



2012–2013 Minerals Yearbook

WEST VIRGINIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF WEST VIRGINIA

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

In 2013, the value of the nonfuel mineral production¹ in the State of West Virginia decreased to \$174 million,² 0.23% of the total U.S. nonfuel mineral production, ranking it 37th in the Nation. In 2012, the corresponding value was \$317 million, 0.41% of the U.S. total nonfuel mineral production, again ranking it 37th among the 50 States. In 2013, on a per capita basis, nonfuel mineral production in West Virginia had a value of \$94 compared with the national average of \$238. In 2012, the per capita value was \$169 compared with the national average of \$241.

The value of nonfuel mineral production in West Virginia for the years 2006 through 2013 was as follows (in millions of dollars): \$230 (2006), \$226 (2007), \$234 (2008), \$201 (2009), \$271 (2010), \$326 (2011), \$317 (2012), and \$174² (2013).

In 2013, there were 256 employees in nonfuel mineral mines in West Virginia and 474 in mills and preparation plants. In 2012, the corresponding numbers were 261 in nonfuel mineral mines and 430 in mills and preparation plants (U.S. Mine Safety and Health Administration, 2013, p. 16; 2014, p. 16). In 2013, the average annual wage in West Virginia for all mining was \$83,440 compared with \$39,519 for all industries. In 2012, the corresponding figures were \$83,248 and \$39,255, respectively (National Mining Association, unpub. data, February 4, 2016)

Commodity Review

Industrial Minerals

In 2012–13, crushed stone was the leading nonfuel mineral commodity on the basis of value, though several other mineral commodities were produced in the State (table 1). Most crushed stone consisted of limestone though some sandstone was reported as well (table 2). Sand and gravel was not a major commodity, as it is in most States, because of the State's geology. The West Virginia Department of Transportation (2016) maintained a listing of approved aggregates sources; 19 were crushed stone operations and 2 were silica sand operations. The USGS classifies any sand used for road construction as construction sand and gravel, but industrial sand (with a high silica content) was produced in increasing amounts in West Virginia and had an increasing unit value because of increased demand for sand suitable for hydraulic fracturing use in the oil and gas industry.

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 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>.

²Partial total; excludes values that must be withheld to avoid disclosing company proprietary data.

West Virginia had an established industrial sand industry providing the raw materials for making glass as well as other traditional uses (U.S. Silica, 2016).

Data for several mineral commodities—cement, common clay, lime, and salt—were withheld to avoid disclosing company proprietary data. West Virginia had one cement plant, located in Berkeley County. The plant had undergone renovations in 2010, doubling its annual cement production capacity to 1.6 million metric tons, and a rail line spur was completed in 2012. It was estimated that about 24,000 truck shipments could be taken off the roads, replacing them with 6,000 rail car shipments (Essroc Italcementi Group, 2012). Clay was mined for the cement plant and also for brick making, mainly by companies in Berkeley County. High-calcium quicklime and high-calcium hydrated lime were produced in Pendleton County from locally quarried limestone. Salt, for the chemicals industry, was produced in Marshall County, and a new brine well was being drilled (Junkins, 2013).

Metals

Though metals were not mined in West Virginia, metal processing did take place. Indirectly, the State supported the iron ore industry as an important source of metallurgical (coking) coal, a higher grade than thermal coal. Steel mills operating in West Virginia in 2012–13 used electric arc furnaces, which did not involve the conversion of iron ore to metal but rather used mainly scrap with pig iron or direct reduced iron as raw materials. Ferrosilicon and silicon metal were produced in Fayette County by one of four U.S. ferrosilicon producers, and silicomanganese was produced in Mason County by one of two U.S. producers.

References Cited

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- Junkins, Casey, 2013, Natrium plant is Axiall Corporation: Wetzel Chronicle [New Martinsville, WV], February 6. (Accessed July 13, 2016, <http://www.wetzelchronicle.com/page/content.detail/id/512262/Natrium-Plant-Is-Axiall-Corporation.html>)
- 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)
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- West Virginia Department of Transportation, 2016, Commercial aggregate sources—Effective date August 30, 2010: West Virginia Department of Transportation Web site. (Accessed July 12, 2016, at <http://www.transportation.wv.gov/highways/mcst/Pages/700.03.2comaggsources.aspx>)

TABLE 1
NONFUEL MINERAL PRODUCTION IN WEST VIRGINIA^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2011		2012		2013	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	138	210	W	(3)	W	W
Gemstones, natural	NA	1	NA	1	NA	1
Sand and gravel:						
Construction	534	4,470	578	4,890	487	4,130
Industrial	W	(3)	312	16,000	429	21,900
Stone, crushed	16,400 [†]	171,000 [†]	15,700	152,000	14,800	148,000
Combined values of cement, lime, salt, stone [dimension (2011)], and values indicated by footnote 3	XX	150,000	XX	144,000	XX	W
Total	XX	326,000 [†]	XX	317,000	XX	174,000

[†]Revised. 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.

