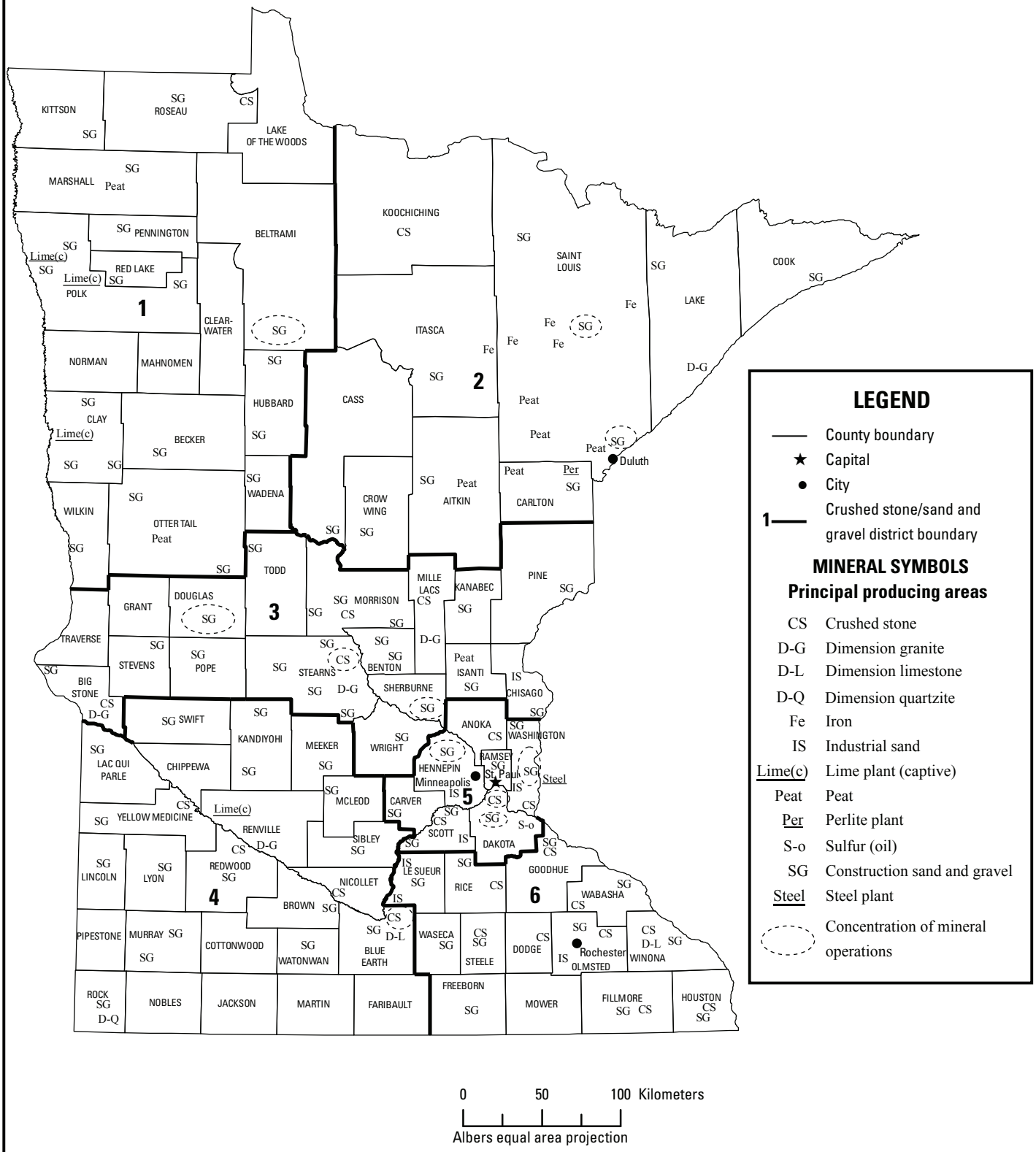
2012–2013 Minerals Yearbook

MINNESOTA [ADVANCE RELEASE]

U.S. Department of the Interior
U.S. Geological Survey

October 2016

MINNESOTA



Source: Minnesota Department of Natural Resources, Division of Lands and Minerals/U.S. Geological Survey (2012–13).

The Mineral Industry of Minnesota

In 2013, the value of the nonfuel mineral production[1] in Minnesota decreased to $601 million,[2] 0. 8% of the U.S. total nonfuel mineral production value owing to withholding of the full value to avoid disclosing proprietary data; however, the State was ranked third in the Nation based on full production value. In 2012, the production value was $4.20 billion,[2] 5.8 % of the U.S. total nonfuel mineral production, also ranking it third among the 50 States. In 2013, on a per capita basis, nonfuel mineral production in Minnesota had a value of $60 (based on the partial value for 2013) compared with the national average of $238. In 2012, the per capita value was $776 (based on the partial value for 2012) compared with the national average of $241.

