



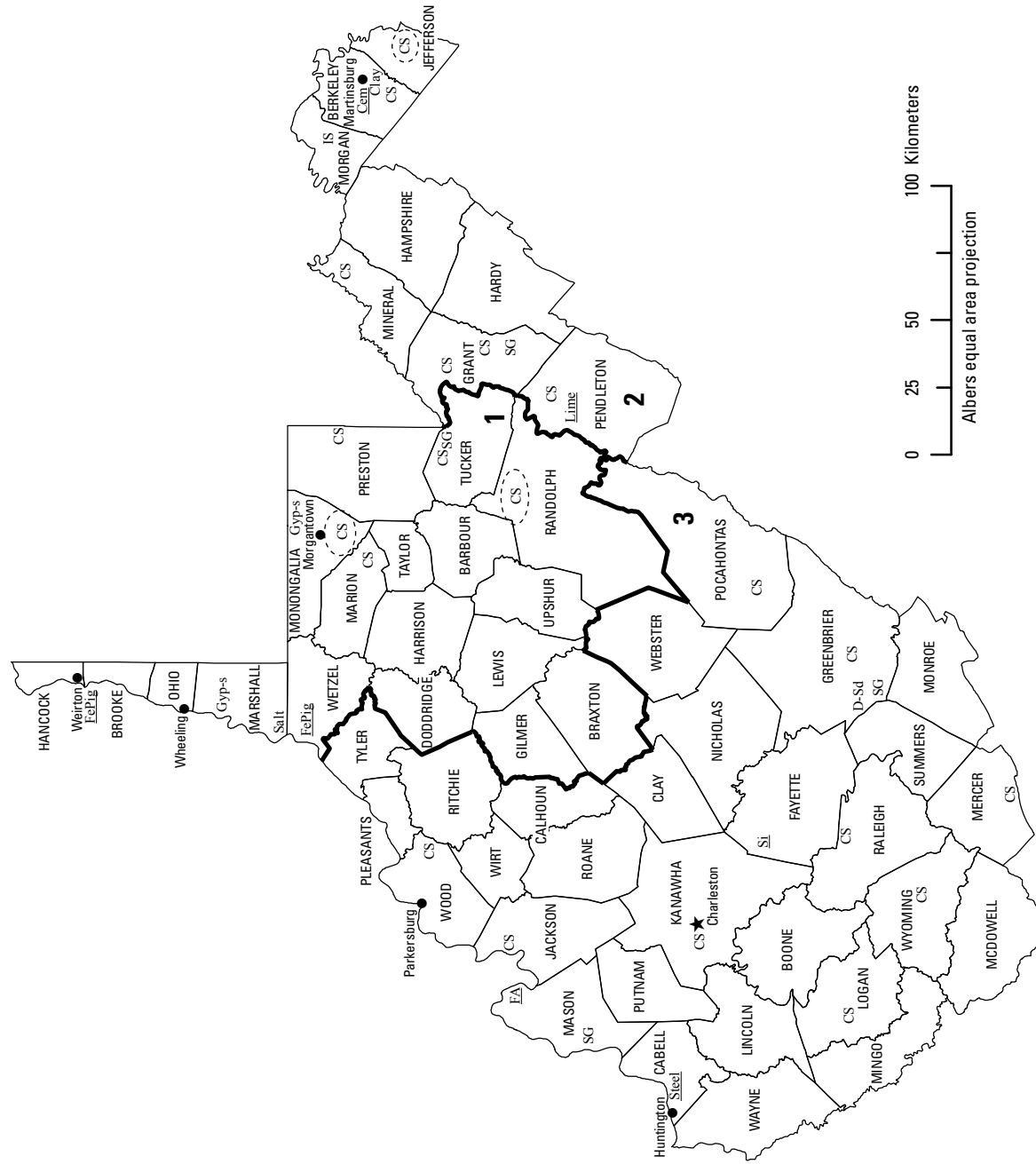
# 2010–2011 Minerals Yearbook

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**WEST VIRGINIA [ADVANCE RELEASE]**

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# WEST VIRGINIA

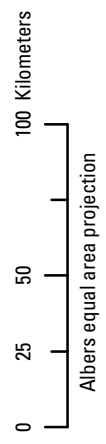


## LEGEND

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

## MINERAL SYMBOLS (Principal producing areas)

- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- D-Sd Dimension sandstone
- FA Ferroalloy plant
- FePig Iron oxide pigment plant
- Gyp-s Synthetic gypsum
- IS Industrial sand
- Lime Lime plant
- Salt Salt
- SG Construction sand and gravel
- Sj Silicon metal plant
- Steel Steel plant
- Concentration of mineral operations



# 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 2011, West Virginia's nonfuel mineral production<sup>1</sup> was valued at \$324 million, based upon annual U.S. Geological Survey (USGS) data. This was a 20% increase from the State's total nonfuel mineral production value of \$272 million in 2010, which followed a 35% increase from \$201 million in 2009. The State also rose in rank among the 50 States from 40th in 2009, to 37th in 2010 and 35th in 2011 in total nonfuel mineral production value, and accounted for less than one-half of 1% of the total U.S. value in 2010 and 2011. On a per capita basis, the State ranked 22nd in the Nation in nonfuel mineral production in 2011 with a value of \$175; the national average was \$240.

