

# THE MINERAL INDUSTRY OF INDIANA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the Geological Survey, Indiana Department of Natural Resources, for collecting information on all nonfuel minerals.

Indiana ranked 23d among the 50 States in total nonfuel mineral production value<sup>1</sup> in 1995, dropping from 21st in 1994, according to the U.S. Geological Survey (USGS). The estimated value for 1995 was \$574 million, a 3% increase compared with that of 1994 (based on final 1994 data). This followed a 17.5% increase from 1993 to 1994. Indiana's nonfuel mineral production value exceeded one-half billion dollars in 1995, the State having first reached this milestone in 1994. Compared with 1994, the values of all nonfuel mineral commodities produced in the State (see table 1) increased except for those of dimension stone and peat. Both of these experienced moderate decreases. The State accounted for about 1.5% of the U.S. total nonfuel mineral production value.

Compared with USGS estimates of quantities produced in the other 49 States during 1995, Indiana remained 2d in dimension stone, 7th in gypsum, and 10th in construction sand and gravel. The State climbed from 3d to 2d in the production of masonry cement; from 14th to 10th in common clay production; and was 9th in the production of peat. While not ranking among the top 10 States, Indiana mines, nonetheless, produced significant quantities of crushed stone. Similarly, manufacturing plants within the

State were significant producers of portland cement and lime. In 1995, Indiana remained 11th in the production of portland cement and lime and 12th in crushed stone. The State's mines exclusively produce industrial minerals and coal; all raw steel and primary aluminum produced are processed from materials received from other domestic and foreign sources. Indiana continued to lead the Nation in the production of raw steel with an estimated output of close to 21 million metric tons (23 million short tons), as reported by the American Iron and Steel Institute. Of similar importance, the State remained third in the production of primary aluminum.

The remainder of this narrative was derived from information provided by the Indiana Geological Survey. Indiana's aggregate mineral industry, composed of crushed stone and construction sand and gravel producers, continued to show significant activity in 1995. Late in 1994, the Kentucky Stone Co. acquired France Stone Co.'s Greencastle ground limestone plant and Putnamville Stone Quarry through a Hanson PLC intercompany transfer. Both the quarry and the Greencastle plant for which Putnamville provides stone are located in Putnam County. Aggrock Quarries Inc. opened a quarry at ESSROC

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN INDIANA<sup>1 2</sup>

Mineral	1993		1994		1995 <sup>p</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Cement (portland) metric tons	2,060,000	\$109,000	2,290,000	\$132,000	2,300,000	\$133,000
Clays thousand metric tons	<sup>3</sup> 600	<sup>3</sup> 2,540	<sup>3</sup> 774	<sup>3</sup> 2,540	1,090	6,930
Gemstones	NA	47	NA	29	NA	36
Peat metric tons	24,000	W	23,000	W	W	W
Sand and gravel (construction) thousand metric tons	<sup>o</sup> 27,000	<sup>o</sup> 103,000	28,100	108,000	27,900	109,000
Stone:						
Crushed do.	36,900	166,000	45,900	211,000	48,800	232,000
Dimension metric tons	<sup>4</sup> 156,000	<sup>4</sup> 22,900	173,000	25,800	168,000	18,600
Combined value of cement (masonry), clays [ball (1993-94)], gypsum (crude), lime, sand and gravel (industrial), stone [dimension sandstone (1993)], and values indicated by symbol W	XX	70,400	XX	75,400	XX	74,500
Total	XX	473,000	XX	555,000	XX	574,000

<sup>o</sup>Estimated. <sup>p</sup>Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

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

<sup>2</sup>Data are rounded to three significant digits; may not add to totals shown.

<sup>3</sup>Excludes certain clays; kind and value included with "Combined value" figure.

<sup>4</sup>Excludes certain stones; kind and value included with "Combined value" figure.

Materials, Inc.'s property near Speed, Clark County, utilizing stone not needed for ESSROC's cement manufacture. Sellersburg Stone Co., Inc., expanded its quarry operation while Liters Quarry of Indiana Inc. completed construction of a new stone processing plant both in Clark County. Erie Stone Co., a division of Irving Materials Inc., closed its Markle crushed stone quarry in Huntington County; the quarry had been in operation since 1968. Mulzer Crushed Stone Co., Inc., made plans for a 1996 opening of a new crushed stone operation near Paoli, Orange County. A town meeting was held in Carp, Owen County, to discuss the proposed development of a crushed stone quarry by Rogers Group Inc.

In the sand and gravel industries, Vulcan Materials Co. sold its Fremont and Angola plants in Steuben County and its Kimmel operation in Noble County to Merritt Sand and Gravel, Inc. Vulcan also purchased the Barker Pit in Boone County and the Harner and Daugherty Pits in Tippecanoe County from Fairfield Builders Supply Corp. Elkhart County Gravel Corp. opened a new pit near Middlebury, Elkhart County, and Rogers Group made two acquisitions: Martinsville Sand and Gravel Co., Inc., in Morgan County and Wabash Gravel Co., Inc., in Warren County. U.S. Silica Co. sold its industrial sand plant near Elizabeth, Harrison County, to White Sands Mining Co., a division of The Sand Trap, Inc.

