



# 2008 Minerals Yearbook

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MINING AND QUARRYING TRENDS [ADVANCE RELEASE]

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# MINING AND QUARRYING TRENDS

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**Domestic survey data were prepared by the author and the statistical assistants who have responsibility for the mineral commodities covered in this report.**

The mining and quarrying trends shown in this report were calculated from nonfuel mineral data reported to the U.S. Geological Survey (USGS) by mining and quarrying companies operating in the United States. The data for 2008 were reported on the “Mine, Development, and Mineral Exploration Supplement” statistical survey conducted by the USGS and on the production surveys for some more widely produced nonfuel mineral commodities, such as sand and gravel. Additional data for 2008 were derived from annual USGS production and consumption surveys of nonfuel mineral producers; these surveys covered 58 nonfuel mineral commodities produced in the United States. Nonfuel minerals do not include coal, petroleum coke, and related products.

The data in the following tables are reported according to the primary or principal product of a mine or operation; a product of lesser value is considered to be a byproduct. The primary product is the product with the highest total value for the year. In some instances, the values of two products at the same operation are so similar that the products are coproducts.

Total domestic mining and waste removal for nonfuel mineral materials production amounted to 5.6 billion metric tons (Gt) in 2008, a decrease of 3% compared with the revised figure of 2007 (table 1). These materials included 4.3 Gt of crude ore mined or quarried and 1.4 Gt of mine ore and waste from development operations. Of the nonfuel mineral materials (ore

and waste) mined, 54% was for the production of industrial minerals, and 46% was for the production of metals. Overall, 97% of nonfuel mineral materials was mined and quarried using surface methods, and 3% was mined underground.

Total surface mining, quarrying, and waste removal for industrial minerals production amounted to 2.9 Gt, 9% lower than the revised 2007 total. Crude ore mined at these surface operations was 2.6 Gt, and 252 million metric tons (Mt) was waste, including ore and waste from development operations. Underground mining for industrial minerals was only 155 Mt, nearly all of which was crude ore.

Total surface mining and waste removal for metal ores amounted to 2.6 Gt, 5% higher than the revised 2007 total. Of the 2.6 Gt, 1.5 Gt was crude ore mined, and 1.1 Gt was ore and waste from development operations. Underground mining of metal ores and waste amounted to only 21 Mt, of which 81% was crude ore.

The major States in which mining for nonfuel mineral materials took place, in descending order of total material handled, were Nevada, Arizona, Minnesota, Texas, Florida, Utah, California, Pennsylvania, Michigan, and Missouri (table 2). These 10 States accounted for 58% of the tonnage removed in the production of nonfuel mineral materials mined in the United States. Nearly all nonfuel mine production in these States was from surface operations.

TABLE 1  
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES, BY TYPE<sup>1</sup>

(Million metric tons)

Type of ore and year	Surface <sup>2</sup>			Underground <sup>3</sup>			All mines		
	Crude ore	Waste <sup>4</sup>	Total	Crude ore	Waste <sup>4</sup>	Total	Crude ore	Waste <sup>4</sup>	Total
<b>Metals:</b>									
2004	1,190	1,060	2,250	14	2	16	1,200	1,060	2,260
2005	1,270	1,070	2,340	20	1	21	1,290	1,080 <sup>r</sup>	2,360
2006	1,310	1,080	2,390	16	3	19	1,330	1,080	2,410
2007	1,330	1,130	2,460	19	3	22	1,350	1,130	2,480
2008	1,460	1,120	2,580	17	4	21	1,480	1,120	2,600
<b>Industrial minerals:</b>									
2004	3,000	409	3,410	139	(5)	139	3,140	409	3,550
2005	3,090	370	3,460	137	1	138	3,230	370	3,600
2006	3,130	266	3,400	129	(5)	129	3,260	266	3,520
2007	2,900 <sup>r</sup>	265	3,170 <sup>r</sup>	129	(5)	129	3,030 <sup>r</sup>	265	3,290 <sup>r</sup>
2008	2,620	252	2,880	155	(5)	155	2,780	253	3,030
<b>All mineral commodities:</b>									
2004	4,190	1,470	5,650	153	2	155	4,340	1,470	5,810
2005	4,360	1,440	5,810 <sup>r</sup>	157	2	159	4,520	1,450 <sup>r</sup>	5,960
2006	4,440	1,340	5,780	145	3	148	4,590	1,350	5,930
2007	4,230 <sup>r</sup>	1,400 <sup>r</sup>	5,630 <sup>r</sup>	148	3	151	4,380 <sup>r</sup>	1,400	5,780 <sup>r</sup>
2008	4,090	1,370	5,460	172	4	177	4,260	1,370	5,630

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes materials from wells, ponds, and pumping operations.

<sup>3</sup>Includes solution mining.

<sup>4</sup>Includes ore and waste from development operations.

<sup>5</sup>Less than ½ unit.