Crushed stone continued to be West Virginia's leading nonfuel mineral commodity by value in 2010 and 2011, accounting for approximately 52% of the total nonfuel mineral production value in each year, followed by portland cement, lime, and industrial sand and gravel. These four commodities combined accounted for 96% of the State's nonfuel production value in 2010 and again in 2011. Common clay, construction sand and gravel, dimension stone, gemstones, masonry cement, salt, and masonry cement composed the remainder of the total, with masonry cement leading in production value in 2010 and in 2011.

The increase in West Virginia's total nonfuel mineral value compared to that of other States was led by increases in production quantity and production value of crushed stone in 2010 and 2011. Compared to 2009, the quantity in 2011 increased by 3.9 million metric tons (Mt) (32%) to a total of 16.2 Mt, easily surpassing the 15.2 Mt produced in 2008 that was valued at \$127 million, and the previous high point in

2001 of 15.3 Mt. The production value was also at a record high, after a 26% increase in 2010 and 20% increase in 2011, reaching \$169 million. Portland cement was also a significant contributor to the State's rising rank, as production quantity and value increased in both years. The year-on-year increases in production value were 90% in 2010 and 40% in 2011 with quantity increasing in similar proportions as well (values withheld—company proprietary data).

Among other nonfuel minerals, in descending order, salt, construction sand and gravel, masonry cement, and common clay contributed to the increase in the States total nonfuel mineral production value in 2011. Construction sand and gravel production quantity and production value both increased by about 20%; salt had a large increase in production value without a large increase in production quantity (actual values withheld—company proprietary data). Industrial sand was the only mineral commodity to decrease significantly in production value in 2011, by about 25%. In 2010, other than portland cement and crushed stone, the mineral commodities that contributed to the increase in the State's total nonfuel mineral production value, in descending order, were lime, industrial sand and gravel, and construction sand and gravel. Industrial sand was the only mineral commodity that decreased in production value in 2011 relative to 2009. Common clay had an increase in number of producers that allowed production quantity and production value to be published beginning in 2010 (table 1).

In 2011, West Virginia ranked 16th in the Nation for the production quantity of portland cement, up from 21st in 2010. The State rose in rank slightly to 23d in crushed stone from 26th in 2010, and remained 9th in salt production out of 16 producing States. Steel was produced in the State, as well, but was processed from materials acquired from foreign and other domestic sources. In 2010, West Virginia did not produce any primary aluminum; Century Aluminum Co. idled its Ravenswood Plant in early 2009. Globe Metallurgical Inc., at a plant southeast of Charleston in Fayette County, produced ferrosilicon and silicon metal. Felman Production LLC's plant in Letart, Mason County, produced ferrosilicomanganese, a ferroalloy.

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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 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>.

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN WEST VIRGINIA<sup>1,2</sup>  
(Thousand metric tons and thousand dollars)

Mineral	2009			2010			2011		
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
Clays, common	W		138	199	138		138	210	
Gemstones, natural	NA		NA	1	NA		NA	1	
Sand and gravel:									
Construction	410	3,480	448	3,740	534	4,470	534	4,470	
Industrial	241	14,700	277	17,300	W	W	W	W	
Stone, crushed	12,300 <sup>r</sup>	112,000 <sup>r</sup>	14,500	141,000	16,200	169,000	16,200	169,000	
Combined values of cement, lime, salt, stone (dimension sandstone), and values indicated by symbol W	XX	71,600	XX	108,000	XX	150,000	XX	150,000	
Total	XX	201,000 <sup>r</sup>	XX	271,000	XX	324,000	XX	324,000	

<sup>1</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values 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  
WEST VIRGINIA: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE<sup>1</sup>

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 <sup>2</sup>	27	11,400	\$101,000 <sup>r</sup>	\$8.86	25	13,400	\$129,000	\$9.57	24	15,200	\$157,000	\$10.32
Sandstone and quartzite <sup>3</sup>	9 <sup>r</sup>	911 <sup>r</sup>	10,300 <sup>r</sup>	11.30	7	1,070	12,400	11.56	7	1,010	12,200	12.10
Miscellaneous stone	3	36	321	8.92	--	--	--	--	--	--	--	--
Total or average	XX	12,300 <sup>r</sup>	112,000 <sup>r</sup>	9.10	XX	14,500	141,000	9.72	XX	16,200	169,000	10.43

