

STATISTICAL SUMMARY

By Stephen D. Smith

This annual report summarizes data on crude nonfuel mineral production¹ for the United States, its island possessions, and the Commonwealth of Puerto Rico.

Although crude mineral production may be measured at any of several stages of extraction and processing, the stage of measurement used in this annual report is what is termed “mine output.” This term refers to minerals or ores in the form in which they are first extracted from the ground, but customarily may include the output from auxiliary processing at or near the mines.

Because of inadequacies in the statistics available, some series deviate from the foregoing definition. For copper, gold,

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 1998 USGS mineral production data published in this chapter are as of March 2000. For some commodities (for example, construction sand and gravel, crushed stone, and portland cement), data are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. A telephone listing for the specialists may be retrieved over the Internet at <http://minerals.usgs.gov/minerals/contacts/comdir.html>; by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document # 1000 for a telephone listing of all mineral commodity specialists); or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to revision to final data.

lead, silver, tin, and zinc, the quantities shown are recorded on a mine basis (as the recoverable content of ore sold or treated). The values assigned to the quantities, however, are based on the average selling price of refined metal, not the mine value. Mercury is measured as recovered metal and valued at the average New York price for the metal. Values shown are in current dollars, with no adjustments made to compensate for changes in the purchasing power of the dollar.

The annual total value of all nonfuel mineral production in the United States decreased more than 2.4% to \$39.6 billion in 1998, with metals decreasing almost 13.0% to \$11.4 billion and industrial minerals increasing almost 2.7% to \$28.2 billion compared with those of 1997. Nine of the mineral commodities produced in the United States in 1998 had an individual total production value that was greater than \$1 billion. These commodities were, in descending order, stone (crushed), cement (portland), sand and gravel (construction), gold, copper, iron ore (usable), lime, phosphate rock, and clays (kaolin). They composed almost 79% of the U.S. total production value. (See table 1.)

In 1998, 14 States produced nonfuel mineral commodities with individual total production values of greater than \$1 billion. These States were, in descending order, Nevada, California, Arizona, Texas, Florida, Minnesota, Georgia, Michigan, Missouri, Utah, Pennsylvania, Wyoming, Ohio, and Alabama. They composed slightly more than 62% of the U.S. total production value. (See table 3.)

TABLE 1
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998		
	Quantity	Value	Quantity	Value	Quantity	Value	
Metals:							
Antimony 3/	metric tons	242	W	356	W	242	W
Beryllium concentrates	do.	5,260	6	5,760	6	6,080	7
Copper 4/		1,920	4,610,000	1,940	4,580,000	1,860	3,220,000
Gold 4/	kilograms	326,000	4,090,000	362,000 r/	3,870,000 r/	366,000	3,480,000
Iron ore, usable		62,200	1,770,000	62,800	1,890,000	63,200	1,970,000
Iron oxide pigments, crude	metric tons	44,700	6,990	46,900	7,580	46,100	7,290
Lead 4/	do.	426,000	459,000	448,000	460,000	481,000	480,000
Magnesium metal	do.	133,000	455,000	125,000	400,000	106,000	344,000
Molybdenum 3/	do.	57,900	456,000	59,100	W	52,100	W
Nickel ore 5/	do.	1,330	W	--	--	--	--
Palladium	kilograms	6,100	25,500	8,400	49,700	10,600	98,600
Platinum	do.	1,840	23,500	2,610	33,200	3,240	38,800
Rare-earth metal concentrates	metric tons	20,400	W	20,000 e/	W	5,000 e/	14,400 e/
Silver 4/	do.	1,570	262,000	2,180 r/	343,000 r/	2,060	339,000
Zinc 4/	do.	598,000	674,000	605,000	860,000	722,000	819,000
Combined value of bauxite, manganiferous ore, mercury, titanium concentrates, tungsten, vanadium, zirconium concentrates and values indicated by symbol W		XX	190,000	XX	614,000	XX	590,000
Total		XX	13,000,000	XX	13,100,000	XX	11,400,000
Industrial minerals, excluding fuels:							
Asbestos	metric tons	9,550	W	6,890	W	5,760	W
Barite		662	14,700	692	15,500	476	11,400
Boron minerals, B ₂ O ₃		1,150	519,000	604 6/	580,000	1,170	486,000
Bromine	metric tons	227,000	150,000	247,000	198,000	230,000	162,000
Cement:							
Masonry		3,470	321,000 e/	3,630	339,000 e/	3,990	391,000 e/
Portland		75,800	5,310,000 e/	78,900	5,710,000 e/	79,900	6,030,000 e/
Clays:							
Ball		973	43,100	1,040	48,100	1,130	51,100
Bentonite		3,740	134,000	4,020	169,000	3,820	176,000
Common		26,200	144,000	24,500	149,000	24,500	146,000
Fire		505	10,700	649	9,450	410	7,520
Fuller's earth		2,600	278,000	2,370	255,000	2,350	230,000
Kaolin		9,120	1,100,000	9,410	1,040,000	9,450	1,050,000
Diatomite		698	176,000	766	184,000	725	180,000
Feldspar	metric tons	890,000	39,400	900,000	42,500	820,000	40,800
Fluorspar 7/	do.	8,180	W	--	--	--	--
Garnet, industrial	do.	60,900	5,630	64,900	6,050	74,000	7,070
Gemstones		NA	43,300	NA	25,000	NA	14,300
Gypsum, crude		17,500	124,000	18,600	132,000	19,000	132,000
Helium:							
Crude	million cubic meters	37	33,100	37	33,700	33	29,700
Grade-A	do.	97	193,000	104	206,000	110	219,000
Iodine	metric tons	1,270	14,600	1,320	19,600	W	W
Kyanite		W	W	W	W	90	13,200
Lime		19,200	1,160,000	19,600	1,200,000	20,100	1,210,000
Mica, crude		97	7,820	114	9,400	87	7,550
Peat		640	18,500	750	17,500	785	18,900
Perlite, crude	metric tons	684,000	21,300	706,000	23,300	685,000	21,800
Phosphate rock, marketable		45,400	1,060,000	45,900	1,080,000	44,200	1,110,000
Potash		2,960	299,000	3,000	320,000	3,000	320,000
Pumice and pumicite	metric tons	612,000	14,800	577,000	16,100	583,000	12,600
Salt		42,900	1,060,000	40,600	993,000	40,800	986,000
Sand and gravel:							
Construction		914,000	4,000,000	952,000	4,260,000	1,080,000	4,920,000
Industrial		27,800	497,000	28,500	518,000	28,200	513,000
Silica stone 8/	metric tons	410	4,050	445	2,560	438	3,440

See footnotes at end of table.

TABLE 1--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Industrial minerals, excluding fuels--Continued:						
Sodium compounds:						
Soda ash	10,200	926,000	10,700	915,000	10,100	842,000
Sodium sulfate, natural	306	27,200	318	34,700	(9/)	(9/)
Stone, crushed 10/	1,330,000	7,180,000	1,420,000	8,050,000 r/	1,510,000	8,130,000
Tripoli metric tons	79,600	18,400	81,300	16,400	79,600	16,900
Zeolites do.	39,300	NA	30,100	NA	38,500	NA
Combined value of brucite, emery, greensand marl, lithium minerals, magnesite, magnesium compounds, olivine, staurolite, stone (dimension), sulfur (Frasch), talc and pyrophyllite, vermiculite (crude), wollastonite and values indicated by symbol W	XX	820,000	XX	803,000	XX	658,000
Total	XX	25,800,000	XX	27,400,000	XX	28,200,000
Grand total	XX	38,800,000	XX	40,500,000	XX	39,600,000

e/ Estimated. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value." 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.

3/ Content of ore and concentrate.

4/ Recoverable content of ores, etc.

5/ No production at the Nickel Mountain Mine near Riddle, OR, in 1998. The Glenbrook Nickel Company permanently closed the mine and adjoining smelter on March 31, 1998.

6/ Weight reported as B₂O₃ and is not comparable to other years.

7/ No further domestic production expected.

8/ Includes grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles.

9/ Canvassing discontinued.

10/ Excludes abrasive stone and bituminous limestone and sandstone; all included elsewhere in table.

TABLE 2
NONFUEL MINERALS PRODUCED IN THE UNITED STATES, BY COMMODITY AND STATES IN 1998

(Based on quantity unless otherwise noted)

Mineral	Principal States	Other States
Antimony 1/	ID	
Asbestos	CA	
Barite	NV, GA, TN	
Beryllium concentrate	UT	
Boron, B ₂ O ₃	CA	
Bromine	AR and MI	
Brucite	NV	
Cement:		
Masonry	FL, IN, CA, SC, AL	AZ, AR, CO, GA, HI, IA, KS, KY, ME, MD, MI, MO, MT, NE, NM, NY, OH, OK, PA, SD, TN, TX, VA, WA, WV.
Portland	CA, TX, PA, MI, MO	All other States, except AK, CT, DE, LA, MA, MN, NH, NJ, NC, ND, RI, VT, WI.
Clays:		
Ball	TN, TX, KY, MS, IN	
Bentonite	WY, AL, MT, MS, UT	AZ, CA, CO, NV, OR, TX.
Common	AL, NC, TX, GA, OH	All other States, except AK, DE, HI, ID, NV, NH, RI, VT, WI.
Fire	MO, OH, SC, CA, KY	AL and NM.
Fuller's earth	GA, MO, MS, FL, CA	IL, KS, NV, TN, TX, VA.
Kaolin	GA, SC, AL, AR, CA	FL, NV, NC, PA, TN, TX.
Copper 1/	AZ, UT, NM, NV, MT	AK, ID, MO, TN.
Diatomite	CA, NV, OR, WA	
Emery	OR	
Feldspar	NC, VA, CA, GA, OK	ID and SD.
Garnet, abrasive	NY, ID, MT	
Gemstones, natural 2/	TN, AZ, CA, OR, NC	All other States.
Gold 1/	NV, CA, AK, UT, SD	AZ, CO, ID, MT, NM, SC, WA.
Greensand marl	NJ and TX	
Gypsum, crude	OK, IA, TX, MI, CA	AZ, AR, CO, IN, KS, LA, NV, NM, NY, OH, SD, UT, VA, WY.
Helium:		
Crude	KS, TX, OK	
Grade-A	KS, WY, OK, UT, CO	TX.
Iodine	OK	
Iron ore, usable	MN, MI, MO, SD, NM	CA, MT, NV.
Iron oxide pigments, crude	MO, MI, GA, AL, VA	AZ.
Kyanite	VA	
Lead 1/	MO, AK, ID, MT, CO	NY and TN.
Lime	MO, KY, AL, OH, TX	All other States, except AK, CT, DE, FL, HI, KS, ME, MD, MS, NH, NJ, NM, NY, NC, RI, SC, VT.
Lithium minerals	NV and NC	
Magnesite	NV	
Magnesium compounds	MI, CA, FL, UT, DE	TX.
Magnesium metal	UT, TX, WA	
Mercury	UT	
Mica, crude	NC, GA, NM, SC, SD	
Molybdenum	AZ, CO, ID, UT, MT	NM.
Olivine	WA and NC	
Palladium metal	MT	
Peat	FL, MI, IL, IN, MN	CO, IA, ME, MT, NJ, NY, NC, ND, OH, PA, WA, WV, WI.
Perlite	NM, AZ, CA, OR, UT	NV.
Phosphate rock	FL, NC, ID, UT	
Platinum metal	MT	
Potash	NM, UT, MI	
Pumice and pumicite	OR, CA, NM, ID, AZ	KS.
Rare-earth metal concentrates	CA	
Salt	LA, TX, NY, OH, KS	AL, AZ, CA, MI, NV, NM, OK, TN, UT, WV.
Sand and gravel:		
Construction	CA, TX, MI, OH, AZ	All other States.
Industrial	IL, MI, NJ, TX, WI	All other States, except AK, CT, DE, HI, KY, ME, MT, NH, NM, OR, SD, UT, VT, WY.
Silica stone 3/	AR, WI, OH	
Silver 1/	NV, AK, ID, AZ, UT	CA, CO, MO, MT, NM, NY, SC, SD, TN, WA.
Soda ash	WY and CA	
Staurolite	FL	

See footnotes at end of table.