The value of nonfuel mineral production in Minnesota for the years 2006 through 2013 was as follows (in billions of dollars): $2.62 (2006), $2.79 (2007), $3.46 (2008), $2.14 (2009), $3.71[2] (2010), $4.18[2] (2011), $4.20[2] (2012), and $0.60[2] (2013).

In 2013, there were 3,552 employees in nonfuel mineral mines in Minnesota and 2,380 in mills and preparation plants. In 2012, the corresponding numbers were 3,961 in nonfuel mineral mines and 2,103 in mills and preparation plants (U.S. Mine Safety and Health Administration, 2013, p. 11; 2014, p. 11). In 2013, the average annual wage in Minnesota for all mining was $83,359 compared with $50,475 for all industries. In 2012, the corresponding figures were $80,922 and $49,747, respectively (National Mining Association, unpub. data, February 4, 2016).

In 2013 and 2012, Minnesota led the Nation in the production of shipped iron ore out of 3 producing States and was second in the production of peat sales out of 12 and 13 producing States, respectively. It was third in the production of construction sand and gravel out of 50 producing States, and fourth in the production of industrial sand and gravel out of 33 and 32 producing States in 2013 and 2012, respectively. In both years, Minnesota also produced crushed stone, dimension stone, lime, and natural gemstones (table 1).

[1]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.

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

Commodity Review

The following information has been extracted from U.S. Geological Survey (USGS) data and other sources. Non-USGS data may differ from USGS data, which are based on company responses to USGS surveys and estimation for nonrespondents. The USGS withheld some data to avoid disclosing company proprietary data.

Metals

Mineral industry activity with respect to metals was as follows:

In 2013 and 2012, there were six iron ore mining operations active in Minnesota, all located in Itasca, Lake, and St. Louis Counties. In addition, three tailings reclamation operations were active in Itasca and St. Louis Counties. The Iron Range of Minnesota includes four major iron deposits; all active mines were located along the Mesabi Range—the largest iron range—which lies largely within Itasca and Saint Louis Counties.

In 2013, the U.S. Environmental Protection Agency issued a Federal Implementation Plan for six taconite facilities in Minnesota. The plan included a requirement to install and operate continuous air monitoring systems and to set nitrogen oxide emission limits based on the best available retrofit technology. The plan was intended to reduce haze in the area. The final rule went into effect in 2014 (U.S. Environmental Protection Agency, 2013).

In 2012, Minnesota produced approximately 77% of the iron ore used for steelmaking in the United States; a majority of this output was pellet production (Tuck, 2014, p. 39.2). The pellets act as a binder and consist of taconite, a low-grade iron ore.

Industrial Minerals

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

Northern Minnesota has nearly seven million acres of peatlands, more than any other State, except Alaska. It ranked second in peat sales in the Nation, behind Florida.

In 2013, there were 48 active crushed stone operations in Minnesota, with 59 quarries and 41 processing plants. In 2012, the corresponding figures were 53 operations, 68 quarries, and 48 processing plants. In 2013, there were 405 active construction sand and gravel operations, including 13 dredging operations. In 2012, there were 407 sand and gravel operations, including 6 dredging operations.

References Cited

Tuck, C.A., 2014, Iron ore [advance release], in Metals and minerals: U.S. Geological Survey Minerals Yearbook 2012, v. 1, p. 39.1–39.18. (Accessed May 26, 2016, at http://minerals.usgs.gov/minerals/pubs/commodity/iron_ore/myb1-2012-feore.pdf.)

U.S. Environmental Protection Agency, 2013, Federal implementation plan for taconite facilities in Minnesota and Michigan: U.S. Environmental Protection Agency, January 15, 202 p. (Accessed June 1, 2016, at https://archive.epa.gov/region5/air/taconite/web/html/index.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.)

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.)

