inch) ⁴	--	--	68	1,140	W	W
Coarse and fine aggregates ⁵	W	W	111	1,080	956	4,480
Other construction materials	--	--	--	--	W	W
Chemical and metallurgical ⁶	W	W	--	--	--	--
Other miscellaneous uses and specified uses not listed ⁷	W	W	--	--	--	--
Unspecified: ⁸						
Reported	6	56	33	322	1,170	8,650
Estimated	1,880	14,500	475	4,220	1,760	13,600
Total	2,750	24,300	747	7,350	4,230	31,400
		Unspecified				
Use		Quantity		Value		
Construction:						
Coarse aggregate (+1½ inch) ²	--	--				
Coarse aggregate, graded ³	--	--				
Fine aggregate (-¾ inch) ⁴	--	--				
Coarse and fine aggregates ⁵	--	--				
Other construction materials	--	--				
Chemical and metallurgical ⁶	--	--				
Other miscellaneous uses and specified uses not listed ⁷	--	--				
Unspecified: ⁸						
Reported		530		848		
Estimated		--		--		
Total		530		848		

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 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 (undesigned), 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 cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

⁷Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

⁸Reported and estimated production without a breakdown by end use.

TABLE 7
ARIZONA: 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)	3,030	\$26,400	\$8.72
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	75	868	11.57
Asphaltic concrete aggregates and other bituminous mixtures	1,870	20,500	10.98
Road base and coverings	2,510	19,200	7.65
Fill	648	3,650	5.63
Snow and ice control	163	1,110	6.79
Other miscellaneous uses ³	392	4,280	10.92
Unspecified: ⁴			
Reported	12,300	97,100	7.92
Estimated	14,300	118,000	8.27
Total or average	35,800	296,000	8.27

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

²Includes plaster and gunite sands.

³Includes filtration and railroad ballast.

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

TABLE 8
ARIZONA: 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)	3,800	\$33,800	\$8.89
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	99	1,290	13.03
Asphaltic concrete aggregates and other bituminous mixtures	1,670	17,700	10.60
Road base and coverings ³	1,750	13,100	7.49
Fill	712	3,790	5.32
Other miscellaneous uses ⁴	435	5,360	12.32
Unspecified: ⁵			
Reported	10,900	80,100	7.35
Estimated	13,400	109,000	8.13
Total or average	32,800	264,000	8.05

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (lime).

⁴Includes filtration, railroad ballast, and snow and ice control.

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

TABLE 9
ARIZONA: 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 aggregate (including concrete sand)	231	2,880	142	\$1,700	2,650	21,800
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	W	W	W	W	58	605
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W	1,210	12,700
Road base and coverings	257	1,750	134	1,620	2,120	15,800
Fill	9	44	21	154	618	3,450
Snow and ice control	2	26	--	--	161	1,080
Other miscellaneous uses ³	3	51	5	61	355	3,840
Unspecified: ⁴						
Reported	1,710	13,700	285	2,290	9,960	80,500
Estimated	1,560	12,900	1,460	12,100	11,200	93,000
Total ⁵	3,990	33,900	2,210	20,100	28,400	233,000
	Unspecified district					
	Quantity	Value				
Concrete aggregate (including concrete sand)	--	--				
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	--	--				
Asphaltic concrete aggregates and other bituminous mixtures	289	3,190				
Road base and coverings	--	--				
Fill	--	--				
Snow and ice control	--	--				
Other miscellaneous uses ³	30	328				
Unspecified: ⁴						
Reported	308	645				
Estimated	--	--				
Total ⁵	627	4,170				

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 filtration and railroad ballast.

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

⁵District 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
ARIZONA: 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 aggregate (including concrete sand)	W	W	W	W	3,390	29,000
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	W	W	W	W	78	827
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W	977	10,500
Road base and coverings ³	278	1,930	135	1,140	1,340	9,980
Fill	11	40	9	55	692	3,700
Other miscellaneous uses ⁴	7	77	6	78	393	4,880
Unspecified: ⁵						
Reported	1,750	14,400	257	2,090	7,400	61,100
Estimated	815	6,610	1,550	12,500	11,100	89,700
Total	3,510	30,000	2,140	18,200	25,300	210,000
	Unspecified district					
Use	Quantity	Value				
Concrete aggregate (including concrete sand)	--	--				
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	--	--				
Asphaltic concrete aggregates and other bituminous mixtures	289	3,190				
Road base and coverings ³	--	--				
Fill	--	--				
Other miscellaneous uses ⁴	30	328				
Unspecified: ⁵						
Reported	1,470	2,440				
Estimated	--	--				
Total	1,780	5,960				

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 (lime).

⁴Includes filtration, railroad ballast, and snow and ice control.

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