TABLE 2--Continued
NONFUEL MINERALS PRODUCED IN THE UNITED STATES, BY COMMODITY AND STATES IN 1998

(Based on quantity unless otherwise noted)

Mineral	Principal States	Other States
Stone:		
Crushed	TX, PA, FL, OH, GA	All other States, except DE.
Dimension	IN, VT, MA, WI, GA	All other States except AK, DE, FL, HI, IL, IA, KY, LA, MS, NE, NV, NJ, ND, OR, RI, UT, WY.
Sulfur, Frasch	LA and TX	
Talc and pyrophyllite	MT, TX, VT, NY, NC	CA and OR.
Titanium concentrates:		
Ilmenite	FL, VA, CA	
Rutile	FL	
Tripoli	IL, OK, AR, PA	
Vanadium 1/	ID	
Vermiculite, crude	SC and VA	
Wollastonite	NY	
Zeolites	NM, TX, OR, CA, AZ	NV and WY.
Zinc 1/	AK, TN, NY, MO, MT	CO and ID.
Zircon concentrates	FL and VA	

1/ Content of ores, etc.

2/ Principal producing States based on value.

3/ Includes grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles.

TABLE 3

VALUE OF NONFUEL MINERAL PRODUCTION IN THE UNITED STATES AND PRINCIPAL NONFUEL RAW MINERALS PRODUCED IN 1998 1/

State	Value (thousands)	Rank	Percent of U.S. total	Principal minerals, in order of value
Alabama	\$1,010,000	14	2.55	Stone (crushed), cement (portland), lime, sand and gravel (construction), cement (masonry).
Alaska	999,000	15	2.53	Zinc, gold, lead, silver, sand and gravel (construction).
Arizona	2,770,000	3	6.99	Copper, sand and gravel (construction), cement (portland), molybdenum, lime.
Arkansas	484,000	30	1.22	Stone (crushed), bromine, cement (portland), sand and gravel (construction), sand and gravel (industrial).
California	2,980,000	2	7.55	Sand and gravel (construction), cement (portland), boron, stone (crushed), gold.
Colorado	650,000	22	1.64	Sand and gravel (construction), molybdenum, cement (portland), gold, stone (crushed).
Connecticut 2/	98,700	43	0.25	Stone (crushed), sand and gravel (construction), stone (dimension), clays (common), gemstones.
Delaware 2/	11,500	50	0.03	Sand and gravel (construction), magnesium compounds, gemstones.
Florida	1,810,000	5	4.57	Phosphate rock, stone (crushed), cement (portland), sand and gravel (construction), zirconium concentrates.
Georgia	1,720,000	7	4.35	Clays (kaolin), stone (crushed), cement (portland), clays (fuller's earth), sand and gravel (construction).
Hawaii	84,500	45	0.21	Stone (crushed), cement (portland), sand and gravel (construction), cement (masonry), gemstones.
Idaho	453,000	32	1.15	Phosphate rock, silver, molybdenum, sand and gravel (construction), gold.
Illinois	875,000	18	2.21	Stone (crushed), cement (portland), sand and gravel (construction), sand and gravel (industrial), lime.
Indiana	691,000	21	1.75	Stone (crushed), cement (portland), sand and gravel (construction), lime, cement (masonry).
Iowa	518,000	27	1.31	Stone (crushed), cement (portland), sand and gravel (construction), gypsum (crude), lime.
Kansas	551,000	26	1.39	Cement (portland), salt, stone (crushed), helium (Grade-A), sand and gravel (construction).
Kentucky	498,000	29	1.26	Stone (crushed), lime, cement (portland), sand and gravel (construction), clays (ball).
Louisiana	347,000	34	0.88	Salt, sulfur (Frasch), sand and gravel (construction), sand and gravel (industrial), clays (common).
Maine	91,600	44	0.23	Sand and gravel (construction), cement (portland), stone (crushed), peat, cement (masonry).
Maryland	352,000	33	0.89	Stone (crushed), cement (portland), sand and gravel (construction), cement (masonry), stone (dimension).
Massachusetts	204,000	39	0.52	Stone (crushed), sand and gravel (construction), stone (dimension), lime, clays (common).
Michigan	1,670,000	8	4.23	Iron ore (usable), cement (portland), sand and gravel (construction), stone (crushed), magnesium compounds.
Minnesota	1,740,000	6	4.40	Iron ore (usable), sand and gravel (construction), stone (crushed), stone (dimension), sand and gravel (industrial).
Mississippi	149,000	41	0.38	Sand and gravel (construction), cement (portland), clays (fuller's earth), sand and gravel (industrial), clays (bentonite).
Missouri	1,320,000	9	3.34	Stone (crushed), lead, cement (portland), lime, zinc.
Montana	502,000	28	1.27	Palladium metal, gold, copper, cement (portland), platinum.
Nebraska 2/	98,700	42	0.25	Cement (portland), stone (crushed), sand and gravel (construction), lime, cement (masonry).
Nevada	3,170,000	1	8.02	Gold, copper, sand and gravel (construction), silver, lime.
New Hampshire 2/	67,600	47	0.17	Sand and gravel (construction), stone (crushed), stone (dimension), gemstones.
New Jersey	290,000	37	0.73	Stone (crushed), sand and gravel (construction), sand and gravel (industrial), greensand marl, peat.
New Mexico	888,000	17	2.25	Copper, potash, molybdenum, sand and gravel (construction), cement (portland).
New York	972,000	16	2.46	Stone (crushed), salt, cement (portland), sand and gravel (construction), zinc.
North Carolina	750,000	19	1.90	Stone (crushed), phosphate rock, sand and gravel (construction), sand and gravel (industrial), feldspar.
North Dakota	38,300	48	0.10	Sand and gravel (construction), lime, stone (crushed), clays (common), sand and gravel (industrial).
Ohio	1,030,000	13	2.61	Stone (crushed), sand and gravel (construction), salt, lime, cement (portland).
Oklahoma	460,000	31	1.16	Stone (crushed), cement (portland), sand and gravel (construction), sand and gravel (industrial), helium (Grade-A).
Oregon	301,000	36	0.76	Stone (crushed), sand and gravel (construction), cement (portland), diatomite, lime.
Pennsylvania	1,230,000	11	3.11	Stone (crushed), cement (portland), sand and gravel (construction), lime, cement (masonry).
Rhode Island 2/	25,300	49	0.06	Stone (crushed), sand and gravel (construction), sand and gravel (industrial), gemstones.
South Carolina	562,000	25	1.42	Cement (portland), stone (crushed), cement (masonry), sand and gravel (construction), gold.
South Dakota	258,000	38	0.65	Gold, cement (portland), sand and gravel (construction), stone (crushed), stone (dimension).
Tennessee	705,000	20	1.78	Stone (crushed), zinc, cement (portland), sand and gravel (construction), clays (ball).
Texas	1,820,000	4	4.61	Cement (portland), stone (crushed), sand and gravel (construction), magnesium metal, lime.
Utah	1,320,000	10	3.34	Copper, sand and gravel (construction), gold, magnesium metal, cement (portland).
Vermont 2/	74,200	46	0.19	Stone (crushed), stone (dimension), sand and gravel (construction), talc and pyrophyllite, gemstones.
Virginia	636,000	23	1.61	Stone (crushed), cement (portland), sand and gravel (construction), lime, clays (fuller's earth).
Washington	609,000	24	1.54	Sand and gravel (construction), stone (crushed), magnesium metal, cement (portland), gold.
West Virginia	170,000	40	0.43	Stone (crushed), cement (portland), sand and gravel (industrial), lime, salt.
Wisconsin 2/	323,000	35	0.82	Stone (crushed), sand and gravel (construction), lime, sand and gravel (industrial), stone (dimension).
Wyoming	1,070,000	12	2.72	Soda ash, clays (bentonite), helium (Grade-A), cement (portland), stone (crushed).
Undistributed	98,200	XX	0.25	
Total	39,600,000	XX	100.00	

XX Not applicable.

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

2/ Partial total; excludes values that must be concealed to avoid disclosing company proprietary data. Concealed values included with "Undistributed."

TABLE 4
VALUE OF NONFUEL MINERAL PRODUCTION PER CAPITA AND PER SQUARE KILOMETER IN 1998, BY STATE 1/

State	Area (square kilometers)	Population (thousands)	Total value (thousands)	Per capita		Per square kilometer	
				Dollars	Rank	Dollars	Rank
Alabama	134,000	4,370	\$1,010,000	231	12	7,530	15
Alaska	1,530,000	620	999,000	1,610	3	653	48
Arizona	295,000	4,780	2,770,000	579	5	9,370	10
Arkansas	138,000	2,550	484,000	190	15	3,510	29
California	411,000	33,100	2,980,000	90	34	7,260	18
Colorado	270,000	4,060	650,000	160	18	2,410	39
Connecticut	13,000	3,280	98,700 2/	30	48	7,590	14
Delaware	5,290	754	11,500 2/	15	50	2,180	41
Florida	152,000	15,100	1,810,000	120	24	11,900	3
Georgia	153,000	7,790	1,720,000	221	13	11,300	4
Hawaii	16,800	1,190	84,500	71	38	5,040	25
Idaho	216,000	1,250	453,000	362	9	2,090	42
Illinois	146,000	12,100	875,000	72	37	6,000	23
Indiana	93,700	5,940	691,000	116	25	7,370	16
Iowa	146,000	2,870	518,000	180	16	3,550	28
Kansas	213,000	2,650	551,000	208	14	2,590	37
Kentucky	105,000	3,960	498,000	126	22	4,760	26
Louisiana	124,000	4,370	347,000	79	35	2,800	34
Maine	86,200	1,250	91,600	73	36	1,060	47
Maryland	27,100	5,170	352,000	68	39	13,000	2
Massachusetts	21,500	6,180	204,000	33	47	9,530	9
Michigan	152,000	9,860	1,670,000	169	17	11,000	6
Minnesota	219,000	4,780	1,740,000	365	8	7,960	12
Mississippi	124,000	2,770	149,000	54	44	1,210	45
Missouri	181,000	5,470	1,320,000	242	11	7,320	17
Montana	381,000	883	502,000	568	6	1,320	43
Nebraska	200,000	1,670	98,700 2/	59	42	493	49
Nevada	286,000	1,810	3,170,000	1,750	2	11,100	5
New Hampshire	24,000	1,200	67,600 2/	56	43	2,810	33
New Jersey	20,200	8,140	290,000	36	46	14,400	1
New Mexico	315,000	1,740	888,000	510	7	2,820	32
New York	127,000	18,200	972,000	53	45	7,650	13
North Carolina	136,000	7,650	750,000	98	28	5,500	24
North Dakota	183,000	634	38,300	60	41	209	50
Ohio	107,000	11,300	1,030,000	92	31	9,640	8
Oklahoma	181,000	3,360	460,000	137	20	2,540	38
Oregon	251,000	3,320	301,000	91	33	1,200	46
Pennsylvania	117,000	12,000	1,230,000	103	27	10,500	7
Rhode Island	3,140	991	25,300 2/	26	49	8,070	11
South Carolina	80,600	3,890	562,000	145	19	6,970	19
South Dakota	200,000	733	258,000	352	10	1,290	44
Tennessee	109,000	5,480	705,000	129	21	6,460	20
Texas	691,000	20,000	1,820,000	91	32	2,640	36
Utah	220,000	2,130	1,320,000	620	4	6,010	22
Vermont	24,900	594	74,200 2/	125	23	2,980	31
Virginia	106,000	6,870	636,000	93	30	6,020	21
Washington	176,000	5,760	609,000	106	26	3,450	30
West Virginia	62,800	1,810	170,000	94	29	2,700	35
Wisconsin	145,000	5,250	323,000 2/	62	40	2,220	40
Wyoming	253,000	480	1,070,000	2,240	1	4,240	27
Undistributed	XX	XX	98,200	XX	XX	XX	XX
Total or average	9,370,000 3/	272,000 3/	39,600,000	145	XX	4,220	XX

XX Not applicable.