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN MINNESOTA[1, 2]

(Thousand metric tons and thousand dollars)

Mineral	2011 Quantity	2011 Value	2012 Quantity	2012 Value	2013 Quantity	2013 Value
Gemstones, natural	NA	7	NA	7	NA	7
Iron ore, usable shipped	42,400	(3)	41,700 e	(3)	41,100	W
Peat	44	2,490	56	2,880	55	2,980
Sand and gravel:						
Construction	32,100 r	182,000 r	44,600	222,000	43,600	203,000
Industrial	W	(3)	3,670	210,000	4,140	271,000
Stone:						
Crushed	8,370 r	101,000 r	8,510	102,000	8,590	100,000
Dimension	46	28,500	65	27,200	59	24,300
Combined values of lime and values indicated by footnote 3	XX	3,870,000 4	XX	3,600,000 4, 5	XX	W
Total	XX	4,180,000	XX	4,200,000 5	XX	601,000

[e]Estimated. [r]Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; excluded from "Total." XX Not applicable.
[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Data are rounded to no more than three significant digits; may not add to totals shown.
[3]Withheld to avoid disclosing company proprietary data.
[4]Partial total to avoid disclosing company proprietary data.
[5]Data rounded to two significant digits.

TABLE 2
MINNESOTA: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE[1]

Type	2012 Number of quarries	2012 Quantity (thousand metric tons)	2012 Value (thousands)	2012 Unit value	2013 Number of quarries	2013 Quantity (thousand metric tons)	2013 Value (thousands)	2013 Unit value
Limestone[2]	36	3,870	$46,200	$11.93	37	4,700	$52,900	$11.24
Dolomite	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Granite	7	3,370	41,500	12.33	7	3,330	42,100	12.63
Sandstone and quartzite[5]	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Miscellaneous stone	25	1,270	14,100	11.09	15	554	5,020	9.06
Total or average	XX	8,510	102,000	11.97	XX	8,590	100,000	11.64

XX Not applicable.
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes limestone-dolomite reported with no distinction between the two kinds of stone.
[3]Withheld to avoid disclosing company proprietary data; included with "Limestone."
[4]Withheld to avoid disclosing company proprietary data; included with "Miscellaneous stone."
[5]Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

TABLE 3
MINNESOTA: CRUSHED STONE SOLD OR USED BY PRODUCERS BY USE[1]

Use	2012 Quantity (thousand metric tons)	2012 Value (thousands)	2012 Unit value	2013 Quantity (thousand metric tons)	2013 Value (thousands)	2013 Unit value
Construction:						
Coarse aggregate (+1½ inch):						
Macadam	--	--	--	W	W	W
Riprap and jetty stone	176	$4,560	$25.90	64	$1,990	$31.11
Filter stone	W	W	W	W	W	W
Unspecified coarse aggregate	95	1,730	18.18	139	2,630	18.98
Coarse aggregate, graded:						
Concrete aggregate, coarse	W	W	W	315	1,820	5.79
Bituminous aggregate, coarse	W	W	W	150	726	4.84
Bituminous surface-treatment aggregate	68	1,220	17.98	60	591	9.84
Railroad ballast	W	W	W	W	W	W
Unspecified graded coarse aggregate	W	W	W	--	--	--
Fine aggregate (-⅜ inch):						
Stone sand, concrete	W	W	W	35	160	4.53
Stone sand, bituminous mix or seal	40	439	10.98	147	1,550	10.57
Screening, undesignated	8	47	5.83	W	W	W
Unspecified fine aggregate	645	7,280	11.28	W	W	W
Coarse and fine aggregates:						
Graded road base or subbase	465	4,220	9.08	760	7,280	9.58
Unpaved road surface	W	W	W	W	W	W
Terrazzo and exposed aggregate	W	W	W	--	--	--
Crusher run or fill or waste	12	104	8.70	38	443	11.63
Roofing granules	--	--	--	--	--	--
Unspecified coarse and fine aggregates	W	W	W	W	W	W
Unspecified and other construction materials	17	78	4.61	--	--	--
Agricultural:						
Agricultural Limestone	284	2,070	7.27	169	1,390	8.22
Poultry grit and mineral food	--	--	--	W	W	W
Unspecified and other agricultural uses	--	--	--	W	W	W
Chemical and metallurgical:						
Lime manufacture	--	--	--	25	286	11.63
Special:						
Other fillers or extenders	--	--	--	W	W	W
Other miscellaneous uses and specified uses not listed	1	31	30.92			
Unspecified:[2]						
Reported	4,480	53,700	11.99	3,850	48,100	12.49
Estimated	1,280	14,300	11.16	2,320	27,200	11.75
Total or average	8,510	102,000	11.97	8,590	100,000	11.64

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Reported and estimated production without a breakdown by end use.

