

THE MINERAL INDUSTRY OF IOWA

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

In 1997, for the third consecutive year, Iowa was 29th among the 50 States in total nonfuel mineral production value,¹ according to the U.S. Geological Survey (USGS). The estimated value for 1997 was \$493 million, about a 5% increase from that of 1996. This followed a 3.1% increase from 1995 to 1996 (based on final 1996 data). The State accounted for more than 1% of the U.S. total nonfuel mineral production value.

Crushed stone remained the leading commodity, accounting for more than 44% of the State's total nonfuel mineral value, followed by portland cement with nearly 40% and construction sand and gravel with almost 11%. Most of Iowa's increased nonfuel mineral production value in 1997 resulted from the increases in crushed stone and portland cement (*table 1*). Most of the State's other nonfuel minerals increased in value except construction sand and gravel and common clays, which showed small drops. Industrial sand and gravel remained the same. In 1996, the increased value of portland cement, mitigated by drops in crushed stone and construction sand and gravel, accounted for most of the State's \$14 million increase.

Compared with USGS estimates of quantities produced in the other 49 States, Iowa remained 2d in crude gypsum and 10th in portland cement. Additionally, the State was a significant producer of crushed stone and construction sand and gravel. No metals were mined in Iowa; all of the State's metal production, such as raw steel, resulted from the processing of materials acquired from other domestic and foreign sources.

The following narrative information was provided by the Geological Survey Bureau² (GSB) of the Iowa Department of Natural Resources (IDNR). In 1997, Iowa recorded 239 licensed mineral producers operating 1,075 registered mineral production sites in a total of 97 counties. Of the 239 licensed producers, 9 had regional offices based outside of Iowa and 31 were Iowa county governments.

The 31 licensed county governments operated a total of 115 registered sites. Of the county-operated sites, 14 produced

crushed stone, 100 produced sand and gravel, and 1 produced both crushed stone and sand and gravel. Six counties operated crushed stone quarries, and Fayette County, with nine registered sites, operated the greatest number of county licensed quarries. The other 26 county governments operated sand and gravel pits, and Kossuth County, with 12 registered sites, operated the greatest number of county licensed sand and gravel pits.

The greatest number of registered sites and the widest production distribution in any product class was in sand and gravel. Sand and gravel was produced in 88 counties from a total of 598 registered sites. Western Iowa, with its deeply buried bedrock, hosted the top 10 counties in terms of the number of sand and gravel sites. These top 10 western counties had 186 active sand and gravel pits representing slightly more than 30% of the total number of active sand and gravel pits statewide. Sac County, with 25 registered sand and gravel pits, had the greatest number of sand and gravel production sites of all the counties statewide. Hallett Materials Co. operated the greatest number of sand and gravel sites with a total of 54 sites spread across 22 counties.

Crushed stone (mined exclusively from sedimentary limestone or dolostone strata) was produced from 467 registered sites distributed across 66 counties. Of these 467 crushed stone sites, 8 were underground mine operations. Northeastern Iowa, with its readily accessible shallow bedrock, hosted 9 of the top 10 counties in terms of the number of crushed stone sites. These top 9 northeastern counties had 244 active quarries representing 52% of the total number of active crushed stone production sites statewide. Winneshiek County, with 40 registered quarries, had the greatest number of crushed stone sites of all counties statewide. Wendling Quarries, Inc. operated the greatest number of quarries with a total of 63 sites spread across 10 counties, while Martin Marietta Materials Inc. operated the greatest number of underground mines with 3 mines in 3 separate counties (Story, Webster, and Poweshiek Counties). Martin Marietta Aggregates of Southeast Iowa, Inc., a new licensee in 1997, assumed operational control over one underground limestone mine, the Durham Mine in Marion County, with its acquisition of production sites that had formerly been licensed to Kaser Corp. of Des Moines. One new underground limestone mine, the Atlantic Mine, was started in Cass County by Schildberg Construction Co., Inc. of Greenfield, IA. The mine will operate a 5-meter face, room and pillar style, in the Bethany Falls Limestone. This will be the first underground mine in the state to operate in the Pennsylvanian age limestones of southwest Iowa.

