



# 2012–2013 Minerals Yearbook

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**ARKANSAS [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF ARKANSAS

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

In 2013, the value of nonfuel mineral production<sup>1</sup> in the State of Arkansas decreased to \$689 million, 0.9% of the total U.S. nonfuel mineral production, ranking it 32d in the country. In 2012, the corresponding value was \$808 million, 1.1% of the Nation's total nonfuel mineral production, ranking it 29th among the 50 States. In 2013, on a per capita basis, nonfuel mineral production in Arkansas had a value of \$233 compared with the national average of \$238. In 2012, the per capita value was \$274 compared with the national average of \$241.

The value of nonfuel mineral production in Arkansas for the years 2006 through 2013 was as follows (in millions of dollars): \$799 (2006), \$776 (2007), \$710 (2008), \$625 (2009), \$714 (2010), \$782 (2011), \$808 (2012), and \$689 (2013).

In 2013, there were 1,469 employees in nonfuel mineral mines in Arkansas and 942 in mills and preparation plants. In 2012, the corresponding numbers were 1,488 in nonfuel mineral mines and 887 in mills and preparation plants (U.S. Mine Safety and Health Administration, 2013, p. 7; 2014, p. 7). In 2013, the average annual wage for Arkansas for all mining was \$50,400 compared with \$38,600 for all industries. In 2012, the corresponding figures were \$48,600 and \$37,900, respectively (National Mining Association, unpub. data, February 4, 2016).

In 2013 and 2012, on the basis of production quantity, Arkansas continued to be the only State to produce bromine compounds and special silica stone, and it was third in the production of tripoli out of 3 producing States, fourth in the production of kaolin out of 9 producing States, and fifth in the production of industrial sand and gravel out of 33 producing States.

In 2013 and 2012, Arkansas also produced bauxite, common clays, construction sand and gravel, crushed stone, dimension stone, gemstones, gypsum, lime, masonry cement, and portland cement (table 1).

## Commodity Review

The Arkansas Geological Survey<sup>2</sup> prepared reports for the mineral industry of the State covering activities in 2012 and 2013 from which the following data have been extracted. These data may differ from U.S. Geological Survey (USGS) data, which are based on company responses to USGS surveys and

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<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 USGS mineral production data published in this chapter are those available as of February 2016. 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>.

<sup>2</sup>Daniel Rains, Geologist, Arkansas Geological Survey, provided the State nonfuel mineral industry information.

estimation for nonrespondents. The USGS withheld some data to avoid disclosing company proprietary data.

The number of noncoal mines and quarries that were permitted or authorized during 2013 was 235 compared with 236 in 2012. In 2013, noncoal mines and quarries covered 12,300 hectares (ha) (30,383 acres), of which 7,308 ha (18,063 acres, 59%) were bonded for reclamation, and there were 12 noncoal mines or quarries covering 148 ha (367 acres) that were released from reclamation liability. In 2012, these noncoal mines covered 12,223 ha (30,209 acres), of which 6,862 ha (16,959 acres, 56%) were bonded for reclamation, and nine noncoal mines or quarries had 50 ha (124 acres) released from reclamation liability (Arkansas Department of Environmental Quality, 2016).

## Industrial Minerals

Mineral industry activity with respect to industrial minerals was as follows:

- Six companies mined novaculite (five in Garland County and one in Hot Springs County) throughout 2012 and 2013.
- Tripoli was mined in Saline County throughout 2012 and 2013.
- Bromine was recovered from the oil brines in southern Arkansas and was processed by two manufacturers.
- Bauxite was custom mined in Saline County throughout 2012 and 2013.
- There were 18 active quartz mining contracts with the Forest Service and four quartz and two wavellite leases with the Bureau of Land Management throughout 2012 and 2013.
- Crater of Diamonds State Park in Pike County produced 455 diamonds weighing 96.7 carats, 17 of which were greater than 1 carat each in 2013. In 2012, the number of diamonds produced was 530, weighing 95.4 carats, with 13 diamonds weighing greater than 1 carat each. This is the only place in the world that allows visitors to keep the diamonds that they find (Crater of Diamonds State Park, 2016).
- Gypsum was mined in Howard County and wallboard was manufactured at a plant with a capacity of 130 million square meters per year throughout 2012 and 2013.
- Agricultural lime, hydrated lime and quicklime, and pulverized limestone were produced for glass manufacturing throughout 2012 and 2013. Some of the limestone was very pure and low in silica.
- Nepheline syenite was produced for use as a flux in the manufacture of porcelain and ceramic floor tile, in asphalt and concrete aggregates and related products, in brick manufacture, and in roofing granules throughout 2012 and 2013.