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

2/ Partial total; excludes values that must be concealed to avoid disclosing company proprietary data. Concealed values included with "Undistributed."

3/ Excludes Washington, DC (which has no mineral production), with an area of 179 square kilometers and a population of 519,000.

Sources: U.S. Geological Survey and Bureau of the Census.

TABLE 5
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Alabama:						
Cement:						
Masonry	309	32,000 e/	346	36,200 e/	371	39,100 e/
Portland	4,330	326,000 e/	4,280	344,000 e/	4,310	353,000 e/
Clays:						
Bentonite	166	5,060	W	W	W	W
Common	2,290	17,100	2,590	25,400	2,400	23,100
Fire	52	2,800	W	W	W	W
Kaolin	254	W	W	W	W	W
Gemstones	NA	2,000	NA	860	NA	76
Lime	1,860	116,000	1,830	115,000	1,960	119,000
Sand and gravel:						
Construction	13,800	60,600	13,400	58,800	14,400	64,100
Industrial	799	8,380	734	9,730	757	9,910
Stone, crushed	38,900	198,000	42,000	273,000	48,900	383,000
Combined values of iron oxide pigments [crude, (1997-98)], salt, stone (dimension limestone and sandstone), and values indicated by symbol W	XX	9,930	XX	17,600	XX	18,500
Total	XX	778,000	XX	881,000	XX	1,010,000
Alaska:						
Gemstones	NA	11	NA	11	NA	11
Gold 3/ 4/ kilograms	5,020	61,000	18,400 r/	196,000 r/	18,300	174,000
Sand and gravel, construction	9,380	35,900	12,500	57,400	13,700	72,700
Stone, crushed 5/	2,600	16,500	3,340	23,500	1,700	9,970
Combined values of copper, lead, silver, stone [crushed dolomite and limestone (1996-97), crushed dolomite, limestone, shell, slate (1998)], zinc	XX	500,000	XX	706,000 r/	XX	743,000
Total	XX	613,000	XX	983,000 r/	XX	999,000
Arizona:						
Clays, common	104	W	W	W	W	W
Copper 3/	1,240	2,980,000	1,250	2,940,000	1,190	2,060,000
Gemstones	NA	2,360	NA	2,360	NA	2,120
Gold 3/ kilograms	2,990	37,500	2,140	22,800	1,840	17,400
Molybdenum do.	W	W	14,400	W	16,600	W
Sand and gravel:						
Construction	41,900	199,000	39,500	187,000	47,900	229,000
Industrial	323	2,890	330	3,160	307	3,290
Silver 3/ metric tons	189	31,500	190	29,900	211	34,700
Stone, crushed	6,800	40,600	7,490	44,000	8,080	44,800
Zeolites metric tons	(6)	NA	(6)	NA	(6)	NA
Combined values of cement, clays (bentonite), gypsum (crude), iron oxide pigments (crude), lime, perlite (crude), pumice and pumicite, salt, stone (dimension sandstone), and values indicated by symbol W	XX	308,000	XX	312,000	XX	370,000
Total	XX	3,600,000	XX	3,540,000	XX	2,770,000
Arkansas:						
Clays:						
Common	939	2,390	979	1,400	995	1,370
Kaolin	161	W	W	W	W	W
Gemstones	NA	3,050	NA	980	NA	912
Sand and gravel, construction	11,000	43,500	10,600	48,100	12,100	55,400
Silica stone 7/ metric tons	398	4,040	424	2,540	404	3,400
Stone, crushed	26,400	158,000	28,100	167,000	35,700	180,000
Combined values of bromine, cement, clays [fire, (1996)], gypsum (crude), lime, sand and gravel (industrial), stone (dimension limestone, marble, sandstone), tripoli, and values indicated by symbol W	XX	225,000	XX	267,000	XX	242,000
Total	XX	435,000	XX	487,000	XX	484,000

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
California:						
Asbestos metric tons	9,550	W	6,890	W	5,760	W
Boron minerals	1,150	519,000	604 8/	580,000	1,170	486,000
Cement:						
Masonry	198	14,500 e/	169	13,500 e/	410	39,600 e/
Portland	9,910	616,000 e/	10,300	705,000 e/	10,000	746,000 e/
Clays:						
Bentonite	148	13,900	29	3,420	29	2,700
Common	1,340	12,600	937	10,300	918	9,610
Fire	60	W	W	W	W	W
Fuller's earth	224	W	W	W	W	W
Kaolin	W	W	75	W	W	W
Gemstones	NA	507	NA	1,330	NA	1,810
Gold 3/ kilograms	24,200	304,000	24,200 r/	258,000 r/	18,700	177,000
Lime	208	19,200	200	20,300	185	18,100
Rare-earth metal concentrates metric tons	20,400	W	20,000 e/	W	5,000 e/	14,400 e/
Sand and gravel:						
Construction	103,000	583,000	115,000	668,000	135,000	801,000
Industrial	1,760	40,500	1,920	44,900	1,740	40,400
Silver 3/ metric tons	22	3,610	23	3,630 r/	11	1,860
Stone:						
Crushed	46,700	295,000	49,600	325,000	55,100	344,000
Dimension metric tons	28,600	7,020	26,200	4,300	28,500	4,710
Zeolites do.	--	--	--	--	(6/)	NA
Combined values of diatomite, feldspar, gypsum (crude), iron ore (usable), magnesium compounds, mercury (1996-97), perlite (crude), potash (1996-97), pumice and pumicite, salt, soda ash, sodium sulfate (natural), talc and pyrophyllite, titanium concentrates (ilmenite), and values indicated by symbol W	XX	409,000	XX	401,000	XX	318,000
Total	XX	2,840,000	XX	3,040,000	XX	3,000,000
Colorado:						
Clays:						
Bentonite	1	19	--	--	W	W
Common	317	2,320	258	1,970	257	1,840
Kaolin	6	W	--	--	--	--
Gemstones	NA	754	NA	254	NA	257
Lime	W	W	30	1,850	40	1,820
Sand and gravel, construction	31,600	133,000	32,100	142,000	42,900	195,000
Silver 3/ metric tons	7	1,240	W	W	W	W
Stone:						
Crushed	9,940	64,900	9,720	60,800	12,000	63,800
Dimension metric tons	23,900	3,330	10,800	3,250	14,200	3,410
Combined values of cement, gold, gypsum (crude), helium (Grade-A), lead, molybdenum, peat, sand and gravel (industrial), zinc, and values indicated by symbol W	XX	308,000	XX	313,000	XX	384,000
Total	XX	513,000	XX	524,000	XX	650,000
Connecticut:						
Clays, common	W	W	48	90	55	W
Gemstones	NA	5	NA	5	NA	5
Sand and gravel, construction	6,380	26,900	5,410	24,800	6,380	29,200
Stone, crushed	6,720	55,000	5,760	55,300	7,660	69,400
Total 9/	XX	81,900	XX	80,200	XX	98,700
Delaware:						
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	2,370	6,820	2,540	12,400	2,560	11,500
Total 9/	XX	6,820	XX	12,400	XX	11,500

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Florida:						
Cement:						
Masonry	422	35,200 e/	406	36,200 e/	442	40,600 e/
Portland	3,450	245,000 e/	3,750	274,000 e/	3,470	259,000 e/
Clays:						
Fuller's earth	377	58,900	W	W	W	W
Kaolin	35	3,760	W	W	W	W
Gemstones	NA	1	NA	1	NA	1
Peat	298	5,550	361	5,710	391	7,360
Sand and gravel:						
Construction	18,500	68,800	19,200	75,500	20,900	84,600
Industrial	515	6,340	507	5,800	525	6,150
Stone, crushed 5/	73,600	394,000	73,800	396,000	81,000	377,000
Combined values of clays (common), magnesium compounds, phosphate rock, staurolite, stone (crushed marl), titanium concentrates, zirconium concentrates, and values indicated by symbol W	XX	947,000	XX	1,040,000	XX	1,030,000
Total	XX	1,760,000	XX	1,830,000	XX	1,810,000
Georgia:						
Clays:						
Common	1,660	11,200	1,820	11,600	1,650	5,470
Fuller's earth	739	89,200	576	70,500	686	74,800
Kaolin	8,040	1,050,000	8,200 r/	977,000 r/	8,350	998,000
Gemstones	NA	32	NA	8	NA	8
Sand and gravel:						
Construction	6,520	24,500	6,410	24,600	7,130	29,500
Industrial	313	5,650	520	9,330	608	10,900
Stone:						
Crushed 5/	63,400	401,000	65,300	429,000	74,200	440,000
Dimension 5/ metric tons	89,600	10,300	65,800 r/	8,480 r/	72,100	8,790
Combined values of barite, cement, feldspar, iron oxide pigments (crude), lime (1997-98), mica (crude), stone [crushed marble, dimension marble (1996-97)]	XX	148,000	XX	144,000	XX	152,000
Total	XX	1,740,000	XX	1,670,000 r/	XX	1,720,000
Hawaii:						
Cement:						
Masonry	5	500 e/	3	332 e/	3	329 e/
Portland	312	32,000 e/	252	29,600 e/	251	25,600 e/
Gemstones	NA	153	NA	66	NA	77
Sand and gravel, construction	W	W	378	4,210	368	4,590
Stone, crushed	6,580 r/	77,700 r/	5,560	59,500	5,500	53,900
Total	XX	110,000 9/	XX	93,700	XX	84,500
Idaho:						
Antimony metric tons	242	W	356	W	242	W
Gemstones	NA	347	NA	687	NA	321
Gold 3/ kilograms	10,800	136,000	7,490	80,100	W	W
Pumice and pumicite metric tons	159,000	1,340	83,100	758	73,400	686
Sand and gravel:						
Construction	14,700	46,100	14,800	42,700	16,600	52,400
Industrial	646	8,510	630	7,950	710	8,470
Silver 3/ metric tons	234	39,000	341	53,600 r/	447	73,200
Stone:						
Crushed	3,960 5/	20,200 5/	3,910 5/	18,700 5/	4,180	18,400
Dimension	W	W	W	W	15,900	4,710