TABLE 2  
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2008, BY COMMODITY AND STATE<sup>1</sup>

Commodity or State	Number of mines <sup>2</sup>	Surface <sup>3</sup>			Underground <sup>4</sup>			All mines		
		Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)	Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)	Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)
Commodity:										
Metal ore:										
Gold	43	293,000	669,000	962,000	6,150	969	7,120	299,000	670,000	969,000
Iron	12	173,000	158,000	331,000	--	--	--	173,000	158,000	331,000
Other <sup>6</sup>	46	998,000	290,000	1,290,000	11,400	2,600	14,000	1,010,000	293,000	1,300,000
Total	101	1,460,000	1,120,000	2,580,000	17,500	3,570	21,100	1,480,000	1,120,000	2,600,000
Industrial minerals:										
Clays	637	33,200	28,200	61,400	W	W	W	33,200 <sup>7</sup>	28,200 <sup>7</sup>	61,400 <sup>7</sup>
Feldspar <sup>8</sup>	12	1,130	--	1,130	--	--	--	1,130	--	1,130
Gypsum	55	13,100	2,800	15,900	1,270	--	1,270	14,400	2,800	17,200
Phosphate rock	12	124,000	W	124,000 <sup>9</sup>	--	--	--	124,000	W	124,000 <sup>9</sup>
Pumice <sup>10</sup>	20	791	W	791 <sup>9</sup>	--	--	--	791	W	791 <sup>9</sup>
Salt	62	7,980	--	7,980	39,600	--	39,600	47,600	--	47,600
Sand and gravel:										
Construction	7,754	1,040,000	--	1,040,000	--	--	--	1,040,000	--	1,040,000
Industrial	144	30,400	--	30,400	W	--	W	30,400 <sup>7</sup>	--	30,400 <sup>7</sup>
Soda ash	5	--	--	--	11,300	--	11,300	11,300	--	11,300
Stone:										
Crushed	3,992	1,360,000	97,800	1,460,000	79,700	616	80,300	1,440,000	98,500	1,540,000
Dimension	236	1,800	W	1,800 <sup>9</sup>	W	--	W	1,800 <sup>7</sup>	W	1,800 <sup>7,9</sup>
Talc	8	706	W	706 <sup>9</sup>	--	--	--	706	W	706 <sup>9</sup>
Other <sup>11</sup>	109	11,900	123,000	135,000	23,000	--	23,000	34,900	123,000	158,000
Total	13,046	2,620,000	252,000	2,880,000	155,000	616	155,000	2,780,000	253,000	3,030,000
Grand total	13,147	4,090,000	1,370,000	5,460,000	172,000	4,190	177,000	4,260,000	1,370,000	5,630,000
State:										
Alabama	185	65,600	5,650	71,200	W	--	W	65,600 <sup>7</sup>	5,650	71,200 <sup>7</sup>
Alaska	118	40,900	W	40,900 <sup>9</sup>	W	--	W	40,900 <sup>7</sup>	W	40,900 <sup>7,9</sup>
Arizona	385	592,000	113,000	705,000	--	--	--	592,000	113,000	705,000
Arkansas	178	41,700	4,560	46,200	W	--	W	41,700 <sup>7</sup>	4,560	46,200 <sup>7</sup>
California	576	177,000	W	177,000 <sup>9</sup>	W	W	W	177,000 <sup>7</sup>	W	177,000 <sup>7,9</sup>
Colorado	400	70,000	W	70,000 <sup>9</sup>	W	W	W	70,000 <sup>7</sup>	W	70,000 <sup>7,9</sup>
Connecticut	106	16,700	775	17,500	--	--	--	16,700	775	17,500
Delaware	14	3,190	W	3,190 <sup>9</sup>	--	--	--	3,190	W	3,190 <sup>9</sup>
Florida	169	202,000	W	202,000 <sup>9</sup>	--	--	--	202,000	W	202,000 <sup>9</sup>
Georgia	276	71,800	10,700	82,500	1,650	17	1,660	73,400	10,700	84,100
Hawaii	48	8,660	580	9,240	--	--	--	8,660	580	9,240
Idaho	265	42,900	W	42,900 <sup>9</sup>	W	W	W	42,900 <sup>7</sup>	W	42,900 <sup>7,9</sup>
Illinois	255	80,600	4,090	84,700	12,400	87	12,500	93,000	4,180	97,200
Indiana	251	69,300	4,280	73,600	5,750	38	5,780	75,100	4,320	79,400
Iowa	361	48,300	3,010	51,300	6,790	43	6,840	55,100	3,050	58,100
Kansas	318	33,700	2,280	36,000	3,200	4	3,210	37,000	2,280	39,200
Kentucky	120	40,500	2,930	43,400	19,500	136	19,600	60,000	3,070	63,000

See footnotes at end of table.