³Withheld to avoid disclosing company proprietary data; included in "Combined values" data.

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

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 ²	24	14,300	\$136,000	\$9.54	24	14,000	\$137,000	\$9.80
Sandstone and quartzite ³	8	1,370	16,000	11.70	7	818	10,700	13.09
Total or average	XX	15,700	152,000	9.73	XX	14,800	148,000	9.98

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
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS, BY USE¹

Use	2012			2013		
	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:						
Coarse aggregate (+1½ inch):						
Macadam	154	\$1,950	\$12.68	W	W	W
Riprap and jetty stone	139	2,150	15.47	136	\$2,180	\$16.03
Filter stone	W	W	W	W	W	W
Unspecified coarse aggregate	W	W	W	W	W	W
Coarse aggregate, graded:						
Concrete aggregate, coarse	117	1,270	10.84	W	W	W
Bituminous aggregate, coarse	W	W	W	739	9,080	12.29
Bituminous surface-treatment aggregate	W	W	W	43	554	12.98
Railroad ballast	15	204	13.57	13	154	12.13
Unspecified graded coarse aggregate	W	W	W	337	3,320	9.83
Fine aggregate (-¾ inch):						
Stone sand, concrete	W	W	W	W	W	W
Stone sand, bituminous mix or seal	W	W	W	260	2,710	10.41
Screening, undesignated	W	W	W	152	1,910	12.57
Unspecified fine aggregate	145	1,770	12.21	182	1,740	9.55
Coarse and fine aggregates:						
Graded road base or subbase	346	3,620	10.46	558	5,590	10.03
Unpaved road surface	W	W	W	W	W	W
Crusher run or fill or waste	W	W	W	701	11,100	15.76
Unspecified coarse and fine aggregates	W	W	W	W	W	W
Unspecified and other construction materials	1	7	6.76	382	6,290	16.47
Agricultural:						
Agricultural Limestone	W	W	W	10	120	12.56
Chemical and metallurgical:						
Cement manufacture	W	W	W	W	W	W
Other miscellaneous uses and specified uses not listed						
Unspecified: ²						
Reported	10,900	110,000	10.10	6,270	64,800	10.33
Estimated	348	3,220	9.24	2,390	23,100	9.67
Total or average	15,700	152,000	9.73	14,800	148,000	9.98

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

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

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

TABLE 4
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2012, 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	44	631	W	W	W	W
Coarse aggregate, graded ³	89	1,120	W	W	W	W
Fine aggregate (-¾ inch) ⁴	53	585	W	W	W	W
Coarse and fine aggregates ⁵	85	907	W	W	W	W
Other construction materials	--	--	--	--	1	7
Agricultural ⁶	--	--	W	W	--	--
Chemical and metallurgical ⁷	--	--	W	W	--	--
Special	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--	--	--
Unspecified: ⁸						
Reported	4,800	52,100	3,410	30,200	2,700	27,900
Estimated	214	1,900	103	1,040	30	271
Total	5,290	57,300	5,590	42,300	4,780	52,700

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 unspecified coarse aggregate.

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

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

⁵Includes graded road base or subbase, unpaved road surface, crusher run, and unspecified coarse and fine aggregates.

⁶Includes agricultural limestone.

⁷Includes cement manufacture.

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

TABLE 5
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2013, 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	93	1,410	W	W	W	W
Coarse aggregate, graded ³	450	5,760	W	W	W	W
Fine aggregate (-¾ inch) ⁴	240	2,680	W	W	W	W
Coarse and fine aggregates ⁵	720	10,500	W	W	W	W
Other construction materials	W	W	--	--	W	W
Agricultural ⁶	W	W	--	--	W	W
Chemical and metallurgical ⁷	--	--	W	W	W	W
Special	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed ⁸	W	W	--	--	W	W
Unspecified: ⁹						
Reported	3,030	29,900	1,660	16,400	1,580	18,600
Estimated	173	1,680	1,060	10,100	1,160	11,300
Total	5,100	58,300	5,050	37,300	4,660	52,100

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 unspecified coarse aggregate.

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

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

⁵Includes graded road base or subbase, unpaved road surface, crusher run, and unspecified coarse and fine aggregates.

⁶Includes agricultural limestone.

⁷Includes cement manufacture.

⁸Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

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

TABLE 6
WEST VIRGINIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	W	W	W
Concrete products (blocks, bricks, pipe, decorative, and so forth)	W	W	W
Fill	W	W	W
Unspecified: ²			
Reported	83	\$708	\$8.53
Estimated	206	1,740	8.45
Total or average	578	4,890	8.45

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 7
WEST VIRGINIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	W	W	W
Concrete products (blocks, bricks, pipe, decorative, and so forth)	W	W	W
Fill	W	W	W
Unspecified: ²			
Reported	83	\$708	\$8.53
Estimated	109	925	8.49
Total or average	487	4,130	8.47

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.