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Idaho--Continued:						
Combined values of cement [masonry (1996-97), portland], copper, feldspar, garnet (industrial), lead, lime, molybdenum, phosphate rock, stone [crushed quartzite (1997), crushed miscellaneous (1996), dimension quartzite and miscellaneous (1996-97)], vanadium ore, zinc, and values indicated by symbol W	XX	249,000	XX	264,000	XX	295,000
Total	XX	500,000	XX	469,000	XX	453,000
Illinois:						
Cement, portland	2,620	181,000 e/	2,590	186,000 e/	2,690	207,000 e/
Clays:						
Common	155 r/	736	100	533	123	560
Fuller's earth	330	W	W	W	W	W
Fluorspar 10/ metric tons	8,180	W	--	--	--	--
Gemstones	NA	890	NA	8	NA	8
Sand and gravel:						
Construction	34,600	144,000	33,400	143,000	34,100	150,000
Industrial	4,460	66,400	4,610	67,900	4,580	71,100
Stone, crushed	66,500	364,000	65,700	357,000	72,100 5/	371,000 5/
Combined values of copper (1996), lead (1996), lime, peat, silver (1996), stone [crushed sandstone (1998)], tripoli, zinc (1996), and values indicated by symbol W	XX	89,100	XX	73,600	XX	75,400
Total	XX	846,000	XX	829,000	XX	875,000
Indiana:						
Cement, portland	2,350	153,000 e/	2,400	168,000 e/	2,500	176,000 e/
Clays:						
Ball	38	W	--	--	W	W
Common	1,510	3,500	947	2,040	681	1,330
Gemstones	NA	3	NA	3	NA	3
Sand and gravel, construction	24,800	100,000	21,900	93,100	24,000	101,000
Stone:						
Crushed 5/	53,700	254,000	59,000	280,000	61,600	283,000
Dimension metric tons	156,000 5/	24,500 5/	190,000 5/	24,900 5/	220,000	28,200
Combined values of cement (masonry), gypsum (crude), lime, peat, sand and gravel (industrial), stone [crushed slate, dimension dolomite (1996-97)], and values indicated by symbol W	XX	92,800	XX	101,000	XX	102,000
Total	XX	628,000	XX	670,000	XX	691,000
Iowa:						
Cement, portland	2,390	177,000 e/	2,550	195,000 e/	2,610	211,000 e/
Clays: Common	478	1,180	287	976	301	1,040
Gemstones	NA	481	NA	91	NA	4
Gypsum, crude	2,090	12,800	2,080	12,200	W	W
Sand and gravel, construction	13,300	54,600	12,600	51,300	13,500	58,500
Stone, crushed	34,400	202,000	37,300	215,000	41,800	219,000
Combined values of cement (masonry), lime, peat, sand and gravel (industrial), and value indicated by symbol W	XX	11,100	XX	12,500	XX	27,700
Total	XX	460,000	XX	486,000	XX	518,000
Kansas:						
Cement:						
Masonry	24	2,240 e/	W	W	W	W
Portland	1,730	120,000 e/	1,690	122,000 e/	1,800	138,000 e/
Clays:						
Common	548	2,250	545	2,500	585	2,510
Fuller's earth	64	W	W	W	W	W
Gemstones	NA	621	NA	291	NA	29
Helium, Grade-A million cubic meters	53	104,000	51	101,000	56	110,000
Salt	2,950	118,000	3,210	120,000	3,090	120,000

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Kansas--Continued:						
Sand and gravel, construction	11,500	31,300	11,200	31,600	10,800	31,400
Stone:						
Crushed	22,100	110,000	23,000	116,000	21,800	115,000
Dimension metric tons	21,400 5/	2,100 5/	21,000 5/	1,710 5/	15,800	1,240
Combined values of gypsum (crude), helium (crude), pumice and pumicite, sand and gravel (industrial), stone [dimension sandstone (1996-97)], and values indicated by symbol W	XX	40,600	XX	44,200	XX	31,400
Total	XX	530,000	XX	539,000	XX	551,000
Kentucky:						
Clays:						
Ball	70	W	W	W	W	W
Common	823	3,680	865	3,910	872	3,930
Gemstones	NA	5,910	NA	3,520	NA	263
Sand and gravel, construction	7,310	25,600	8,140	26,600	8,100	27,500
Stone, crushed 5/	58,500	243,000	62,700 r/	292,000	59,500	291,000
Combined values of cement, clays [fire (1997-98)], lime, stone (crushed sandstone), and values indicated by symbol W	XX	164,000	XX	172,000	XX	175,000
Total	XX	442,000	XX	498,000	XX	498,000
Louisiana:						
Clays, common	382	548	556	9,060	620	11,100
Gemstones	NA	136	NA	15	NA	5
Salt	15,500	175,000	15,300	169,000	14,900	173,000
Sand and gravel:						
Construction	11,500	53,200	10,400	46,600	11,400	53,800
Industrial	706	12,100	644	11,200	623	12,100
Stone, crushed	2,290 5/	23,900 5/	1,570 r/ 5/	16,100 r/ 5/	W	W
Combined values of gypsum (crude), lime, stone [crushed limestone (1997), crushed sandstone (1998), crushed miscellaneous (1996)], sulfur (Frasch), and value indicated by symbol W	XX	128,000	XX	150,000 r/	XX	96,300
Total	XX	393,000	XX	402,000 r/	XX	347,000
Maine:						
Gemstones	NA	223	NA	230	NA	228
Peat	18	960	W	W	W	W
Sand and gravel, construction	6,440	27,500	6,280	28,400	7,640	33,400
Stone, crushed	2,760	14,800	2,540	15,100	4,120	23,000
Combined values of cement, clays (common), stone (dimension granite), and values indicated by symbol W	XX	25,000	XX	26,500	XX	35,000
Total	XX	68,600	XX	70,200	XX	91,600
Maryland:						
Cement, portland	1,610	99,400 e/	1,790	115,000 e/	1,760	123,000 e/
Clays, common	304	874	287	1,010	339	1,380
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	9,700	61,400	10,100	65,400	10,400	60,500
Stone:						
Crushed 5/	22,400	142,000	24,500	160,000	24,300	141,000
Dimension metric tons	19,800	2,210	21,500	2,440	23,100	2,730
Combined values of cement (masonry), sand and gravel (industrial), and stone (crushed marble and traprock)	XX	26,000	XX	28,200	XX	23,700
Total	XX	332,000	XX	371,000	XX	352,000
Massachusetts:						
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	14,200	82,500	13,500	71,500	14,000	78,000
Stone:						
Crushed	11,800 5/	91,600 5/	12,200 5/	91,300 5/	12,800	96,900
Dimension metric tons	79,600	15,000	101,000	18,100 r/	85,800	17,600

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Massachusetts--Continued:						
Combined values of clays (common), lime, peat (1996-97), sand and gravel (industrial), stone [crushed miscellaneous (1996-97)]	XX	11,100	XX	11,700	XX	12,000
Total	XX	200,000	XX	193,000	XX	204,000
Michigan:						
Cement:						
Masonry	232	20,400 e/	289	23,800 e/	294	28,000
Portland	5,390	397,000 e/	5,700	422,000 e/	5,710	435,000
Clays, common	652	3,410	712	3,750	644	4,520
Gemstones	NA	1	NA	1	NA	1
Gypsum, crude	1,590	14,400	1,920	17,300	1,830	15,000
Lime	785	42,700	802	42,600	761	40,300
Peat	168	4,650	176	4,990	190	5,500
Sand and gravel:						
Construction	53,800	197,000	62,000	223,000	66,900	245,000
Industrial	2,680	29,400	2,680	30,000	2,390	25,700
Stone, crushed 5/	38,600	144,000	42,000	157,000	43,700	167,000
Combined values of bromine, iron ore (usable), iron oxide pigments (crude), magnesium compounds, potash, salt, and stone [crushed granite and miscellaneous (1996-97), crushed marl and miscellaneous (1998), dimension dolomite and sandstone]	XX	695,000	XX	734,000	XX	706,000
Total	XX	1,550,000	XX	1,660,000	XX	1,670,000
Minnesota:						
Clays, common	11	W	W	W	W	W
Gemstones	NA	148	NA	5	NA	5
Iron ore, usable	46,800	1,330,000	47,900	1,430,000	47,200	1,470,000
Peat	20	1,540	29	1,500	30	1,630
Sand and gravel, construction	31,800	107,000	34,500	127,000	39,400	154,000
Stone:						
Crushed	12,100	59,000	14,600	75,000	13,600 5/	71,500 5/
Dimension metric tons	25,400	10,700	33,200 r/	17,900 r/	48,100	18,800
Combined values of other industrial minerals and values indicated by symbol W	XX	35,100	XX	23,900	XX	23,000
Total	XX	1,540,000	XX	1,680,000	XX	1,740,000
Mississippi:						
Clays:						
Ball	73	4,540	W	W	W	W
Bentonite	145	4,480	W	W	W	W
Common	534	3,610	503 r/	3,460 r/	502	3,410
Fuller's earth	379	27,800	388	28,100	W	W
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	13,400	60,600	13,000	59,600	13,300	64,400
Stone, crushed 5/	2,180	9,300	5,180	32,900	789	2,790
Combined values of cement (portland), sand and gravel (industrial), stone (crushed marl), and values indicated by symbol W	XX	33,500	XX	51,300	XX	78,500
Total	XX	144,000	XX	175,000	XX	149,000
Missouri:						
Cement, portland	4,530	293,000 e/	4,730	321,000 e/	4,570	323,000 e/
Clays:						
Ball	13	W	--	--	--	--
Common	849	3,250	1,050	4,140	1,030	4,440
Fire	223	3,220	297 r/	4,280 r/	288	4,220
Fuller's earth	283	W	W	W	372	30,400
Copper 3/	W	W	8	19,300	5	9,090
Gemstones	NA	108	NA	W	NA	W
Sand and gravel, construction	9,820	35,600	9,530	35,600	9,470	39,300
Stone, crushed	67,000	325,000	68,500	350,000	68,400	356,000

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Missouri--Continued:						
Combined values of barite (1996), cement (masonry), iron ore (usable), iron oxide pigments (crude), lead, lime, sand and gravel (industrial), silver, stone (dimension granite), zinc, and values indicated by symbol W	XX	591,000	XX	573,000	XX	555,000
Total	XX	1,250,000	XX	1,310,000	XX	1,320,000
Montana:						
Clays, common	34	W	W	W	W	W
Gemstones	NA	1,840	NA	1,120	NA	453
Gold 3/ kilograms	9,440	118,000	10,200	109,000	8,200	77,900
Lead 3/ metric tons	7,970	8,580	9,230	9,470	7,310	7,300
Palladium kilograms	6,100	25,500	8,400	49,700	10,600	98,600
Platinum do.	1,840	23,500	2,610	33,200	3,240	38,800
Sand and gravel, construction	9,260	35,800	8,390	30,800	8,550	34,900
Stone, crushed	2,000	8,580	2,600	10,600	3,880	15,100
Zinc 3/ metric tons	19,400	21,900	W	W	24,900	28,200
Combined values of cement, clays [bentonite, fire (1996)], copper, garnet (industrial), iron ore [usable, (1996, 1998)], lime, molybdenum, peat, sand and gravel [industrial, (1996-97)], silver, stone (dimension miscellaneous), talc and pyrophyllite, and values indicated by symbol W	XX	252,000	XX	254,000	XX	200,000
Total	XX	496,000	XX	498,000	XX	502,000
Nebraska:						
Clays, common	277	1,140	189 r/	675 r/	134	345
Gemstones	NA	3	NA	3	NA	3
Lime	13	1,060	17	1,360	19	1,580
Sand and gravel, construction	12,900	44,300	13,700	46,700	13,800	47,000
Stone, crushed	6,370	39,800	6,900	46,000	7,490	49,800
Combined values of other industrial minerals	XX	62,100	XX	70,100	XX	(6/)
Total	XX	148,000	XX	165,000	XX	98,700 9/
Nevada:						
Clays:						
Bentonite	6	580	W	W	W	W
Kaolin	25	W	W	W	W	W
Gemstones	NA	234	NA	474	NA	159
Gold 3/ kilograms	215,000	2,700,000	243,000	2,600,000	273,000	2,590,000
Sand and gravel, construction	22,400	113,000	23,600	110,000	26,400	114,000
Silver 3/ metric tons	596 r/	99,500 r/	878 r/	138,000 r/	670	110,000
Stone, crushed	3,080	25,200	5,150	41,800	6,320	34,000
Zeolites metric tons	(6/)	NA	(6/)	NA	(6/)	NA
Combined values of barite, brucite, cement (portland), clays (fuller's earth), copper, diatomite, gypsum (crude), iron ore [usable (1998)], lime, lithium minerals, magnesite, mercury (1996-97), perlite (crude), salt, sand and gravel (industrial), and values indicated by symbol W	XX	315,000	XX	383,000	XX	320,000
Total	XX	3,250,000	XX	3,270,000	XX	3,170,000
New Hampshire:						
Clays, common	3	16	--	--	--	--
Gemstones	NA	6	NA	6	NA	6
Sand and gravel, construction	7,620	36,500	8,440	36,400	8,590	40,000
Stone:						
Crushed 5/	1,430	8,650	1,970	12,300	4,190	27,500
Dimension metric tons	29,000	6,500	(6/)	(6/)	(6/)	(6/)
Total 9/	XX	51,700	XX	48,700	XX	67,600
New Jersey:						
Clays, common	74	125	W	131	W	W
Gemstones	NA	1	NA	1	NA	1