TABLE 2—Continued  
 MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2008, BY COMMODITY AND STATE<sup>1</sup>

Commodity or State	Number of mines <sup>2</sup>	Surface <sup>3</sup>			Underground <sup>5</sup>			All mines		
		Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)	Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)	Crude ore (thousand metric tons)	Waste <sup>4</sup> (thousand metric tons)	Total (thousand metric tons)
State—Continued:										
Louisiana	142	33,600	1,050	34,600 <sup>9</sup>	14,300	--	14,300	47,900	1,050	48,900 <sup>9</sup>
Maine	179	13,300	318	13,700	--	--	--	13,300	318	13,700
Maryland <sup>12</sup>	82	36,700	1,970	38,700	W	W	W	36,700 <sup>7</sup>	1,970 <sup>7</sup>	38,700 <sup>7</sup>
Massachusetts	138	22,000	896	22,900	--	--	--	22,000	896	22,900
Michigan	478	100,000	W	100,000 <sup>9</sup>	2,160	--	2,160	103,000	W	103,000 <sup>9</sup>
Minnesota	526	182,000	120,000	303,000	--	--	--	182,000	120,000	303,000
Mississippi	110	17,800	995	18,800	--	--	--	17,800	995	18,800
Missouri	339	76,300	6,000	82,300	17,100	1,480	18,600	93,500	7,480	101,000
Montana	255	44,300	10,300	54,500 <sup>9</sup>	W	W	W	44,300 <sup>7</sup>	10,300	54,500 <sup>7,9</sup>
Nebraska	176	16,800	342	17,100	W	W	W	16,800 <sup>7</sup>	342 <sup>7</sup>	17,100 <sup>7</sup>
Nevada	759	479,000	652,000	1,130,000	W	W	W	479,000 <sup>7</sup>	652,000 <sup>7</sup>	1,130,000 <sup>7</sup>
New Hampshire	116	12,900	430	13,300	--	--	--	12,900	430	13,300
New Jersey	80	29,600	1,170	30,800	--	--	--	29,600	1,170	30,800
New Mexico	410	55,300	W	55,300 <sup>9</sup>	11,800	--	11,800	67,200	W	67,200 <sup>9</sup>
New York	483	75,600	4,490	80,100	7,830	W	7,830 <sup>9</sup>	83,500	4,490 <sup>7</sup>	88,000
North Carolina	240	77,200	8,220	85,400	--	--	--	77,200	8,220	85,400
North Dakota	159	11,800	W	11,800 <sup>9</sup>	--	--	--	11,800	W	11,800 <sup>9</sup>
Ohio	325	78,600	4,220	82,800	6,620	W	6,620	85,200 <sup>7</sup>	4,220	89,400 <sup>7</sup>
Oklahoma	173	60,400	4,100	64,500	W	W	W	60,400 <sup>7</sup>	4,100 <sup>7</sup>	64,500 <sup>7</sup>
Oregon	331	38,100	5,260	43,400	--	--	--	38,100	5,260	43,400
Pennsylvania	381	94,500	6,760	101,000	13,500	94	13,600	108,000	6,860	115,000
Rhode Island	22	3,400	94	3,500	--	--	--	3,400	94	3,500
South Carolina	115	30,600	2,080	32,700	--	--	--	30,600	2,080	32,700
South Dakota	209	22,900	W	22,900 <sup>9</sup>	--	--	--	22,900	W	22,900 <sup>9</sup>
Tennessee	203	51,000	4,010	55,000	3,420	W	3,420 <sup>9</sup>	54,400	4,010 <sup>7</sup>	58,400
Texas	615	236,000	13,100	249,000	8,570	W	8,570 <sup>9</sup>	245,000	13,100 <sup>7</sup>	258,000
Utah	292	193,000	W	193,000 <sup>9</sup>	836	W	836 <sup>9</sup>	194,000	W	194,000 <sup>9</sup>
Vermont	148	9,450	425	9,880	--	--	--	9,450	425	9,880
Virginia	172	66,200	4,600	70,800	2,740	19	2,760	69,000	4,620	73,600
Washington	366	54,700	1,290	56,000	W	W	W	54,700 <sup>7</sup>	1,290 <sup>7</sup>	56,000 <sup>7</sup>
West Virginia	41	12,700	978	13,600	W	W	W	12,700 <sup>7</sup>	978 <sup>7</sup>	13,600 <sup>7</sup>
Wisconsin	742	62,400	2,130	64,500	W	--	W	62,400 <sup>7</sup>	2,130	64,500 <sup>7</sup>
Wyoming	315	32,000	4,900	36,900	10,100	--	10,100	42,200	4,900	47,100
Undistributed <sup>13</sup>	--	152,000	355,000	508,000	24,100	2,280	26,400	177,000	358,000	534,000
Total	13,147	4,090,000	1,370,000	5,460,000	172,000	4,190	177,000	4,260,000	1,370,000	5,630,000

W Withheld to avoid disclosing company proprietary data; included with "Other" or "Undistributed." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits except "number of mines"; may not add to totals shown.