Crude gypsum was produced in 3 counties by 5 companies operating at a total of 13 sites. The United States Gypsum Co., having the largest number of production sites, operated 6 of these 13 sites, with 5 quarries in Webster County and 1 underground mine in Des Moines County. Webster County remained the

¹The terms "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 1997 USGS mineral production data published in this chapter are estimates as of January 1998. For some commodities (for example, construction sand and gravel, crushed stone, and portland cement), estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset, and request Document # 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. This telephone listing may also be retrieved over the Internet at <http://minerals.er.usgs.gov/minerals/contacts/comdir.html>. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved by way of MINES FaxBack or over the Internet at <http://minerals.er.usgs.gov/minerals/>.

²Robert McKay, Research Geologist, authored the text of minerals information provided by the Geological Survey Bureau of Iowa.

leader in terms of the number of gypsum operations, with 11 quarries operated by 4 different companies. Georgia Pacific Corp., a longtime producer of gypsum rock in Webster County, discontinued mining operations at its Elkhorn Township Quarry because of inadequate reserves. The company also ceased buying gypsum rock from a 1996 local startup supplier, Don Grell, Co., owing to poor rock quality and insufficient supply. Georgia Pacific is currently supplying its board plant with gypsum rock from National Gypsum Co.'s Kaufmann-George Quarry in the northern part of the district.

Clay was produced at 13 sites in 6 counties by 7 different companies. Clay used in the manufacture of portland cement was

mined at eight pits in Cerro Gordo and Scott Counties, and clay used for other clay products (primarily brick) was taken from four pits in Dallas, Woodbury, and Webster Counties. Clay material was mined at one registered site for fill material.

As part of its involvement in the USGS STATEMAP Program, the IDNR-GSB produced an Aggregate Resources Map of Linn County. This derivative map was one of several different types of maps produced by the GSB under its arrangement with the Linn County government. The map is available from the IDNR-GSB as an Open-File Map.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN IOWA 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1995		1996		1997 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	2,340	161,000	2,390	187,000 e/	2,440	195,000 e/
Clays, common	322	1,590	478	1,180	479	1,110
Gemstones	NA	57	NA	481	NA	914
Gypsum, crude	2,240	13,800	2,090	12,800	2,030	14,400
Peat	5	77	W	W	W	W
Sand and gravel, construction	14,300	57,000	13,300	54,600	12,500	52,600
Stone, crushed	35,300	210,000	34,400	202,000	37,000	218,000
Combined value of cement (masonry), lime, sand and gravel (industrial), stone [dimension dolomite and sandstone (1995)], and values indicated by symbol W	XX	12,500	XX	11,100	XX	11,600
Total	XX	456,000	XX	470,000	XX	493,000

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

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

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

TABLE 2
IOWA: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1995				1996			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	223	35,200	\$210,000	\$5.97	208	34,400	\$202,000	\$5.88
Dolomite	4	W	W	3.83	3	42	169	4.02
Miscellaneous stone	4	W	W	2.81	-	-	-	--
Total	XX	35,300	210,000	5.96	XX	34,400	202,000	5.88

W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

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

2/ Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
IOWA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 1996, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	201	\$985	\$4.90
Riprap and jetty stone	98	722	7.37
Filter stone	101	253	2.50
Other coarse aggregate	72	531	7.38
Coarse aggregate, graded:			
Concrete aggregate, coarse	997	6,010	6.03
Bituminous aggregate, coarse	329	1,950	5.92
Bituminous surface-treatment aggregate	201	1,200	5.96
Railroad ballast	W	W	6.88
Other graded coarse aggregate	31	34	7.55
Fine aggregate (-3/8 inch):			
Stone sand, concrete	W	W	2.24
Stone sand, bituminous mix or seal	103	496	4.82
Screening, undesignated	79	344	4.35
Other fine aggregate	W	W	3.80
Coarse and fine aggregates:			
Graded road base or subbase	1,540	8,420	5.47
Unpaved road surfacing	3,580	16,600	4.63
Terrazzo and exposed aggregate	10	61	6.10
Crusher run or fill or waste	218	646	2.96
Other coarse and fine aggregates	W	W	8.30
Other construction materials	343	1,720	5.02
Agricultural:			
Agricultural limestone	663	2,870	4.32
Other agricultural uses	(3/)	(3/)	2.22
Chemical and metallurgical:			
Cement manufacture	3070	22,900	7.47
Other specified uses not listed	(3/)	(3/)	2.00
Unspecified: 4/			
Actual	10,700	70,100	6.55
Estimated	12,100	66,300	5.48
Total	34,400	202,000	5.88

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

1/ Includes dolomite, limestone, and limestone-dolomite.