- There were 13 active industrial sand permits on file in Arkansas; 2,130,000 metric tons of hydraulic fracturing sand was produced in 2013. There were 12 active industrial sand operations in 2012.
- Sandstone was the most abundant crushed stone produced, followed by limestone and dolomite, throughout 2012 and 2013.

Crater of Diamonds State Park, 2016, Diamond statistics: Crater of Diamonds State Park. (Accessed February 12, 2016, at <http://www.craterofdiamondsstatepark.com/media/diamond-statistics.aspx>.)

U.S. Mine Safety and Health Administration, [2013], Mine injury and worktime, quarterly, January–December 2012, Final, closeout edition, 33 p. (Accessed February 4, 2016, at [http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master\\_20125.pdf](http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master_20125.pdf).)

U.S. Mine Safety and Health Administration, [2014], Mine injury and worktime, quarterly, January–December 2013, Final, closeout edition, 34 p. (Accessed February 4, 2016, at [http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master\\_20135.pdf](http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master_20135.pdf).)

## References Cited

Arkansas Department of Environmental Quality, 2016, Arkansas Department of Environmental Quality facility and permit summary (PDS): Arkansas Department of Environmental Quality. (Accessed February 12, 2016, at <https://www.adeq.state.ar.us/home/pdssql/pds.aspx>.)

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2011		2012		2013	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	532	7,580	384	1,400	W	W
Gemstones, natural	NA	450	NA	388	NA	413
Sand and gravel:						
Construction	7,990 <sup>r</sup>	68,200 <sup>r</sup>	7,980	68,200	6,460	54,400
Industrial	W	W	2,800	211,000	2,130	133,000
Stone:						
Crushed	25,900 <sup>r</sup>	210,000 <sup>r</sup>	24,100	188,000	25,200	197,000
Dimension	15	1,770	10	1,160	10	1,320
Combined values of bauxite, bromine, cement, clays (kaolin), gypsum (crude), lime, silica stone, tripoli, and values indicated by symbol W	XX	495,000 <sup>r</sup>	XX	337,000	XX	303,000
Total	XX	782,000 <sup>r</sup>	XX	808,000	XX	689,000

<sup>1</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; included in "Combined values" data. XX Not applicable.

<sup>2</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>3</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2  
ARKANSAS: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE<sup>1</sup>

Type	2012				2013			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone <sup>2</sup>	38	9,800	\$68,700	\$7.01	36	11,100	\$79,500	\$7.17
Dolomite	1	657	6,060	9.21	1	757	7,180	9.48
Granite	3	4,850	41,500	8.55	3	4,780	39,900	8.34
Sandstone and quartzite <sup>3</sup>	22	7,380	60,600	8.20	20	7,350	61,400	8.36
Slate	1	123	1,030	8.40	1	127	977	7.72
Miscellaneous stone	16	1,270	10,300	8.12	15	1,100	8,410	7.64
Total or average	XX	24,100	188,000	7.81	XX	25,200	197,000	7.83

XX Not applicable.