<sup>2</sup>Includes quarries and other mineral operations.

<sup>3</sup>Includes materials from wells, ponds, and pumping operations.

<sup>4</sup>Includes ore and waste from development operations.

<sup>5</sup>Includes solution mining.

TABLE 2—Continued  
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2008, BY COMMODITY AND STATE<sup>1</sup>

<sup>6</sup>Includes beryllium, copper, copper-molybdenum, copper-silver, gold-silver, lead, magnesium metal, molybdenum, platinum and palladium, silver, titanium, uranium, zinc, zinc-lead, and zinc-silver.

<sup>7</sup>Excludes materials from underground operations.

<sup>8</sup>Includes apfite.

<sup>9</sup>Excludes waste from mining operations and ore and waste from development operations.

<sup>10</sup>Excludes volcanic cinder and scoria; included with "Crushed stone."

<sup>11</sup>Includes abrasives, barite, boron minerals, bromine, diatomite, garnet, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, magnesium compounds, mica, olivine, perlite, potash, tripoli, vermiculite, wollastonite, zeolites, and industrial minerals indicated by symbol W.

<sup>12</sup>Includes data reported in Washington, DC.

<sup>13</sup>Includes material from States indicated by symbol W.

TABLE 3

VALUE OF PRINCIPAL MINERAL PRODUCTS AND BYPRODUCTS OF SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2008<sup>1</sup>

(Dollars per metric ton)

Commodity	Surface			Underground			All mines		
	Principal mineral product	Byproduct	Total	Principal mineral product	Byproduct	Total	Principal mineral product	Byproduct	Total
<b>Metal ore:</b>									
Gold	22.95	W	22.95 <sup>2</sup>	W	W	W	22.95 <sup>3</sup>	W	22.95 <sup>3</sup>
Iron	70.43 <sup>4</sup>	--	70.43 <sup>4</sup>	--	--	--	70.43 <sup>4</sup>	--	70.43 <sup>4</sup>
Average, metals <sup>5</sup>	17.74	W	17.74 <sup>2</sup>	185.63	24.76	210.39	20.37	6.34	26.71
<b>Industrial minerals:</b>									
Clays	50.57	--	50.57	W	--	W	50.57 <sup>3</sup>	--	50.57 <sup>3</sup>
Feldspar <sup>6</sup>	66.42	--	66.42	--	--	--	66.42	--	66.42
Gypsum	8.70	--	8.70	W	--	W	8.70 <sup>3</sup>	--	8.70 <sup>3</sup>
Phosphate rock	18.64	--	18.64	--	--	--	18.64	--	18.64
Pumice <sup>7</sup>	20.14	--	20.14	--	--	--	20.14	--	20.14
Salt	W	--	W	31.92 <sup>4</sup>	--	31.92 <sup>4</sup>	31.92 <sup>8</sup>	--	31.92 <sup>8</sup>
<b>Sand and gravel:</b>									
Construction	7.48	--	7.48	--	--	--	7.48	--	7.48
Industrial	30.80	--	30.80	W	--	W	30.80 <sup>3</sup>	--	30.80 <sup>3</sup>
Soda ash	--	--	--	134.60	--	134.60	134.60	--	134.60
<b>Stone:</b>									
Crushed	9.33	--	9.33	9.33	--	9.33	9.33	--	9.33
Dimension	179.74	--	179.7	W	--	W	179.74 <sup>3</sup>	--	179.7 <sup>3</sup>
Talc	30.88	--	30.88	--	--	--	30.88	--	30.88
Average, industrial minerals <sup>9</sup>	10.73	0.03	10.76	25.22	--	25.22	11.56	0.03	11.59
Average, industrial minerals, excluding sand and gravel and stone <sup>9</sup>	33.87	0.26	34.13	47.78	--	47.78	37.50	0.19	37.69
Average, metals and industrial minerals <sup>5,9</sup>	12.83	1.83	14.66	41.40	2.50	43.90	14.12	1.86	15.98
Average, metals and industrial minerals, excluding sand and gravel and stone <sup>5,9</sup>	20.07	5.21	25.28	76.80	5.21	82.01	23.53	5.21	28.74

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

<sup>1</sup>Values calculated from unrounded data; may not add to totals shown because of independent rounding.<sup>2</sup>Value of principal mineral product only.<sup>3</sup>Value of products at surface operations only.<sup>4</sup>Average value at mines only.<sup>5</sup>Includes values of beryllium, copper, copper-molybdenum, copper-silver, gold-silver, lead, magnesium metal, molybdenum, platinum and palladium, silver, titanium, uranium, zinc, zinc-lead, zinc-silver, and metals indicated by symbol W.<sup>6</sup>Includes aplite.<sup>7</sup>Excludes volcanic cinder and scoria; included with "Crushed stone."<sup>8</sup>Value of products at underground operations only.<sup>9</sup>Includes values of abrasives, barite, boron minerals, bromine, diatomite, garnet, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, magnesium compounds, mica, olivine, perlite, potash, tripoli, vermiculite, wollastonite, zeolites, and industrial minerals indicated by symbol W.