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
New Jersey--Continued:						
Sand and gravel:						
Construction	13,200	70,400	16,100	85,300	16,600	90,800
Industrial	1,680	30,300	1,530	28,300	1,800	34,400
Stone, crushed	21,400	145,000	22,800	153,000	23,900	161,000
Combined values of other industrial minerals	XX	(6/)	XX	(6/)	XX	3,080
Total	XX	246,000 9/	XX	267,000 9/	XX	290,000
New Mexico:						
Clays:						
Common	32	165	32	168	33	173
Fire	W	W	1	17	1	17
Copper 3/	256	614,000	259	612,000	252	438,000
Gemstones	NA	54	NA	W	NA	W
Potash	2,430	225,000	W	W	W	W
Pumice and pumicite metric tons	102,000	527	W	W	W	W
Sand and gravel, construction	9,880	48,500	9,390	46,600	11,100	53,300
Stone, crushed 5/	3,480	18,800	2,920	15,700	4,940	21,000
Zeolites metric tons	(6/)	NA	(6/)	NA	(6/)	NA
Combined values of cement [masonry (1997-98) portland], gold, gypsum (crude), iron ore (usable), mica (crude), molybdenum, perlite (crude), salt, silver, stone [crushed quartzite and traprock (1996), crushed sandstone and traprock (1998), crushed traprock (1997), dimension granite and marble (1996-97), dimension miscellaneous (1998)], and values indicated symbol W	XX	85,100	XX	363,000	XX	376,000
Total	XX	992,000	XX	1,040,000	XX	888,000
New York:						
Cement, portland	2,570	157,000 e/	W	W	W	W
Clays, common	652	14,000	477	12,100	622	16,100
Gemstones	NA	291	NA	70	NA	64
Salt	4,420	203,000	3,590	183,000	4,120	198,000
Sand and gravel, construction	28,100	145,000	28,500	144,000	32,100	161,000
Stone:						
Crushed	43,600	233,000	44,400	285,000	47,200	279,000
Dimension metric tons	34,400	8,120	54,700	9,380	52,900	8,870
Combined values of cement (masonry), garnet (industrial), gypsum (crude), lead, peat, sand and gravel (industrial), silver, talc and pyrophyllite, wollastonite, zinc, and values indicated by symbol W	XX	128,000	XX	321,000	XX	309,000
Total	XX	889,000	XX	955,000	XX	972,000
North Carolina:						
Clays, common	2,400	12,400	2,460	11,900	2,380	11,600
Feldspar metric tons	481,000	18,400	467,000	18,700	381,000	16,800
Gemstones	NA	348	NA	368	NA	968
Mica, crude	62	4,900	W	W	W	W
Peat	15	311	W	W	W	W
Sand and gravel:						
Construction	10,000	50,500	11,100	61,200	10,900	58,000
Industrial	1,500	21,700	1,600	26,400	1,440	24,100
Stone:						
Crushed	57,200	394,000	63,700	464,000	69,700	480,000
Dimension metric tons	37,300	14,300	24,200 r/	12,100 r/	26,200	12,500
Combined values of clays (kaolin), lithium minerals, olivine, phosphate rock, talc and pyrophyllite, and values indicated by symbol W	XX	172,000	XX	143,000	XX	146,000
Total	XX	689,000	XX	738,000 r/	XX	750,000

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
North Dakota:						
Clays, common	59	W	56	W	42	W
Gemstones	NA	3	NA	3	NA	3
Sand and gravel, construction	8,320	23,800	9,360	26,800	10,700	30,400
Stone, crushed	--	--	--	--	71 5/	232 5/
Combined values of other industrial minerals and values indicated by symbol W	XX	7,060	XX	6,890	XX	7,630
Total	XX	30,800	XX	33,700	XX	38,300
Ohio:						
Cement, portland	W	W	1,040	76,900 e/	W	W
Clays:						
Common	1,960	7,450	1,450 r/	7,050 r/	1,530	7,290
Fire	103	3,230	61 r/	2,860 r/	62	2,810
Gemstones	NA	153	NA	3	NA	3
Lime	1,950	105,000	1,960	111,000	1,870	109,000
Sand and gravel:						
Construction	46,600	215,000	47,000	222,000	52,600	255,000
Industrial	1,270	29,800	1,140	28,600	1,110	27,700
Stone:						
Crushed	63,600	291,000	74,100	397,000	75,600	352,000
Dimension metric tons	19,800	2,060	24,900 r/	3,260 r/	24,100	2,360
Combined values of cement (masonry), gypsum (crude), peat, salt, silica stone, and values indicated by symbol W	XX	314,000	XX	193,000	XX	276,000
Total	XX	966,000	XX	1,040,000	XX	1,030,000
Oklahoma:						
Cement:						
Masonry	101	8,850 e/	89	6,500 e/	96	7,140 e/
Portland	1,750	118,000 e/	1,900	132,000 e/	1,830	132,000 e/
Clays:						
Common	799	4,090	653	4,430	658	4,450
Fire	23	W	--	--	--	--
Gemstones	NA	603	NA	354	NA	53
Gypsum, crude	2,690	16,500	3,100	17,500	3,020	19,500
Iodine, crude metric tons	1,270	14,600	1,320	19,600	W	W
Sand and gravel:						
Construction	7,910	27,700	8,250	29,000	9,000	35,900
Industrial	1,350	27,200	1,380	28,200	1,380	29,600
Stone:						
Crushed	28,300 5/	117,000 5/	31,900 5/	112,000 5/	38,500	152,000
Dimension metric tons	9,710	2,220	5,770	995	3,480	635
Combined values of feldspar, helium, lime, salt, stone [crushed shell and traprock (1996), crushed shell, traprock, miscellaneous (1997)], tripoli, and values indicated by symbol W	XX	32,300	XX	35,800	XX	78,300
Total	XX	369,000	XX	386,000	XX	460,000
Oregon:						
Clays:						
Bentonite	33	1,530	W	W	W	W
Common	213	154	W	W	177	W
Gemstones	NA	6,730	NA	980	NA	1,500
Nickel ore 11/ metric tons	1,330	W	--	--	--	--
Sand and gravel, construction	18,300	86,800	19,100	100,000	18,600	99,200
Stone, crushed	22,000	102,000	21,200	110,000	23,200	118,000
Talc and pyrophyllite metric tons	64	84	W	W	W	W
Zeolites do.	(6/)	NA	(6/)	NA	(6/)	NA
Combine values of cement [masonry (1997), portland], diatomite, emery, lime, perlite [crude (1997-98)], pumice and pumicite, and values indicated by symbol W	XX	68,700	XX	74,100	XX	82,400
Total	XX	266,000	XX	285,000	XX	301,000

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Pennsylvania:						
Cement:						
Masonry	274	28,000 e/	296	31,000 e/	319	31,100 e/
Portland	5,670	418,000 e/	6,360	420,000 e/	6,740	457,000 e/
Clays:						
Common	753	2,420	839	2,740	886	2,270
Kaolin	14	815	W	W	W	W
Gemstones	NA	1	NA	1	NA	1
Lime	1,530	105,000	1,510	103,000	1,390	97,800
Peat	4	166	3	126	6	154
Sand and gravel, construction	15,100	85,600	15,700	88,500	19,200	116,000
Stone:						
Crushed	87,400	518,000	89,200	536,000	94,500	504,000
Dimension metric tons	54,300	11,800	53,900	10,800	45,200	9,480
Combined values of other industrial minerals and values indicated by symbol W	XX	(6/)	XX	10,700	XX	11,800
Total	XX	1,170,000 9/	XX	1,200,000	XX	1,230,000
Rhode Island:						
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	1,990	13,300	1,960	15,700	1,390	11,100
Stone, crushed	1,440	9,680	1,830	11,500	2,240	14,200
Total 9/	XX	23,000	XX	27,200	XX	25,300
South Carolina:						
Cement:						
Masonry	286	27,100 e/	334	35,500 e/	374	43,700 e/
Portland	2,370	186,000 e/	2,520	194,000 e/	2,640	210,000 e/
Clays:						
Common	1,260	4,860	1,080	2,850	1,220	3,950
Fire	24	W	--	--	36	38
Kaolin	387	18,100	447	29,000	395	22,000
Gemstones	NA	16	NA	1	NA	1
Sand and gravel:						
Construction	8,780	29,000	8,130	30,400	9,690	35,900
Industrial	761	19,500	770	19,300	881	20,700
Stone:						
Crushed	23,800	146,000	25,900	202,000	28,000	182,000
Dimension	W	W	12,900	1,150	12,900	1,150
Combined values of gold, manganiferous ore (1997), mica (crude), silver, vermiculite, and values indicated by symbol W	XX	62,700	XX	53,000 r/	XX	42,600
Total	XX	493,000	XX	567,000	XX	562,000
South Dakota:						
Clay, common	147	W	182	W	188	W
Gemstones	NA	98	NA	98	NA	W
Gold 3/ kilograms	W	W	W	W	12,100	115,000
Gypsum, crude	W	W	51	469	W	W
Sand and gravel, construction	8,750	27,700	10,200	34,100	10,100	35,600
Silver 3/ metric tons	5	849	4	693 r/	2	321
Stone, crushed	5,640	28,700	5,900	30,200	5,720	24,600
Combined values of cement, feldspar, iron ore (usable), lime, mica (crude), stone (dimension granite), and values indicated by symbol W	XX	293,000	XX	263,000	XX	83,100
Total	XX	351,000	XX	328,000	XX	258,000
Tennessee:						
Clays:						
Ball	679	29,000	689 r/	29,200 r/	712	30,100
Kaolin	32	W	W	W	W	W
Gemstones	NA	12,900	NA	9,740	NA	W
Sand and gravel:						
Construction	8,380	35,300	8,650	39,500	9,410	49,800
Industrial	747	13,900	898	16,500	999	17,100