TABLE 4

MINNESOTA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2012, BY USE AND DISTRICT[1]

(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]	--	--	--	--	23	425
Coarse aggregate, graded[3]	--	--	--	--	W	W
Fine aggregate (-⅜ inch)[4]	--	--	--	--	W	W
Coarse and fine aggregates[5]	--	--	(6)	8	W	W
Other construction materials	--	--	--	--	--	--
Agricultural[7]	--	--	--	--	--	--
Chemical and metallurgical	--	--	--	--	--	--
Special	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed[8]	--	--	--	--	--	--
Unspecified:[9]						
Reported	--	--	--	--	1,490	18,800
Estimated	72	810	2	27	448	4,980
Total	72	810	3	34	2,000	24,900

Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch)[2]	W	W	117	2,410	W	W
Coarse aggregate, graded[3]	W	W	W	W	W	W
Fine aggregate (-⅜ inch)[4]	W	W	W	W	W	W
Coarse and fine aggregates[5]	W	W	501	4,560	W	W
Other construction materials	17	78	--	--	--	--
Agricultural[7]	--	--	272	1,970	11	94
Chemical and metallurgical	--	--	--	--	--	--
Special	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed[8]	1	31	--	--	--	--
Unspecified:[9]						
Reported	2,430	28,500	313	3,530	204	2,310
Estimated	20	238	116	1,290	620	6,930
Total	3,180	37,100	2,130	25,100	1,070	13,300

Use	Unspecified districts	
	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch)[2]	--	--
Coarse aggregate, graded[3]	--	--
Fine aggregate (-⅜ inch)[4]	--	--
Coarse and fine aggregates[5]	--	--
Other construction materials	--	--
Agricultural[7]	--	--
Chemical and metallurgical	--	--
Special	--	--
Other miscellaneous uses and specified uses not listed[8]	--	--
Unspecified:[9]		
Reported	50	566
Estimated	--	--
Total	50	566

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

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes riprap and jetty stone, filter stone, and unspecified coarse aggregate.

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

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

[5]Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, and unspecified coarse and fine aggregates.

[6]Less than ½ unit.

[7]Includes agricultural limestone.

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

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

TABLE 5

MINNESOTA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2013, BY USE AND DISTRICT[1]

(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]	--	--	--	--	--	--
Coarse aggregate, graded[3]	--	--	24	167	--	--
Fine aggregate (-⅜ inch)[4]	--	--	29	192	--	--
Coarse and fine aggregates[5]	--	--	14	90	--	--
Other construction materials	--	--	--	--	--	--
Agricultural[6]	--	--	--	--	--	--
Chemical and metallurgical[7]	--	--	--	--	--	--
Special[8]	--	--	--	--	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--	--	--
Unspecified:[9]						
Reported	--	--	1	7	1,400	18,500
Estimated	54	630	3	32	482	5,940
Total	54	630	70	488	1,890	24,400

Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch)[2]	W	W	W	W	W	W
Coarse aggregate, graded[3]	W	W	W	W	W	W
Fine aggregate (-⅜ inch)[4]	W	W	W	W	W	W
Coarse and fine aggregates[5]	301	2,360	519	5,160	W	W
Other construction materials	--	--	--	--	--	--
Agricultural[6]	W	W	159	1,310	W	W
Chemical and metallurgical[7]	25	286	--	--	--	--
Special[8]	W	W	--	--	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--	--	--
Unspecified:[9]						
Reported	2,080	25,400	--	--	249	2,900
Estimated	21	241	1,220	14,200	534	6,220
Total	2,790	32,300	2,560	27,800	1,110	13,100

Use	Unspecified districts	
	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch)[2]	--	--
Coarse aggregate, graded[3]	--	--
Fine aggregate (-⅜ inch)[4]	--	--
Coarse and fine aggregates[5]	--	--
Other construction materials	--	--
Agricultural[6]	--	--
Chemical and metallurgical[7]	--	--
Special[8]	--	--
Other miscellaneous uses and specified uses not listed	--	--
Unspecified:[9]		
Reported	111	1,290
Estimated	--	--
Total	111	1,290

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

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes riprap and jetty stone, filter stone, and unspecified coarse aggregate.

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

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

[5]Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, and unspecified coarse and fine aggregates.

[6]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

[7]Includes cement manufacture, lime manufacture, and sulfur oxide removal.

[8]Includes asphalt fillers or extenders, whiting or whitening substance, and other fillers or extenders.

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

TABLE 6
MINNESOTA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	3,440	$23,500	$6.83
Plaster and gunite sands	32	356	11.13
Concrete products (blocks, bricks, pipe, decorative, and so forth)	104	1,120	10.77
Asphaltic concrete aggregates and other bituminous mixtures	5,730	31,400	5.48
Road base and coverings[2]	10,500	39,800	3.79
Fill	2,510	8,820	3.51
Snow and ice control	53	307	5.79
Other miscellaneous uses[3]	253	2,350	9.29
Unspecified:[4]			
Reported	9,140	50,800	5.56
Estimated	12,900	64,000	4.96
Total or average	44,600	222,000	4.98

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes road and other stabilization (cement and lime).
[3]Includes golf course, railroad ballast, and roofing granules.
[4]Reported and estimated production without a breakdown by end use.