TABLE 4  
 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINES AND QUARRIES IN THE UNITED STATES IN 2008,  
 IN ORDER OF OUTPUT OF CRUDE ORE<sup>1</sup>

Name of mine, quarry or operation <sup>2</sup>	State	Operator	Commodity	Mining method
<b>Metal:</b>				
Morenci	Arizona	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum	Open pit.
Eastern Nevada operations <sup>3</sup>	Nevada	Newmont Mining Corp.	Gold	Open pit and stoping.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	Copper-molybdenum	Open pit.
Goldstrike <sup>4</sup>	Nevada	Barrick Gold Corp.	Gold	Open pit and underground.
Bagdad	Arizona	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum	Open pit.
Sierrita	do.	do.	do.	Do.
Chino	New Mexico	do.	do.	Do.
Safford	Arizona	do.	Copper	Do.
Minntac	Minnesota	United States Steel Corp.	Iron ore	Do.
Ray	Arizona	Asarco LLC	Copper	Do.
Cortez	Nevada	Barrick Gold Corp.	Gold	Do.
Hibbing Taconite	Minnesota	Cliffs Natural Resources Inc.	Iron ore	Do.
Ruby Hill	Nevada	Barrick Gold Corp.	Gold	Do.
Smoky Valley Common Operation	do.	Kinross Gold Corp.	do.	Do.
Fort Knox	Alaska	do.	do.	Do.
Cresson	Colorado	AngloGold Ashanti Ltd.	do.	Do.
Tyrone	New Mexico	Freeport-McMoRan Copper & Gold Inc.	Copper	Do.
Bald Mountain	Nevada	Barrick Gold Corp.	Gold	Do.
Tilden	Michigan	Cliffs Natural Resources Inc.	Iron ore	Do.
Marigold	Nevada	Goldcorp Inc.	Gold	Do.
Keewatin Taconite	Minnesota	United States Steel Corp.	Iron ore	Do.
Northshore	do.	Cliffs Natural Resources Inc.	do.	Do.
Mission Complex	Arizona	Asarco LLC	Copper-molybdenum	Do.
Continental Pit	Montana	Montana Resources	do.	Do.
United Taconite	Minnesota	Cliffs Natural Resources Inc.	Iron ore	Do.
<b>Industrial mineral:</b>				
Florida mines (five)	Florida	The Mosaic Co.	Phosphate rock	Do.
South Pasture	do.	CF Industries, Inc.	do.	Do.
Swift Creek	do.	PCS Phosphate Co., Inc.	do.	Do.
Aurora	North Carolina	do.	do.	Do.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	Stone, crushed	Quarry.
Roberta Plant/Calera Quarry	Alabama	Lafarge North America Inc.	do.	Do.
Beckmann	Texas	Martin Marietta Aggregates	do.	Do.
White Rock	Florida	Vecellio & Grogan, Inc.	do.	Do.
Mosaic Potash Carlsbad	New Mexico	The Mosaic Co.	Potash	Stoping.
Balcones Plant	Texas	CEMEX S.A.B. de C.V.	Stone, crushed	Quarry.
St. Genevieve Quarry	Missouri	Tower Rock Stone Co.	do.	Do.
Chico Quarry	Texas	Martin Marietta Aggregates	do.	Do.
McCook 378	Illinois	Vulcan Materials Co.	do.	Do.
F.E.C. Quarry	Florida	CEMEX S.A.B. de C.V.	do.	Do.
Peerless Mine	Missouri	Mississippi Lime Co.	do.	Underground.
Servtex	Texas	Lehigh Hanson	do.	Quarry.
Thornton Quarry	Illinois	do.	do.	Do.
Hunter Quarry	Texas	Hunter Industries, Ltd.	do.	Do.
Brooksville	Florida	CEMEX S.A.B. de C.V.	do.	Do.
TXI Mill Creek Quarry	Oklahoma	Texas Industries, Inc.	do.	Do.
Pittsboro	North Carolina	Luck Stone Corp.	do.	Do.
Pennsuco Quarry	Florida	Titan America LLC	do.	Do.
Macon Quarry	Georgia	Ready Mix USA Holding Co.	do.	Do.
Hampton Corners	New York	American Rock Salt Co.	Salt	Solution.
TXI-Midlothian Cement Plant	Texas	Texas Industries, Inc.	Stone, crushed	Quarry.

Do., do. Ditto.

<sup>1</sup>List includes private-sector operations only; excludes U.S. Bureau of Land Management and U.S. Forest Service operations.