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Tennessee--Continued:						
Stone, crushed	55,100	305,000	60,400	349,000	63,600	370,000
Combined values of barite, cement, clays (common, fuller's earth), copper, lead, lime, salt (1998), silver, stone (dimension marble), zinc, and values indicated by symbol W	XX	265,000	XX	263,000 r/	XX	237,000
Total	XX	661,000	XX	707,000	XX	705,000
Texas:						
Cement:						
Masonry	216	20,300 e/	203	18,900 e/	216	20,500 e/
Portland	8,240	532,000 e/	8,280	576,000 e/	8,430	621,000 e/
Clays:						
Ball	101	W	W	W	W	W
Common	2,290	15,000	2,150	13,600	2,120	10,100
Kaolin	28	W	35	7,600	W	W
Gemstones	NA	511	NA	11	NA	11
Gypsum, crude	2,240	12,100	2,260	15,700	2,260	15,500
Lime	1,360	87,100	1,470	91,500	1,620	101,000
Salt	9,700	88,900	9,780	91,000	9,420	83,900
Sand and gravel:						
Construction	61,300	278,000	60,100	284,000	74,600	354,000
Industrial	1,420	38,200	1,830	48,800	1,760	38,500
Stone:						
Crushed	86,400 r/	341,000	81,000 r/	338,000 r/	99,300	397,000
Dimension metric tons	86,600	21,100	35,300	11,300	40,900	16,700
Talc and pyrophyllite do.	225,000	5,100	274,000	6,760	274,000	6,770
Zeolites do.	(6/)	NA	(6/)	NA	(6/)	NA
Combined values of clays [bentonite (1997-98), fuller's earth], greensand marl (1998), helium, magnesium compounds, magnesium metal, sodium sulfate [natural (1996-97)], sulfur (Frasch), and values indicated by symbol W	XX	293,000	XX	281,000	XX	158,000
Total	XX	1,730,000	XX	1,780,000 r/	XX	1,820,000
Utah:						
Beryllium concentrates metric tons	5,260	6	5,760	6	6,080	7
Clays:						
Bentonite	W	1,400	W	W	W	W
Common	298	4,510	299	4,510	298	4,760
Fuller's earth	W	32	W	W	--	--
Gemstones	NA	1,150	NA	974	NA	W
Salt	1,720	70,400	1,670	69,000	1,770	68,100
Sand and gravel, construction	24,700	80,500	33,200	99,400	46,300	140,000
Stone, crushed	4,380	19,100	11,100	50,200	7,820	39,500
Combined values of cement [masonry (1996), portland], copper, gold, gypsum (crude), helium (Grade-A), lime, magnesium compounds, magnesium metal, mercury, molybdenum, perlite (crude), phosphate rock, potash, silver, stone [dimension quartzite and sandstone (1996)], and values indicated by symbol W	XX	1,570,000	XX	1,450,000	XX	1,070,000
Total	XX	1,740,000	XX	1,680,000	XX	1,320,000
Vermont:						
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	3,870	15,200	3,890	15,800	4,940	21,200
Stone:						
Crushed	4,560	22,800	7,840	44,500	5,590	28,500
Dimension metric tons	99,600	27,900	88,300 r/	19,700 r/	93,300	24,500
Total 9/	XX	66,000	XX	80,000 r/	XX	74,200

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Virginia:						
Clays:						
Common	883	3,220	830	3,160	872	3,310
Fuller's earth	46	W	W	W	W	W
Gemstones	NA	11	NA	W	NA	W
Kyanite metric tons	W	W	W	W	90	13,200
Lime	766	45,700	818	49,300	859	51,700
Sand and gravel, construction	9,780	45,800	10,700	52,700	11,900	54,800
Stone:						
Crushed	59,700	351,000	72,800	428,000	65,900	390,000
Dimension	W	W	W	W	5,430	600
Combine values of cement, feldspar, gypsum (crude), iron oxide pigments (crude), kyanite, sand and gravel (industrial), stone [dimension dolomite, granite, slate, and traprock (1996-97)], talc and pyrophyllite (1996-97), titanium concentrates [ilmenite (1998)], vermiculite, zirconium concentrates (1998), and values indicated by symbol W	XX	103,000	XX	109,000	XX	122,000
Total	XX	549,000	XX	642,000	XX	636,000
Washington:						
Cement, portland	1,160	78,900 e/	1,210	92,400 e/	1,200	95,500
Clays, common	218	1,070	165	715	178	W
Gemstones	NA	36	NA	23	NA	24
Gold 3/ kilograms	W	W	4,040	43,200	3,540	33,600
Gypsum, crude	W	W	12	549	--	--
Sand and gravel, construction	37,900	162,000	40,500	180,000	45,700	214,000
Silver 3/ metric tons	--	--	2	285	1	102
Stone, crushed	15,400	81,400	14,700	92,200	19,400	111,000
Combined values of cement (masonry), diatomite, lime, magnesium metal, olivine, peat, sand and gravel (industrial), stone [dimension miscellaneous], and values indicated by symbol W	XX	221,000	XX	146,000	XX	156,000
Total	XX	545,000	XX	555,000	XX	609,000
West Virginia:						
Clays, common	199	369	151	323	231	515
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	1,730	7,710	1,670	8,010	1,650	8,050
Stone, crushed 5/	12,700	78,400	12,900	76,700	12,300	68,100
Combined values of cement, lime, peat, salt, sand and gravel (industrial), and stone [crushed dolomite, dimension sandstone]	XX	98,600	XX	120,000	XX	93,000
Total	XX	185,000	XX	205,000	XX	170,000
Wisconsin:						
Gemstones	NA	505	NA	5	NA	5
Lime	551	32,000	597	35,100	582	35,400
Peat	W	W	5	256	W	W
Sand and gravel:						
Construction	32,600	105,000	33,500	110,000	34,700	116,000
Industrial	1,660	32,300	1,710	33,800	1,750	34,500
Stone:						
Crushed	26,000	113,000	28,700	120,000	31,200	127,000
Dimension metric tons	143,000	16,600	100,000	13,100	77,100	10,800
Combined values of other industrial minerals and values indicated by symbol W	XX	96,800	XX	46,600	XX	(6/)
Total	XX	396,000	XX	358,000	XX	323,000 9/
Wyoming:						
Clays:						
Bentonite	3,030	98,400	3,340	140,000	3,150	145,000
Common	30	W	29	423	W	W
Gemstones	NA	11	NA	11	NA	14

See footnotes at end of table.

TABLE 5--Continued
NONFUEL MINERAL PRODUCTION IN THE UNITED STATES, BY STATE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Wyoming--Continued:						
Sand and gravel, construction	3,420	14,700	3,090	12,300	4,770	18,100
Stone, crushed	5,180	30,000	5,010	30,700	5,580	31,600
Zeolites metric tons	(6/)	NA	(6/)	NA	(6/)	NA
Combined values of cement (portland), gypsum (crude), helium (Grade-A), lime, soda ash, and values indicated by symbol W	XX	923,000 r/	XX	938,000	XX	879,000
Total	XX	1,070,000 r/	XX	1,120,000	XX	1,070,000
Undistributed:						
Connecticut, Delaware, Hawaii (1996), Nebraska (1998), New Hampshire, New Jersey (1996-97), Pennsylvania (1996), Rhode Island, Vermont, Wisconsin, Undistributed (1998)	XX	32,000	XX	30,100	XX	98,200

e/ Estimated. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data, value included with "Combined value." 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.

3/ Recoverable content of ores, etc.

4/ Data collected by State.

5/ Excludes certain stones; kind and value included with "Combined value."

6/ Withheld to avoid disclosing company proprietary data.

7/ Grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles.

8/ Weight reported as B₂O₃ and is not comparable to prior years.

9/ Partial total, excludes values which must be concealed to avoid disclosing company proprietary data. Withheld values included with "Undistributed."

10/ No further domestic production expected.

11/ No production at the Nickel Mountain Mine near Riddle, OR, in 1998. The Glenbrook Nickel Company permanently closed the mine and adjoining smelter on March 31, 1998.

TABLE 6
NONFUEL RAW MINERAL PRODUCTION IN THE COMMONWEALTH OF PUERTO RICO AND ISLANDS ADMINISTERED
BY THE UNITED STATES 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998	
	Quantity	Value	Quantity	Value	Quantity	Value
Puerto Rico:						
Cement, portland metric tons	1,550	W	W	(3/)	1,590	W
Clays, common	W	W	W	363	W	W
Lime	38	5,050	32	4,580	37	4,800
Salt	45	1,500	45	1,500	45	1,500
Stone, crushed	13,200	52,500	14,000	71,300	12,700	58,600
Combined values of other industrial minerals	XX	153,000	XX	(3/)	XX	156,000
Total	XX	212,000	XX	77,700 4/	XX	221,000
Administered Islands:						
Guam: Stone, crushed	1,660	13,800	1,760	10,500	1,850	14,100

W Withheld to avoid disclosing company proprietary data; value included with "Combined values" 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.

3/ Withheld to avoid disclosing company proprietary data.

4/ Total does not include values of items withheld.

TABLE 7
U.S. EXPORTS OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Metals:					
Aluminum:					
Crude and semicrude	metric tons	1,570,000	3,760,000	1,590,000	3,620,000
Manufactures	do.	136,000	428,000	106,000	369,000
Antimony:					
Metal, alloys, waste and scrap	do.	652	2,280	898	2,400
Oxide, antimony content	do.	3,230	14,000	3,270	11,100
Arsenic metal	do.	61	1,780	505	2,730
Bauxite and alumina:					
Alumina, calcined equivalent		1,270	523,000	1,280	488,000
Bauxite:					
Calcined, refractory and other grade		21	4,350	16	2,420
Crude and dried		64	5,900	83	9,350
Speciality aluminum compounds, sulfate, chloride, fluoride-based	metric tons	28,200	24,100	35,500	30,500
Beryllium, alloys, wrought or unwrought, waste and scrap	kilograms	40,300	5,400	57,700	9,940
Bismuth, metal, alloys, waste and scrap, bismuth content	do.	206,000	2,510	245,000	2,380
Cadmium:					
Metal	do.	554,000	1,250	606,000	6,050
Sulfide	do.	399,000	186	28,900	15
Chromium:					
Chemicals	metric tons	39,800	61,700	41,000	64,900
Chromite ore and concentrate	do.	18,500	4,200	121,000	9,230
Metals, alloys, ferroalloys	do.	11,500	27,600	7,650	19,700
Pigments and preparations	do.	3,790	13,100	2,310	8,170
Cobalt:					
Metal:					
Unwrought, powders, waste and scrap, mattes other intermediate products of metallurgy	do.	1,050	40,800	1,140	43,400
Wrought and cobalt articles	do.	759	36,600	667	33,900
Oxides and hydroxides	do.	548	15,000	533	11,300
Other forms, acetates and chlorides	do.	511	4,100	674	4,140
Columbium (niobium) and tantalum:					
Columbium:					
Ferrocolumbium	do.	59	588	23	206
Ores and concentrates	do.	32	349	20	181
Tantalum:					
Ores and concentrates, includes synthetic	do.	105	968	390	3,060
Unwrought, alloys, metal, powders, waste and scrap	do.	378	54,500	401	52,900
Wrought	do.	76	31,700	83	28,600
Copper:					
Scrap, alloyed and unalloyed	do.	379,000	592,000	307,000	401,000
Semimanufactures	do.	142,000	547,000	144,000	503,000
Unmanufactured, does not include unalloyed scrap, copper content	do.	309,000	566,000	172,000	278,000
Ferroalloys not listed elsewhere:					
Ferrophosphorous	do.	2,600	1,330	2,150	1,020
Ferrotitanium and ferrosilicon-titanium	do.	1,470	3,210	2,030	5,840
Ferrozirconium	do.	39	189	130	597
Ferroalloys, other	do.	3,680	6,100	2,110	3,260
Gold:					
Bullion, refined	kilograms	391,000	4,270,000	430,000	4,030,000
Compounds	do.	123,000	12,900	781,000	9,340
Doré and precipitates	do.	85,300	738,000	91,600	810,000
Metal powder	do.	164	1,640	196	2,060
Ores and concentrates	do.	427	4,600	401	3,460
Waste and scrap	do.	60,500	538,000	58,900	374,000
Iron and steel:					
Cast iron and steel products		253 r/	577,000 r/	223	627,000
Fabricated steel products		1,140	3,240,000	1,210	3,590,000
Steel mill products		5,470	4,820,000	5,010	4,590,000

See footnotes at end of table.