In other aggregate-related news, the Indiana Department of Transportation (INDOT) mandated that, as of September 1, 1997, all aggregate companies selling materials to INDOT projects will be required to participate in the State-administered Certified Aggregate Producers Program (CAPP). To be on INDOT's vendors list at least one person in the company must be certified by CAPP or be participating in the certification process. The program, initiated by INDOT, was developed and is administered by a committee, or Board, of professionals that includes representatives from INDOT, the aggregate industry, Academia, and other government agencies. The foremost purpose of CAPP is to promote quality control in construction projects within the State. Following a week-long quality control and material specification course, the person to be certified is given additional periodic instruction and testing. Full certification is usually achieved in under a year and is good for 3 years, after which a recertification test must be taken. Concerning environmental issues, the Indiana Mineral Aggregates

Association in cooperation with the Indiana Department of Environmental Management was in the process of completing an environmental compliance manual for the aggregates industry.

Dimension limestone producers experienced a relatively active year; prices for dimension stone increased in the latter part of the year. During the year, B. G. Hoadley Quarries Inc. continued to expand, opening another dimension limestone quarry in Monroe County.

United States Gypsum Corp. (USG) offered a "land for mining rights" swap to the U.S. Forest Service. USG acquired five southern Indiana tracts of land totaling 285 hectares (703 acres) that the Forest Service had been unable to purchase owing to insufficient funds. In exchange, USG requested the rights to develop an underground gypsum mine under 470 hectares (1,162 acres) of the Hoosier National Forest, this land bordering its current operation near Shoals, Martin County. The land above the gypsum reserves would remain part of the forest. Little disturbance to the forest's surface was anticipated because the mining would take place 120 to 150 meters (400 to 500 feet) underground and would be accessed underground from USG's adjacent mining operation. The plan remained under discussion but had reportedly received considerable public support.

The Indiana Geological Survey (IGS) completed its mineral resource assessment of Putnam County. While the assessment includes all mineral resources, the county's limestone rock resources were the main target of the study. Additionally, IGS, in cooperation with Indianapolis Power and Light Co., an Indiana electric utility company, received a grant from the Indiana Department of Commerce for a Statewide study of limestones most suitable for use in flue gas desulfurization scrubber systems. During the year, IGS updated its *Directory of Industrial Minerals Producers in Indiana*.

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<sup>1</sup>The terminologies "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or 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 1995 USGS mineral production data published in this chapter are estimated as of Dec. 1995. Estimates for some commodities, e.g., construction sand and gravel, crushed stone, and portland cement, are periodically updated. To obtain the most recent information, please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine and request Document No. 1000 for a telephone listing of all mineral commodity specialists or call USGS information at (703) 648-4000 for the specialist's name and number.

TABLE 2  
**INDIANA: CRUSHED STONE<sup>1</sup> SOLD OR USED BY PRODUCERS IN 1994, BY USE<sup>2</sup>**

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+1 1/2 inch):</b>			
Macadam	59	\$216	\$3.66
Riprap and jetty stone	1,050	4,630	4.40
Filter stone	294	1,330	4.53
Other coarse aggregate	280	1,470	5.26
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	4,920	19,000	3.86
Bituminous aggregate, coarse	3,280	13,800	4.21
Bituminous surface-treatment aggregate	1,520	5,850	3.84
Railroad ballast	387	1,650	4.26
Other graded coarse aggregate	W	W	4.16
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	199	845	4.25
Stone sand, bituminous mix or seal	198	754	3.81
Screening, undesignated	147	575	3.91
Other fine aggregate	W	W	4.13
<b>Coarse and fine aggregates:</b>			
Graded road base or subbase	4,200	20,000	4.75
Unpaved road surfacing	2,830	12,500	4.43
Terrazzo and exposed aggregate	(°)	4	22.10
Crusher run or fill or waste	743	3,240	4.36
Other coarse and fine aggregates	1,350	6,670	4.94
Other construction materials	389	1,450	3.73
Agricultural: Agricultural limestone <sup>4</sup>	1,410	6,010	4.25
<b>Chemical and metallurgical:</b>			
Cement manufacture	3,510	6,110	1.74
Flux stone	(°)	(°)	9.54
Sulfur oxide removal	302	1,010	3.35
Special: Asphalt fillers or extenders	(°)	(°)	7.82
<b>Unspecified:<sup>6</sup></b>			
Actual	15,700	88,000	5.61
Estimated	2,900	14,400	4.95
<b>Total</b>	<b>45,900</b>	<b>211,000</b>	<b>4.61</b>

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

<sup>1</sup>Includes dolomite, limestone, and limestone-dolomite.