<sup>2</sup>Where data are not reported for individual mining operations, ranking is on the basis of production as reported for a group of operations.

<sup>3</sup>Includes Carlin Mines complex, Carlin East Mine, Deep Post Mine, Gold Quarry Mine, Leeville Mine, Midas Mine, Pete Mine, Phoenix Mine, Twin Creeks Mine, and Turquoise Ridge Mine; ore was mined from nine open pits and five underground mines.

<sup>4</sup>Formerly listed as Betze-Post Mine.



TABLE 5  
 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINES AND QUARRIES IN THE UNITED STATES IN 2008,  
 IN ORDER OF OUTPUT OF TOTAL MATERIAL HANDLED<sup>1</sup>

Name of mine, quarry or operation <sup>2</sup>	State	Operator	Commodity	Mining method
<b>Metal:</b>				
Goldstrike <sup>3</sup>	Nevada	Barrick Gold Corp.	Gold	Open pit and underground.
Eastern Nevada operations <sup>4</sup>	do.	Newmont Mining Corp.	do.	Open pit and stoping.
Morenci	Arizona	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum	Open pit.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	do.	Do.
Cortez	Nevada	Barrick Gold Corp.	Gold	Do.
Minntac	Minnesota	United States Steel Corp.	Iron ore	Do.
Ray	Arizona	Asarco LLC	Copper	Do.
Smoky Valley Common Operation	Nevada	Kinross Gold Corp.	Gold	Do.
Bagdad	Arizona	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum	Do.
Robinson	Nevada	Quadra Mining Ltd.	do.	Do.
Sierrita	Arizona	Freeport-McMoRan Copper & Gold Inc.	do.	Do.
Chino	New Mexico	do.	do.	Do.
Mission Complex	Arizona	Asarco LLC	do.	Do.
Cresson	Colorado	AngloGold Ashanti Ltd.	Gold	Do.
Hibbing Taconite	Minnesota	Cliffs Natural Resources Inc.	Iron ore	Do.
Safford	Arizona	Freeport-McMoRan Copper & Gold Inc.	Copper	Do.
Ruby Hill	Nevada	Barrick Gold Corp.	Gold	Do.
Tilden	Michigan	Cliffs Natural Resources Inc.	Iron ore	Do.
Fort Knox	Alaska	Kinross Gold Corp.	Gold	Do.
Thompson	Idaho	Thompson Creek Metals Co.	Molybdenum	Do.
Bald Mountain	Nevada	Barrick Gold Corp.	Gold	Do.
Marigold	do.	Goldcorp Inc.	do.	Do.
United Taconite	Minnesota	Cliffs Natural Resources Inc.	Iron ore	Do.
Keewatin Taconite	do.	United States Steel Corp.	do.	Do.
Northshore	do.	Cliffs Natural Resources Inc.	do.	Do.
<b>Industrial mineral:</b>				
Florida mines (five)	Florida	The Mosaic Co.	Phosphate rock	Do.
Boron Mine	California	U.S. Borax Inc.	Boron	Do.
South Pasture	Florida	CF Industries, Inc.	Phosphate rock	Do.
Swift Creek	do.	PCS Phosphate Co., Inc.	do.	Do.
Aurora	North Carolina	do.	do.	Do.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	Stone, crushed	Quarry.
Roberta Plant/Calera Quarry	Alabama	Lafarge North America Inc.	do.	Do.
Beckmann	Texas	Martin Marietta Aggregates	do.	Do.
White Rock	Florida	Vecellio & Grogan, Inc.	do.	Do.
Balcones Plant	Texas	CEMEX S.A.B. de C.V.	do.	Do.
Ste. Genevieve Quarry	Missouri	Tower Rock Stone Co.	do.	Do.
Chico Quarry	Texas	Martin Marietta Aggregates	do.	Do.
Mosaic Potash Carlsbad	New Mexico	The Mosaic Co.	Potash	Stoping.
McCook 378	Illinois	Vulcan Materials Co.	Stone, crushed	Quarry.
F.E.C. Quarry	Florida	CEMEX S.A.B. de C.V.	do.	Do.
Peerless Mine	Missouri	Mississippi Lime Co.	do.	Underground.
Servtex	Texas	Lehigh Hanson	do.	Quarry.
Thornton Quarry	Illinois	do.	do.	Do.
Hunter Quarry	Texas	Hunter Industries, Ltd.	do.	Do.
Brooksville	Florida	CEMEX S.A.B. de C.V.	do.	Do.
TXI Mill Creek Quarry	Oklahoma	Texas Industries, Inc.	do.	Do.
Pittsboro	North Carolina	Luck Stone Corp.	do.	Do.
Pennsuco Quarry	Florida	Titan America LLC	do.	Do.
Macon Quarry	Georgia	Ready Mix USA Holding Co.	do.	Do.
TXI-Midlothian Cement Plant	Texas	Texas Industries, Inc.	do.	Do.