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

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

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

Table 4
IOWA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1996, BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 2		District 3		District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:										
Coarse aggregate (+1 1/2 inch) 3/	W	W	W	W	W	W	--	--	137	881
Coarse aggregate, graded 4/	W	W	W	W	673	4,250	--	--	450	2,290
Fine aggregate (-3/8 inch) 5/	W	W	W	W	W	W	--	--	52	223
Coarse and fine aggregate 6/	1,710	8,530	W	W	W	W	--	--	1,880	11,200
Other construction materials	689	4,440	214	1,200	2,100	7,120	--	--	--	--
Agricultural 7/	(8/)	(8/)	66	469	(8/)	(8/)	--	--	178	661
Chemical and metallurgical 9/	(8/)	(8/)	--	--	(8/)	(8/)	--	--	--	--
Other miscellaneous use 10/	--	--	--	--	(8/)	(8/)	--	--	--	--
Unspecified: 11/										
Actual	2,500 12/	16,500 12/	5,500	37,500	1,340	6,650	357	2,360	996	7,070
Estimated	1,760	9,950	--	--	5,040	27,000	4,650	27,800	651	1,590
Total	8,980	62,200	5,780	39,200	10,300	46,800	5,010	30,200	4,350	23,900

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

1/ Production reported in District 1 was included with "District 2" to avoid disclosing company proprietary data.

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

3/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

4/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

6/ 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.

7/ Includes agricultural limestone and other agricultural uses.

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

9/ Includes cement manufacture.

10/ Includes other specified uses not listed.

11/ Includes production reported without a breakdown by end use and with estimates for nonrespondents.

12/ Includes unspecified within all districts.

TABLE 5
IOWA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	2,510	\$10,800	\$4.30
Plaster and gunite sands	48	252	5.25
Concrete products (blocks, bricks, pipe, decorative, etc.)	24	82	3.42
Asphaltic concrete aggregates and other bituminous mixtures	515	1,880	3.65
Road base and coverings 2/	2,290	6,670	2.92
Fill	621	1,650	2.65
Snow and ice control	62	263	4.24
Other miscellaneous uses 3/	51	429	8.41
Unspecified: 4/			
Actual	3,010	16,300	5.41
Estimated	4,160	16,300	3.92
Total or average	13,300	54,600	4.11

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

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

3/ Includes railroad ballast and roofing granules.

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

TABLE 6
IOWA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 3/	554	2,270	594	3,120	112	382
Asphaltic concrete aggregates and road base materials 4/	993	2,800	921	3,150	934	2,600
Other miscellaneous uses 5/	3	29	28	264	11	104
Unspecified: 6/						
Actual	834	6,010	275	1,330	1,140	5,700
Estimated	1,110	3,570	268	1,160	2,270	9,510
Total	3,490	14,700	2,090	9,030	4,470	18,300
District 4	District 5		District 6			
	Quantity	Value	Quantity	Value		
Concrete aggregate and concrete products 3/	752	2,810	572	2,550		
Asphaltic concrete aggregates and road base materials 4/	170	436	466	1,470		
Other miscellaneous uses 5/	--	--	9	31		
Unspecified: 6/						
Actual	378	1,470	380	1,780		
Estimated	222	958	292	1,120		
Total	1,520	5,670	1,720	6,950		

1/ Production reported in District 5 was included with "District 6" to avoid disclosing company proprietary data.

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

3/ Includes plaster and gunite sands.

4/ Includes fill, road and other stabilization (cement and lime), and snow and ice control.

5/ Includes railroad ballast and roofing granules.

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