<sup>1</sup>Revised. XX Not applicable. -- Zero

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

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

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

TABLE 3  
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS  
IN 2010, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
<b>Construction:</b>		
<b>Coarse aggregate (+1½ inch):</b>		
Macadam	W	W
Riprap and jetty stone	148	2,430
Filter stone	W	W
Other coarse aggregate	W	W
<b>Coarse aggregate, graded:</b>		
Concrete aggregate, coarse	220	2,450
Bituminous aggregate, coarse	2,010	20,000
Bituminous surface-treatment aggregate	W	W
Railroad ballast	W	W
Other graded coarse aggregate	W	W
<b>Fine aggregate (-¾ inch):</b>		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	536	4,940
Screening, undesignated	187	2,240
Other fine aggregate	W	W
<b>Coarse and fine aggregates:</b>		
Graded road base or subbase	843	9,140
Unpaved road surface	W	W
Crusher run or fill or waste	822	7,540
Other coarse and fine aggregates	W	W
Other construction materials	W	W
Agricultural, agricultural limestone	W	W
Chemical and metallurgical, cement manufacture	W	W
<b>Unspecified:<sup>2</sup></b>		
Reported	4,490	44,800
Estimated	2,880	27,200
<b>Total</b>	<b>14,500</b>	<b>141,000</b>

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

<sup>1</sup>Data are rounded to no more than three significant digits.

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

TABLE 4  
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS  
IN 2011, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
<b>Construction:</b>		
<b>Coarse aggregate (+1½ inch):</b>		
Macadam	W	W
Riprap and jetty stone	158	2,650
Filter stone	W	W
Unspecified coarse aggregate	W	W
<b>Coarse aggregate, graded:</b>		
Concrete aggregate, coarse	217	2,920
Bituminous aggregate, coarse	620	7,590
Bituminous surface-treatment aggregate	W	W
Unspecified graded coarse aggregate	W	W
<b>Fine aggregate (-¾ inch):</b>		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	322	3,250
Screening, undesignated	227	2,690
Unspecified fine aggregate	W	W
<b>Coarse and fine aggregates:</b>		
Graded road base or subbase	862	8,930
Unpaved road surface	W	W
Crusher run or fill or waste	783	12,100
Unspecified coarse and fine aggregates	W	W
Unspecified and other construction materials	W	W
Agricultural, agricultural limestone	W	W
Chemical and metallurgical, cement manufacture	W	W
Other miscellaneous uses and specified uses not listed	(3)	1
<b>Unspecified:<sup>2</sup></b>		
Reported	7,150	76,000
Estimated	2,940	30,100
<b>Total</b>	<b>16,200</b>	<b>169,000</b>

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

<sup>1</sup>Data are rounded to no more than three significant digits.

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

<sup>3</sup>Less than ½ unit.

TABLE 5  
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2010, 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>	W	W	W	W	W	W
Coarse aggregate, graded <sup>3</sup>	W	W	W	W	W	W
Fine aggregate (-¾ inch) <sup>4</sup>	W	W	W	W	W	W
Coarse and fine aggregates <sup>5</sup>	W	W	816	\$6,680	W	W
Other construction materials	W	W	--	--	W	W
Agricultural <sup>6</sup>	W	W	--	--	--	--
Chemical and metallurgical <sup>7</sup>	--	--	W	W	--	--
Unspecified: <sup>8</sup>						
Reported	3,660	\$35,700	199	2,160	627	\$7,010
Estimated	282	2,730	1,090	9,880	1,510	14,600
Total <sup>9</sup>	5,560	57,400	5,280	42,700	3,860	41,300

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 other coarse aggregates.

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

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

<sup>5</sup>Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other 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, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

<sup>8</sup>Reported and estimated production without a breakdown by end use.

<sup>9</sup>District 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  
WEST VIRGINIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2011, 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>	W	W	W	W	W	W
Coarse aggregate, graded <sup>3</sup>	W	W	W	W	W	W
Fine aggregate (-¾ inch) <sup>4</sup>	W	W	W	W	W	W
Coarse and fine aggregates <sup>5</sup>	W	W	W	W	W	W
Other construction materials	W	W	W	W	W	W
Agricultural <sup>6</sup>	W	W	W	W	W	W
Chemical and metallurgical <sup>7</sup>	--	--	W	W	--	--
Unspecified: <sup>8</sup>						
Reported	3,540	37,200	2,760	29,000	857	9,740
Estimated	471	4,510	1,010	10,400	1,460	15,200
Total	6,000	70,400	6,010	51,500	4,180	47,100

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.

<sup>2</sup>Includes macadam, riprap and jetty stone, filter stone, and other coarse aggregates.

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

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

<sup>5</sup>Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and other 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, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

<sup>8</sup>Reported and estimated production without a breakdown by end use.

TABLE 7  
WEST VIRGINIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2010,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	W	W	W
Concrete products (blocks, bricks, pipe, decorative, etc.)	W	W	W
Fill	W	W	W
Unspecified: <sup>2</sup>			
Reported	W	W	W
Estimated	165	\$1,380	\$8.35
Total or average	448	3,740	8.34

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

<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>Estimated production without a breakdown by end use.

TABLE 8  
WEST VIRGINIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2011,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	W	W	W
Concrete products (blocks, bricks, pipe, decorative, etc.)	W	W	W
Fill	W	W	W
Unspecified: <sup>2</sup>			
Reported	52	\$450	\$8.65
Estimated	191	1,600	8.38
Total or average	534	4,470	8.37

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

<sup>1</sup>Data are rounded to no more than three significant digits.

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