Do., do. Ditto.

<sup>1</sup>List includes private-sector operations only; excludes U.S. Bureau of Land Management and U.S. Forest Service operations.

<sup>2</sup>Where data are not reported for individual mining operations, ranking is on the basis of production as reported for a group of operations.

<sup>3</sup>Formerly listed as Betze-Post Mine.

<sup>4</sup>Includes Carlin Mines complex, Carlin East Mine, Deep Post Mine, Gold Quarry Mine, Leeville Mine, Midas Mine, Pete Mine, Phoenix Mine, Twin Creeks Mine, and Turquoise Ridge Mine; ore was mined from nine open pits and five underground mines.

TABLE 6  
MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES  
IN THE UNITED STATES IN 2008, BY SELECTED COMMODITY AND STATE<sup>1</sup>

(Thousand metric tons, unless otherwise specified)

Commodity or State	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
<b>Commodity:</b>						
<b>Metal ore:</b>						
Gold	(2)	(2)	233,000 <sup>3</sup>	206,000	5,640	212,000
Iron ore, usable	53,600	--	53,600	173,000	--	173,000
<b>Industrial minerals:</b>						
Clays	33,200	W	33,200	33,200	W	33,200
Feldspar <sup>4</sup>	649	--	649	1,130	--	1,130
Gypsum	13,100	1,270	14,400	13,100	1,270	14,400
Phosphate rock	30,200	--	30,200	124,000	--	124,000
Pumice <sup>5</sup>	791	--	791	791	--	791
Salt	(6)	47,300	47,300	(7)	47,600	47,600
<b>Sand and gravel:</b>						
Construction	1,040,000	--	1,040,000	1,040,000	--	1,040,000
Industrial	30,400	W	30,400	30,400	W	30,400
Soda ash	--	11,300	11,300	--	11,300	11,300
<b>Stone:</b>						
Crushed	1,360,000	79,700	1,440,000	1,360,000	79,700	1,440,000
Dimension	1,800	(8)	1,800	1,800	(9)	1,800
Talc	706	--	706	706	--	706
<b>State:</b>						
Alabama	66,700	(8)	66,700	66,700	(9)	66,700
Alaska	14,000	(8)	14,000	33,900	(9)	33,900
Arizona	80,600	(8)	80,600	605,000	--	605,000
Arkansas	42,800	(8)	42,800	42,800	(9)	42,800
California	165,000	(8)	165,000	179,000	(9)	179,000
Colorado	57,900	(8)	57,900	78,700	(9)	78,700
Connecticut	16,700	--	16,700	16,700	--	16,700
Delaware	3,190	--	3,190	3,190	--	3,190
Florida	115,000	--	115,000	115,000	--	115,000
Georgia	75,500	1,650	77,100	75,600	1,650	77,300
Hawaii	8,660	--	8,660	8,660	--	8,660
Idaho	28,200	(8)	28,200	39,200	(9)	39,200
Illinois	82,800	12,400	95,200	82,800	12,400	95,200
Indiana	68,500	4,690	73,100	69,500	5,750	75,300
Iowa	48,500	6,790	55,300	48,500	6,790	55,300
Kansas	33,800	3,200	37,000	33,800	3,200	37,000
Kentucky	39,200	18,100	57,300	40,600	19,500	60,100
Louisiana	32,600	13,800	46,400	33,700	14,500	48,200
Maine	13,500	--	13,500	13,500	--	13,500
Maryland	36,900	(8)	36,900	36,900	(9)	36,900
Massachusetts	22,000	--	22,000	22,000	--	22,000
Michigan	81,300	(8)	81,300	103,000	(9)	103,000
Minnesota	85,100	--	85,100	184,000	--	184,000
Mississippi	17,900	--	17,900	17,900	--	17,900
Missouri	76,800	12,100	88,900	76,800	17,100	93,900
Montana	14,800	(8)	14,800	40,200	(9)	40,200
Nebraska	21,700	(8)	21,700	21,700	(9)	21,700
Nevada	41,300	(8)	41,300	212,000	(9)	212,000
New Hampshire	13,100	--	13,100	13,100	--	13,100
New Jersey	32,800	--	32,800	32,800	--	32,800
New Mexico	24,300	(8)	24,300	67,200	(9)	67,200
New York	75,800	7,360	83,200	75,900	7,640	83,600
North Carolina	72,300	--	72,300	77,300	--	77,300

See footnotes at end of table.