TABLE 7--Continued
U.S. EXPORTS OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998	
	Quantity	Value	Quantity	Value
Metals--Continued:				
Iron and steel scrap:				
Direct-reduced iron, steelmaking grade	8	852	5	487
Ferrous, includes tinplate and terplate, excludes used rails for rerolling and other uses, and ships boats, and other vessels for scrapping	8,930	1,350,000	5,570	805,000
Pig iron, all grades	86	12,300	87	11,700
Ships, boats, other vessels for scrapping	38 r/	4,580	3	925
Used rails for rerolling and other uses, includes mixed (new plus used) rails	43	17,200	39	14,200
Iron ore	6,340	235,000	6,000	245,000
Lead, lead content:				
Ash and residues metric tons	16,800	7,600	9,030	6,870
Base bullion do.	34,100	87,900	51,600	77,800
Ore and concentrate do.	42,200	16,600	72,400	27,600
Scrap, gross weight do.	88,400	15,600	99,200	19,900
Unwrought lead and lead alloys do.	37,400	32,100	24,100	20,600
Wrought lead and lead alloys do.	15,900	45,800	15,400	41,300
Magnesium:				
Alloys, gross weight do.	9,180	33,200	9,230	29,800
Metal do.	17,100	47,300	11,500	31,100
Powder, sheets, tubing, ribbons, wire, other forms, gross weight do.	2,960	14,700	1,470	9,560
Waste and scrap do.	11,200	25,600	13,200	30,100
Manganese:				
Ferromanganese, all grades do.	11,800	9,270	13,800	8,450
Metal, including alloys, waste and scrap do.	7,890	18,700	5,710	13,200
Ore and concentrates with 20% or more manganese do.	84,300	7,390	8,210	1,330
Silicomanganese do.	5,360	3,290	6,720	4,190
Mercury do.	134	562	63	401
Molybdenum, molybdenum content:				
Ferromolybdenum do.	1,250 r/	13,000	1,400	11,400
Ore and concentrates, including roasted and other do.	57,200	293,000	41,700	211,000
Oxides and hydroxides, gross weight do.	1,240	9,660 r/	1,100	8,340
Molybdates, all do.	2,030	9,680	1,590	11,400
Powder, gross weight do.	262	6,790	321	8,650
Unwrought, gross weight do.	146	2,650	181	3,200
Wire, gross weight do.	181	12,200	212	11,000
Wrought, gross weight do.	164	8,650	133	7,200
Nickel, nickel content:				
Alloyed, gross weight do.	25,100 r/	377,000 r/	26,000	436,000
Unwrought:				
Primary, includes catalysts and salts, excludes carbonate do.	16,400	213,000	8,440	147,000
Secondary do.	40,200	290,000	35,100	230,000
Wrought do.	892 r/	13,000	992	10,800
Platinum-group metals kilograms	81,200	576,000	73,200	571,000
Rare-earths, rare-earth oxide content:				
Cerium compounds do.	5,890,000	38,400	4,640,000	39,600
Ferrocerium and other pyrophoric alloys do.	4,310,000	16,900	2,760,000	10,600
Rare-earth compounds do.	1,660,000	17,700	1,630,000	16,600
Rare-earth metals, including scandium and yttrium do.	825,000	5,690	603,000	3,750
Selenium, metal, waste and scrap, selenium content do.	127,000	1,220	151,000	2,130
Silicon:				
Ferrosilicon metric tons	52,000	42,400	44,800	35,900
Metal do.	22,800	283,000	23,700	278,000
Silver, silver content:				
Bullion, refined kilograms	2,980,000	489,000	2,250,000	466,000
Doré and precipitates do.	65,500	15,700	241,000	49,000
Ores and concentrates do.	35,000	4,950	6,540	1,480
Waste and scrap, gross weight do.	1,020,000	209,000	1,060,000	224,000
Thorium and thorium-bearing materials, compounds do.	241	144	1,130	278

See footnotes at end of table.

TABLE 7--Continued
U.S. EXPORTS OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Metals--Continued:					
Tin:					
Ingots and pigs	metric tons	4,660	27,400	5,020	29,200
Tin scrap and other tin bearing material, except tinplate scrap, includes rods, profiles, wire, powders, flakes, tubes, pipes	do.	34,500	45,900	36,100	51,200
Tinplate and terneplate	do.	349,000	206,000	262,000	162,000
Titanium:					
Metal, sponge and scrap	do.	6,480	16,900	7,360	16,000
Ores and concentrates	do.	23,800	11,400	59,700	5,180
Other unwrought, billet, blooms, sheet bars, ingot, other	do.	4,740	111,000	3,870	93,400
Pigments, dioxide and oxides	do.	405,000	576,000	398,000	633,000
Wrought, bars, rods, other	do.	5,200	269,000	5,790	283,000
Tungsten, tungsten content:					
Ammonium paratungstate	do.	121	1,210	287	2,200
Carbide powder	do.	1,070	28,200	1,240	25,200
Metal powders	do.	410	12,900	851	25,700
Miscellaneous tungsten-bearing materials, ferrotungsten, ferrosilicon tungsten, unwrought, waste and scrap, wrought, other metal, compounds	do.	976	35,600	1,260	33,000
Ore and concentrate	do.	40	282	49	300
Vanadium:					
Aluminum-vanadium master alloy, gross weight	kilograms	974,000	13,400	856,000	11,500
Ferrovandium, vanadium content	do.	446,000	9,780	579,000	13,700
Metal, including waste and scrap, gross weight	do.	155,000	1,340	346,000	7,160
Pentoxide, anhydride, vanadium content	do.	614,000	4,990	681,000	6,850
Other oxides and hydroxides of vanadium, vanadium content	do.	385,000	3,720	232,000	2,830
Zinc:					
Compounds, chloride, compounds, n.s.p.f., oxide, sulfate 2/	metric tons	16,800	22,300	13,100	16,500
Ores and concentrates, zinc content	do.	461,000	326,000	552,000	248,000
Slab	do.	3,630	4,810	2,330	2,750
Rolled	do.	9,110	9,970	9,920	8,710
Zirconium:					
Ore and concentrates	do.	44,300	23,200	41,000	22,100
Oxide, includes germanium oxides and zirconium oxides	do.	1,970	14,500	1,540	14,300
Unwrought and waste and scrap	do.	139	2,840	161	3,460
Total		XX	27,700,000 r/	XX	26,000,000
Industrial minerals:					
Abrasives, manufactured:					
Boron carbide	metric tons	58	1,100	25	980
Fused aluminum oxide	do.	10,700	18,000	8,910	19,600
Metallic abrasives	do.	26,200	17,100	25,800	15,700
Silicon carbide, crude, refined or ground	do.	16,100	15,400	11,600	13,600
Asbestos, includes reexports:					
Manufactured		XX	197,000	XX	194,000
Unmanufactured	metric tons	20,300	5,690	18,100	6,410
Barite, natural barium sulfate	do.	21,600	2,430	14,700	2,310
Boron:					
Boric acid		92	60,500	106	54,600
Sodium borates		473	169,000	453	146,000
Bromine:					
Compounds, contained bromine	metric tons	9,050	21,200	8,550	18,000
Elemental	do.	2,330	3,590	1,490	3,440
Cement, hydraulic and clinker		791	59,600	743	56,600
Clays:					
Ball		91	5,900	140	9,860
Bentonite		850	84,700	818	82,400
Fire		222	23,500	168	19,400
Fuller's earth		144	16,100	121	19,500
Kaolin		3,380	583,000	3,550	573,000
Other, n.e.c., includes chamotte or dinas earth, activated clays and earths, artificially activated clays		390	147,000	432	139,000

See footnotes at end of table.

TABLE 7--Continued
U.S. EXPORTS OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Industrial minerals--Continued:					
Diamond, includes reexports, excludes industrial diamond	thousand carats	2,950	2,320,000	3,410	2,560,000
Diamond, industrial (exports and reexports):					
Industrial diamonds, unworked	do.	3,590	29,500	4,610	34,700
Powder, dust and grit, natural and synthetic	do.	129,000	104,000	108,000	88,900
Diatomite		140	42,600	138	43,800
Feldspar	metric tons	7,220	993	13,200	1,430
Fluorspar	do.	62,100	8,330	43,600	6,800
Graphite, natural and artificial 3/	do.	119,000	74,300	110,000	76,800
Gypsum and gypsum products:					
Boards		78	24,100	65	24,500
Crude		174	10,100	166	11,700
Plasters		224	29,800	209	30,400
Other		XX	25,700	XX	29,700
Helium, Grade-A	million cubic meters	30	58,500	28	47,100
Iodine, crude/sublimed and potassium iodide	metric tons	2,760	25,300	2,790	26,100
Iron oxide pigments and hydroxides:					
Pigment grade	do.	16,600	20,600	14,600	18,200
Other grade	do.	26,300	46,400	27,500	47,400
Lime		80	9,550	56	9,110
Lithium chemicals:					
Carbonate	metric tons	5,030	18,300	3,280	12,300
Hydroxide	do.	5,680	24,200	4,360	17,900
Magnesium compounds:					
Compounds, chlorides, hydroxide and peroxide, sulfates	do.	23,200	12,600	27,800	14,800
Magnesite, crude and processed:					
Caustic-calcined magnesia	do.	4,700	2,230	5,430	2,410
Crude	do.	51,500	7,070	53,300	6,030
Dead-burned and fused magnesia	do.	66,200	30,300	63,200	23,700
Other magnesia	do.	21,700	13,900	13,300	11,600
Mica:					
Scrap and flake:					
Powder	do.	6,310	4,010	6,640	3,300
Waste	do.	1,820	471	1,410	464
Sheet:					
Unworked	do.	500 r/	1,580 r/	614	1,830
Worked	do.	565	11,700	671	10,700
Peat		22	2,400	30	3,180
Perlite, processed and expanded e/	metric tons	38,000	1,260	42,000	1,340
Phosphate rock:					
Elemental phosphorous	do.	8,800	18,000	8,020	15,700
Pumice and pumicite		12	7,200	22	11,200
Salt		748	38,000	731	35,200
Sand and gravel:					
Construction:					
Gravel		312	5,240	482	7,480
Sand		1,430	17,100	1,860	30,300
Industrial		980	134,000	2,400	148,000
Silica:					
Quartz crystal, cultured electronic- and optical-grade	metric tons	74	31,100	63	24,300
Tripoli and special silica, special silica stone products		NA	6,030	NA	5,900
Soda ash		4,190	547,000	3,660	478,000
Sodium sulfate		86	10,800	(4/)	(4/)
Stone:					
Crushed		4,090	42,700	4,370	41,500
Dimension		XX	54,800	XX	59,600
Strontium compounds, precipitated carbonate, oxide, hydroxide, peroxide	kilograms	1,280,000	887	1,330,000	1,030
Sulfur:					
Elemental		703	36,000	889	35,400
Sulfuric acid, 100% H ₂ SO ₄	metric tons	118,000	12,700	155,000	18,100

See footnotes at end of table.