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

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

TABLE 3  
 ARKANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS BY USE<sup>1</sup>

Use	2012			2013		
	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Construction:</b>						
Coarse aggregate (+1½ inch):						
Riprap and jetty stone	87	\$760	\$8.74	133	\$1,220	\$9.22
Filter stone	68	512	7.53	99	825	8.36
Unspecified coarse aggregate	246	1,410	5.71	166	1,140	6.88
Coarse aggregate, graded:						
Concrete aggregate, coarse	327	2,760	8.45	355	3,010	8.46
Bituminous aggregate, coarse	320	2,810	8.78	W	W	W
Bituminous surface-treatment aggregate	W	W	W	W	W	W
Railroad ballast	1	13	12.93	W	W	W
Unspecified graded coarse aggregate	410	4,070	9.92	319	3,440	10.79
Fine aggregate (-¾ inch):						
Stone sand, concrete	--	--	--	7	32	4.41
Stone sand, bituminous mix or seal	W	W	W	27	256	9.32
Screening, undesignated	127	563	4.43	134	751	5.59
Unspecified fine aggregate	270	2,160	7.98	161	1,350	8.40
Coarse and fine aggregates:						
Graded road base or subbase	1,490	9,040	6.05	1,300	8,940	6.88
Unpaved road surface	75	496	6.62	592	4,340	7.33
Terrazzo and exposed aggregate	1	8	8.24	--	--	--
Crusher run or fill or waste	183	1,370	7.49	163	1,250	7.66
Unspecified coarse and fine aggregates	2,560	14,000	5.45	949	7,040	7.41
Unspecified and other construction materials	8	49	6.18	37	422	11.32
<b>Agricultural:</b>						
Agricultural Limestone	228	974	4.27	27	226	8.25
Poultry grit and mineral food	W	W	W	W	W	W
Unspecified and other agricultural uses	W	W	W	W	W	W
<b>Chemical and metallurgical:</b>						
Cement manufacture	W	W	W	W	W	W
Lime manufacture	W	W	W	W	W	W
<b>Special:</b>						
Asphalt fillers or extenders	W	W	W	W	W	W
Other fillers or extenders	W	W	W	W	W	W
<b>Other miscellaneous uses and specified uses not listed</b>						
Unspecified: <sup>2</sup>						
Reported	7,770	67,100	8.64	10,200	86,300	8.49
Estimated	7,920	66,100	8.35	8,150	61,600	7.55
Total or average	24,100	188,000	7.81	25,200	197,000	7.83

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, except unit value; may not add to totals shown.

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

TABLE 4  
 ARKANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2012, 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
Construction:						
Coarse aggregate (+1½ inch) <sup>2</sup>	374	2,450	W	W	W	W
Coarse aggregate, graded <sup>3</sup>	1,100	9,880	W	W	W	W
Fine aggregate (-¾ inch) <sup>4</sup>	369	2,650	W	W	W	W
Coarse and fine aggregates <sup>5</sup>	3,900	22,500	W	W	W	W
Other construction materials	W	W	W	W	--	--
Agricultural <sup>6</sup>	286	2,310	--	--	--	--
Chemical and metallurgical <sup>7</sup>	W	W	W	W	--	--
Special <sup>8</sup>	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--	--	--
Unspecified: <sup>9</sup>						
Reported	3,500	28,900	4,270	38,300	--	--
Estimated	3,340	27,700	4,570	38,400	--	--
Total	13,600	103,000	W	W	W	W

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>Includes macadam, riprap and jetty stone, filter stone, and unspecified coarse aggregate.

<sup>3</sup>Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and unspecified graded coarse aggregate.

<sup>4</sup>Includes stone sand (bituminous mix or seal), screening (undesigned), and unspecified fine aggregate.

<sup>5</sup>Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, and unspecified coarse and fine aggregates.

<sup>6</sup>Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

<sup>7</sup>Includes cement manufacture and lime manufacture.

<sup>8</sup>Includes asphalt filler or extender, and other fillers or extenders.