TABLE 6—Continued  
 MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES  
 IN THE UNITED STATES IN 2008, BY SELECTED COMMODITY AND STATE<sup>1</sup>

(Thousand metric tons, unless otherwise specified)

Commodity or State	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
State—Continued:						
North Dakota	11,900	--	11,900	11,900	--	11,900
Ohio	79,900	6,700	86,600	79,900	6,700	86,600
Oklahoma	61,500	(8)	61,500	61,500	(9)	61,500
Oregon	37,400	--	37,400	37,500	--	37,500
Pennsylvania	92,200	10,800	103,000	94,900	13,500	108,000
Rhode Island	3,400	--	3,400	3,400	--	3,400
South Carolina	31,900	--	31,900	32,000	--	32,000
South Dakota	17,900	--	17,900	23,500	--	23,500
Tennessee	51,100	2,900	54,000	51,200	3,510	54,700
Texas	237,000	8,380	245,000	237,000	8,570	246,000
Utah	50,100	243	50,300	96,400	839	97,300
Vermont	9,490	--	9,490	9,490	--	9,490
Virginia	61,500	2,740	64,200	65,500	2,740	68,200
Washington	55,400	(8)	55,400	56,100	(9)	56,100
West Virginia	16,400	(8)	16,400	16,400	(9)	16,400
Wisconsin	64,500	(8)	64,500	64,500	(9)	64,500
Wyoming	33,500	10,300	43,900	33,500	10,300	43,900

W Withheld to avoid disclosing company proprietary data. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Withheld to avoid disclosing company proprietary data; included in "Marketable product, total."

<sup>3</sup>Kilograms.

<sup>4</sup>Includes aplite.

<sup>5</sup>Excludes volcanic cinder and scoria; included with "Crushed stone."

<sup>6</sup>Withheld to avoid disclosing company proprietary data; included in "Marketable product, underground."

<sup>7</sup>Withheld to avoid disclosing company proprietary data; included in "Ore treated or sold, underground."

<sup>8</sup>Withheld to avoid disclosing company proprietary data; included in "Marketable product, surface."

<sup>9</sup>Withheld to avoid disclosing company proprietary data; included in "Ore treated or sold, surface."

TABLE 7  
MINING METHODS USED AT SURFACE OPERATIONS IN THE UNITED STATES  
IN 2008, BY COMMODITY

(Percentage of total material handled)

Commodity	Preceded by drilling and blasting	Not preceded by drilling and blasting <sup>1</sup>
<u>Metal ore:</u>		
Beryllium	100	--
Copper	100	--
Copper-molybdenum	100	--
Gold	100	--
Gold-silver	100	--
Iron	95	5
Magnesium metal	--	100
Molybdenum	100	--
Titanium	--	100
Uranium	--	100
Zinc	100	--
<u>Industrial minerals:</u>		
Abrasives	100	--
Barite	--	100
Boron minerals	100	--
Bromine	2	98
Clays	--	100
Diatomite	5	95
Feldspar <sup>2</sup>	42	58
Garnet	30	70
Greensand marl	--	100
Gypsum	100	--
Iodine	--	100
Iron oxide pigments	--	100
Kyanite	100	--
Lithium minerals	--	100
Magnesite	100	--
Magnesium compounds	--	100
Mica, scrap	--	100
Olivine	51	49
Perlite	31	69
Phosphate rock	4	96
Potash	--	100
Pumice <sup>3</sup>	44	56
Salt	--	100
<u>Sand and gravel:</u>		
Construction	--	100
Industrial	--	100
<u>Stone:</u>		
Crushed	100	--
Dimension	--	100
Talc	91	9
Tripoli	56	44
Vermiculite	31	69
Wollastonite	100	--
Zeolites	99	1

-- Zero.

<sup>1</sup>Includes drilling and cutting without blasting, dredging, mechanical excavation and nonfloat washing, and other surface mining methods.

<sup>2</sup>Includes aplite.

<sup>3</sup>Excludes volcanic cinder and scoria; included with "Crushed stone."

TABLE 8  
EXPLORATION ACTIVITY IN THE UNITED STATES IN 2008, BY METHOD, COMMODITY, AND STATE<sup>1</sup>

(Meters)

Commodity or State	Churn and diamond drilling	Rotary and reverse circulation drilling	Percussion drilling, other drilling, and trenching	Grand total
Commodity:				
Gold	255,000	626,000	W	881,000
Silver	20,800	--	W	20,800
Other <sup>2</sup>	47,100	243,000	365,000	655,000
Total	323,000	869,000	365,000	1,560,000
Percentage of grand total	21	56	23	100
State:				
Alaska	3,540	1,370	W	4,900
Missouri	19,800	13,700	--	33,500
Nebraska	--	121,000	--	121,000
Nevada	245,000	670,000	W	915,000
New York	4,600	--	--	4,600
Undistributed <sup>3</sup>	49,700	63,500	365,000	478,000
Total	323,000	869,000	365,000	1,560,000

W Withheld to avoid disclosing company proprietary data; included with "Other" or "Undistributed." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes copper, diatomite, lead, uranium, vanadium, zinc, and commodities indicated by symbol W.

<sup>3</sup>Includes Arizona, California, Colorado, Idaho, Montana, Tennessee, Utah, Washington, Wyoming, and States indicated by symbol W.