<sup>2</sup>Data are rounded to three significant digits; may not add to totals shown.

<sup>3</sup>Less than 1/2 unit.

<sup>4</sup>Includes poultry grit and mineral food, and other agricultural uses.

<sup>5</sup>Withheld to avoid disclosing company proprietary data; included with "Total."

<sup>6</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3  
**INDIANA: CRUSHED STONE SOLD OR USED, BY KIND<sup>1</sup>**

Kind	1993				1994			
	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>	72	'32,400	'\$146,000	'\$4.49	71	40,000	\$183,000	\$4.58
Dolomite	'10	'4,540	'20,600	'4.54	13	5,840	28,000	4.79
<b>Total</b>	<b>XX</b>	<b>36,900</b>	<b>166,000</b>	<b>4.50</b>	<b>XX</b>	<b>45,900</b>	<b>211,000</b>	<b>4.61</b>

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

<sup>2</sup>Data are rounded to three significant digits; may not add to totals shown.

<sup>3</sup>Includes "Limestone-dolomite," reported with no distinction between the two.

TABLE 4  
**INDIANA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1994, 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 aggregates:</b>						
Coarse aggregate (+1 1/2 inch) <sup>2</sup>	575	3,050	W	W	W	W
Coarse aggregate, graded <sup>3</sup>	2,330	10,500	680	3,840	7,140	26,100
Fine aggregate (-3/8 inch) <sup>4</sup>	278	1,190	W	W	W	W
Coarse and fine aggregate <sup>5</sup>	4,710	19,300	1,790	9,640	2,620	13,500
Other construction materials	—	—	504	2,530	1,230	4,380
Agricultural <sup>6</sup>	619	2,840	142	777	653	2,390
Chemical and metallurgical <sup>7</sup>	( <sup>8</sup> )	( <sup>8</sup> )	( <sup>8</sup> )	( <sup>8</sup> )	2,450	5,560
Special <sup>9</sup>	( <sup>8</sup> )	( <sup>8</sup> )	( <sup>8</sup> )	( <sup>8</sup> )	—	—
<b>Unspecified:<sup>10</sup></b>						
Actual	3,120	15,000	6,660	42,900	5,910	30,100
Estimated	1,760	8,960	494	2,370	651	3,040
<b>Total</b>	<b>14,000</b>	<b>62,400</b>	<b>11,200</b>	<b>63,600</b>	<b>20,600</b>	<b>85,100</b>

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

<sup>1</sup>Data are rounded to three significant digits; may not add to totals shown.

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

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

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

<sup>5</sup>Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material or fill), 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, flux stone, and sulfur oxide removal.

<sup>8</sup>Withheld to avoid disclosing company proprietary data; included with "Total."

<sup>9</sup>Includes asphalt fillers or extenders.

<sup>10</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5  
**INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY MAJOR USE CATEGORY<sup>1</sup>**

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	7,340	\$27,500	\$3.75
Plaster and gunite sands	71	346	4.87
Concrete products (blocks, bricks, pipe, decorative, etc.)	254	1,050	4.13
Asphaltic concrete aggregates and other bituminous mixtures	2,210	8,900	4.02
Road base and coverings <sup>2</sup>	1,100	4,980	4.52
Fill	2,270	7,020	3.10
Snow and ice control	238	801	3.37
Filtration	34	250	7.35
Other <sup>3</sup>	82	452	5.51
<b>Unspecified:<sup>4</sup></b>			
Actual	11,900	46,900	3.96
Estimated	2,640	9,700	3.67
<b>Total or average</b>	<b>28,100</b>	<b>108,000</b>	<b>3.84</b>

<sup>1</sup>Data are rounded to three significant digits; may not add to totals shown.

<sup>2</sup>Includes road and other stabilization (cement and lime).

<sup>3</sup>Includes railroad ballast and roofing granules.

<sup>4</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6  
**INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, 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 and concrete products <sup>2</sup>	2,120	7,040	3,090	15,400	2,460	6,430
Asphaltic/bituminous mixtures	1,060	3,630	716	3,940	439	1,330
Road base and coverings <sup>3</sup>	508	2,230	510	2,280	83	463
Fill	515	1,380	1,330	4,740	419	900
Other miscellaneous uses <sup>4</sup>	239	1,040	95	385	18	82
Unspecified <sup>5</sup>						
Actual	830	2,970	7,950	32,400	3,080	11,500
Estimated	1,220	4,860	703	2,530	716	2,310
Total	6,490	23,200	14,400	61,700	7,210	23,100

<sup>1</sup>Data are rounded to three significant digits; may not add to totals shown.

<sup>2</sup>Includes plaster and gunite sands.

<sup>3</sup>Includes road and other stabilization (cement and lime).

<sup>4</sup>Includes filtration, railroad ballast, roofing granules, and snow and ice control.

<sup>5</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.