TABLE 7
MINNESOTA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	4,250	$23,500	$5.52
Plaster and gunite sands	31	388	12.52
Concrete products (blocks, bricks, pipe, decorative, and so forth)	68	1,070	15.79
Asphaltic concrete aggregates and other bituminous mixtures	4,490	24,500	5.46
Road base and coverings[2]	8,670	33,000	3.81
Fill	2,950	12,500	4.25
Snow and ice control	95	563	5.93
Other miscellaneous uses[3]	282	3,600	12.77
Unspecified:[4]			
Reported	3,700	17,500	4.73
Estimated	19,100	86,000	4.50
Total or average	43,600	203,000	4.64

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes road and other stabilization (cement and lime).
[3]Includes filtration, golf course, railroad ballast, and roofing granules.
[4]Reported and estimated production without a breakdown by end use.

TABLE 8

MINNESOTA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	W	W	425	2,070	1,020	7,780
Asphaltic concrete aggregates and road base materials[3]	3,510	16,000	919	3,660	5,710	25,800
Fill	330	1,060	42	303	952	3,170
Snow and ice control	W	W	6	72	13	77
Other miscellaneous uses[4]	1	20	(5)	3	139	1,220
Unspecified:[6]						
Reported	2,060	13,100	608	1,270	1,560	8,560
Estimated	2,980	14,800	2,380	11,600	2,130	10,600
Total	9,450	49,600	4,380	19,000	11,500	57,300

Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	W	W	W	W	W	W
Asphaltic concrete aggregates and road base materials[3]	1,690	8,290	1,210	6,460	352	2,320
Fill	452	1,390	581	2,260	158	635
Snow and ice control	W	W	W	W	W	W
Other miscellaneous uses[4]	2	42	42	513	69	544
Unspecified:[6]						
Reported	483	2,290	2,720	16,200	356	2,030
Estimated	1,880	9,350	2,120	10,500	1,280	6,370
Total	5,350	26,300	7,220	40,600	2,330	12,700

Use	Unspecified districts	
	Quantity	Value
Concrete aggregate and concrete products[2]	91	220
Asphaltic concrete aggregates and road base materials[3]	2,800	8,640
Fill	--	--
Snow and ice control	--	--
Other miscellaneous uses[4]	--	--
Unspecified:[6]		
Reported	1,350	7,430
Estimated	137	679
Total	4,380	17,000

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

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

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization (cement and lime).

[4]Includes golf course, railroad ballast, and roofing granules.

[5]Less than ½ unit.

[6]Reported and estimated production without a breakdown by end use.

TABLE 9

MINNESOTA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	W	W	343	1,990	470	2,610
Asphaltic concrete aggregates and road base materials[3]	4,120	19,600	570	3,300	3,160	11,100
Fill	198	1,150	649	2,870	725	2,790
Snow and ice control	W	W	12	79	30	191
Other miscellaneous uses[4]	--	--	36	368	124	1,690
Unspecified:[5]						
Reported	78	491	234	985	365	988
Estimated	4,250	17,800	1,950	8,340	3,880	19,700
Total	10,000	47,100	3,800	17,900	8,750	39,100

Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	484	2,820	W	W	W	W
Asphaltic concrete aggregates and road base materials[3]	1,400	6,910	705	5,390	215	1,450
Fill	104	469	1,160	4,750	114	504
Snow and ice control	19	148	W	W	W	W
Other miscellaneous uses[4]	10	140	58	1,040	55	365
Unspecified:[5]						
Reported	465	1,940	1,510	7,170	162	1,050
Estimated	2,850	13,000	4,460	19,400	1,660	7,590
Total	5,330	25,400	8,800	43,900	2,250	11,200

Use	Unspecified districts	
	Quantity	Value
Concrete aggregate and concrete products[2]	727	3,080
Asphaltic concrete aggregates and road base materials[3]	2,990	9,810
Fill	--	--
Snow and ice control	--	--
Other miscellaneous uses[4]	--	--
Unspecified:[5]		
Reported	891	4,910
Estimated	48	203
Total	4,660	18,000

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

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

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization (cement and lime).

[4]Includes filtration, golf course, railroad ballast, and roofing granules.

[5]Reported and estimated production without a breakdown by end use.