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

TABLE 5  
 ARKANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2013, 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
<b>Construction:</b>						
Coarse aggregate (+1½ inch) <sup>2</sup>	344	2,700	W	W	W	W
Coarse aggregate, graded <sup>3</sup>	874	8,190	W	W	W	W
Fine aggregate (-¾ inch) <sup>4</sup>	307	2,350	W	W	W	W
Coarse and fine aggregates <sup>5</sup>	2,600	19,400	W	W	W	W
Other construction materials	W	W	W	W	--	--
Agricultural <sup>6</sup>	W	W	W	W	--	--
Chemical and metallurgical <sup>7</sup>	W	W	W	W	--	--
Special <sup>8</sup>	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--	--	--
<b>Unspecified:<sup>9</sup></b>						
Reported	6,330	50,700	3,840	38,300	--	--
Estimated	3,790	27,900	4,360	37,400	--	--
<b>Total</b>	<b>15,000</b>	<b>119,000</b>	<b>W</b>	<b>W</b>	<b>W</b>	<b>W</b>

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>Includes macadam, riprap and jetty stone, filter stone, and unspecified coarse aggregate.

<sup>3</sup>Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and unspecified graded coarse aggregate.

<sup>4</sup>Includes stone sand (bituminous mix or seal), screening (undesigned), and unspecified fine aggregate.

<sup>5</sup>Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, and unspecified coarse and fine aggregates.

<sup>6</sup>Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

<sup>7</sup>Includes cement manufacture and lime manufacture.

<sup>8</sup>Includes asphalt filler or extender, and other fillers or extenders.

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

TABLE 6  
 ARKANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012,  
 BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	1,370	\$11,300	\$8.25
Asphaltic concrete aggregates and other bituminous mixtures	186	1,690	9.09
Road base and coverings	348	1,930	5.55
Road and other stabilization (lime)	6	36	6.00
Fill	143	657	4.59
Other miscellaneous uses <sup>2</sup>	21	472	22.48
<b>Unspecified:<sup>3</sup></b>			
Reported	2,430	21,700	8.93
Estimated	3,470	30,500	8.79
<b>Total or average</b>	<b>7,980</b>	<b>68,200</b>	<b>8.55</b>

<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 golf course, and snow and ice control.

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

TABLE 7  
 ARKANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013,  
 BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	887	\$7,520	\$8.48
Asphaltic concrete aggregates and other bituminous mixtures	101	675	6.68
Road base and coverings	220	1,110	5.05
Road and other stabilization (lime)	6	36	6.00
Fill	147	771	5.24
Other miscellaneous uses <sup>2</sup>	20	483	24.15
Unspecified: <sup>3</sup>			
Reported	2,660	23,500	8.81
Estimated	2,410	20,400	8.44
Total or average	6,460	54,400	8.43

<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 golf course, and snow and ice control.

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

TABLE 8  
 ARKANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012, 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 aggregate (including concrete sand)	W	W	W	W	382	3,450
Asphaltic concrete aggregates and road base materials <sup>2</sup>	W	W	W	W	115	1,280
Fill	76	408	66	249	--	--
Other miscellaneous uses <sup>3</sup>	7	100	13	372	--	--
Unspecified: <sup>4</sup>						
Reported	922	7,870	1,120	10,500	390	3,310
Estimated	512	4,500	2,440	21,500	518	4,550
Total	1,660	14,100	4,910	41,600	1,410	12,600

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>Includes road and other stabilization (lime).

<sup>3</sup>Includes golf course, and snow and ice control.

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

TABLE 9  
 ARKANSAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013, 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 aggregate (including concrete sand)	W	W	W	W	476	4,260
Asphaltic concrete aggregates and road base materials <sup>2</sup>	W	W	W	W	48	465
Fill	11	40	2	6	133	725
Other miscellaneous uses <sup>3</sup>	3	21	15	421	2	40
Unspecified: <sup>4</sup>						
Reported	948	7,970	1,160	10,900	550	4,580
Estimated	260	1,980	1,490	12,600	669	5,850
Total	1,320	10,900	3,260	27,600	1,880	15,900

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>Includes road and other stabilization (lime).

<sup>3</sup>Includes golf course, and snow and ice control.

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