TABLE 7--Continued
U.S. EXPORTS OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998	
	Quantity	Value	Quantity	Value
Industrial minerals--Continued:				
Talc, excludes talcum in (package), face, compact	179	34,200	146	26,000
Vermiculite e/	8	1,170	11	1,040
Wollastonite	3,430	NA	25,000 e/	NA
Total	XX	5,390,000 r/	XX	5,480,000
Grand total	XX	33,100,000 r/	XX	31,400,000

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

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

2/ Mineral or product grouping redefined. Prior publications may not be comparable.

3/ Artificial graphite includes large amounts of materials made from petroleum coke.

4/ Commodity no longer canvassed.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Metals:					
Aluminum:					
Crude and semicrude	metric tons	3,080,000	5,590,000	3,550,000	5,950,000
Manufactures	do.	150,000 r/	408,000 r/	155,000	387,000
Antimony:					
Metal	do.	14,800	30,300	13,500	18,900
Ore and concentrate, antimony content	do.	1,300	2,800	2,020	3,210
Oxide, antimony content	do.	23,200	55,200	19,100	35,500
Arsenic:					
Acid	do.	117	86	(2/)	5
Metal	do.	909	4,930	997	6,380
Trioxide	do.	30,000	14,300	38,600	18,800
Bauxite and alumina:					
Alumina, calcined equivalent		3,830	1,010,000	4,050	933,000
Bauxite:					
Calcined, refractory and other grade		370	34,000	393	29,300
Crude and dried		10,700	292,000	11,000	246,000
Speciality aluminum compounds, sulfate, chloride, fluoride-based	metric tons	47,800	20,400	55,100	28,200
Beryllium, ore, metal, compounds	kilograms	330,000	7,620	436,000	11,000
Bismuth, metallic	do.	2,170,000	15,200	2,720,000	19,200
Cadmium:					
Metal	do.	790,000	2,250	320,000	917
Sulfide	do.	40,100	375	9,460	187
Chromium:					
Chemicals	metric tons	14,500	30,900	20,100	35,500
Chromite ore	do.	303,000	22,500	358,000	26,300
Ferrochromium, metals, alloys	do.	438,000	365,000	451,000	329,000
Pigments and preparations based on chromium	do.	9,670	30,500	9,500	30,200
Cobalt:					
Metal:					
Alloys, articles, matte, wrought, waste and scrap	do.	812	26,200	1,390	33,700
Unwrought, excluding alloys and waste and scrap	do.	7,070	328,000	6,450	284,000
Oxide and hydroxides	do.	1,130	42,800	1,210	41,500
Other forms	do.	2,000	19,200	1,310	13,600
Columbium (niobium) and tantalum:					
Columbium:					
Ferrocolumbium	do.	6,550	59,600	7,530	68,400
Ores and concentrates	do.	129	884	72	729
Oxide	do.	1,750	30,700	1,230	23,200
Unwrought, alloys, metals, powder	do.	423	10,400	563	14,600
Tantalum:					
Ores and concentrates, includes synthetic	do.	934	22,500	1,220	35,000
Unwrought, alloys, metal, powders, waste and scrap	do.	376	58,000	646	68,000
Wrought	do.	24	6,190	43	9,200
Copper:					
Scrap, alloyed and unalloyed	do.	178,000 r/	351,000 r/	135,000	234,000
Semimanufactures	do.	152,000	481,000	217,000	508,000
Unmanufactured, does not include unalloyed scrap, copper content	do.	821,000 r/	1,940,000 r/	1,050,000	1,830,000
Ferroalloys not listed elsewhere:					
Ferrophosphorus	do.	11,500	4,010	13,700	4,280
Ferrotitanium and ferrosilicon-titanium	do.	6,230	16,100	7,340	19,200
Ferrozirconium	do.	84	167	61	116
Ferroalloys, other	do.	37,700	57,500	34,800	55,500
Gallium, unwrought, waste and scrap	kilograms	19,100	7,160	26,300	10,700
Germanium materials, gross weight	do.	16,300 r/	22,500 r/	7,420	5,730
Gold:					
Ash and residues	do.	115	1,750	4,670	4,930
Bullion, refined	do.	194,000	2,110,000	257,000	2,350,000
Compounds	do.	15,700	72,800	9,820	50,000

See footnotes at end of table.

TABLE 8--Continued
U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Metals--Continued:					
Gold--Continued:					
Doré and precipitates	kilograms	13,700	118,000	14,100	120,000
Metal powder	do.	6,050	61,500	12,800	120,000
Ores and concentrates	do.	1,710	18,400	2,540	22,300
Waste and scrap	do.	14,100	78,600	16,700	102,000
Indium, unwrought and waste and scrap	do.	85,500	20,500	75,000	18,600
Iron and steel:					
Cast iron and steel products		443 r/	456,000 r/	478	446,000
Fabricated steel products		2,930	4,630,000	3,480	5,380,000
Stainless steel	metric tons	819,000	1,790,000	946,000	2,540,000
Steel mill products		28,300	13,500,000	37,700	16,300,000
Iron and steel scrap:					
Direct-reduced iron, steelmaking grade		987	127,000	939	118,000
Ferrous, includes tinplate and ternplate, excludes used rails for rerolling and other uses, ships, boats, other vessels for scrapping		2,870	384,000	3,060	402,000
Pig iron, all grades		3,150	465,000	5,150	722,000
Ships, boats, other vessels for scrapping		(2/)	43	--	--
Used rails for rerolling and other uses, includes mixed (new plus used), rails		328	63,000	308	46,000
Iron ore		18,600	551,000 r/	17,000	521,000
Lead, lead content:					
Base bullion	metric tons	25	16	464	293
Ore and concentrates	do.	17,800	6,830	32,700	6,560
Pigments and compounds, gross weight	do.	41,800	60,100	40,600	58,300
Pigs and bars	do.	265,000	179,000	267,000	166,000
Scrap, reclaimed, includes ash and residues	do.	68	13	(2/)	3
Wrought lead, all forms, including wire and powders, gross weight	do.	7,310	14,400	8,480	19,000
Magnesium:					
Alloys, magnesium content	do.	41,000	141,000	49,600	167,000
Metal	do.	19,700	54,700	26,500	75,700
Powder, sheets, tubing, ribbons, wire, other forms, magnesium content	do.	510	2,930	757	2,290
Waste and scrap	do.	3,990	6,700	5,720	7,910
Manganese, manganese content:					
Chemicals, manganese dioxide and potassium permanganate, gross weight	do.	30,500	44,200	34,300	50,000
Ferromanganese, all grades	do.	235,000	149,000	266,000	162,000
Metal, unwrought, waste and scrap, other, gross weight	do.	14,700	24,600	15,600	25,400
Ore and concentrates with 20% or manganese, all grades	do.	155,000 r/	30,800 r/	160,000	27,800
Silicomanganese	do.	203,000	152,000	231,000	159,000
Mercury	do.	164	704	128	559
Molybdenum, molybdenum content:					
Ferromolybdenum	do.	3,640	36,700	4,830	44,000
Molybdates, all	do.	612	7,900	797	9,960
Ore and concentrates, roasted and other	do.	6,330	57,400	6,570	47,500
Oxides and hydroxides, gross weight	do.	1,420	11,200	1,180	9,610
Powders	do.	68	2,570	103	3,210
Unwrought	do.	301	4,890	137	2,110
Wire, gross weight	do.	4	475	6	500
Other, orange, mixtures of inorganic compounds, waste and scrap, other, gross weight	do.	2,160 r/	15,700 r/	2,350	13,700
Nickel, nickel content:					
Alloyed, gross weight	do.	14,000	203,000	12,100	183,000
Unwrought:					
Primary, includes catalysts and salts, excludes carbonate	do.	147,000	1,120,000	148,000	858,000
Secondary	do.	11,000	87,300	8,500	50,500
Wrought	do.	973	19,300	819	16,000
Platinum-group metals	kilograms	258,000	2,000,000	303,000	3,090,000

See footnotes at end of table.

TABLE 8--Continued
U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998	
	Quantity	Value	Quantity	Value
Metals--Continued:				
Rare-earths, rare-earth oxide content:				
Cerium compounds, including oxides, hydroxides, nitrates, sulfate chlorides, oxalates kilograms	2,710,000	18,800	7,380,000	22,800
Ferrocerium and other pyrophoric alloys do.	136,000	2,070	131,000	1,870
Rare-earth compounds, including oxides, hydroxides, nitrates, other compounds except chlorides do.	9,420,000	69,000	4,960,000	69,100
Rare-earth metals, whether intermixed or alloyed do.	441,000	10,000	794,000	14,000
Mixtures of rare-earth chlorides, except cerium chloride do.	3,160,000	12,200	3,650,000	8,860
Mixtures of rare-earth oxide except cerium oxide do.	938,000	17,700	2,530,000	19,000
Yttrium compounds content by weight greater than 19% but less than 85% oxide equivalent do.	48,400	1,550	107,000	2,460
Rhenium:				
Ammonium perrhenate do.	6,560	1,760	11,000	4,090
Metal do.	8,510	7,640	14,200	13,600
Selenium and tellurium:				
Selenium, selenium content:				
Unwrought and waste and scrap do.	333,000	5,220	325,000	4,290
Selenium dioxide do.	13,700 r/	169 r/	14,400	285
Tellurium, unwrought, and waste and scrap, gross weight do.	63,900	2,110	88,900	2,430
Silicon, gross weight:				
Ferrosilicon metric tons	193,000	153,000	201,000	143,000
Metal do.	122,000	282,000	105,000	223,000
Silver, silver content:				
Bullion, refined kilograms	2,120,000	336,000	2,800,000	509,000
Doré and precipitates do.	285,000	80,800 r/	340,000	57,100
Ore and concentrates do.	141,000	22,300	196,000	36,900
Waste and scrap, gross weight do.	1,530,000	76,100	1,800,000	97,500
Thallium, unwrought, waste and scrap, powders do.	168	46	104	22
Thorium:				
Compounds do.	13,500	574	7,450	204
Ore, monazite concentrate do.	1,400 r/	8	--	--
Tin, gross weight:				
Compounds metric tons	389	3,210	482	3,610
Dross, skimmings, scrap, residues, tin alloys, n.s.p.f. do.	4,110	14,600	4,600	4,590
Metal, unwrought do.	40,600	228,000	44,000	244,000
Miscellaneous, includes tinfoil, tin powder, flitters, metallics, manufactures, n.s.p.f. do.	NA	5,890	NA	6,760
Tinplate and terneplate do.	261,000	166,000	291,000	186,000
Tinplate scrap do.	34,300	5,120	72,100	6,380
Titanium:				
Concentrates:				
Ilmenite do.	522,000	37,200	379,000	26,800
Titanium slag do.	430,000	168,000	626,000	239,000
Rutile, natural and synthetic do.	336,000	145,000	387,000	155,000
Titaniferous iron ore do.	43,900	7,960	24,000	2,850
Pigments, dioxides and oxides do.	194,000	334,000	200,000	354,000
Metal:				
Unwrought:				
Ingots and billets do.	5,410	91,500	2,240	37,400
Other, includes blooms, sheet, bars, slabs, other unwrought do.	154 r/	1,580 r/	316	4,980
Powder do.	244	2,840	147	1,590
Sponge do.	16,100	122,000	10,900	82,800
Waste and scrap do.	10,700	49,100	9,770	34,600
Wrought products and castings, bars, castings, foil, pipes, plates, profiles, rods, sheet, strip, tubes, wire, other do.	4,590 r/	80,100 r/	3,900	89,700
Tungsten, tungsten content:				
Ammonium paratungstate do.	2,100	13,700	1,920	11,100
Ferrotungsten and ferrosilicon tungsten do.	803	4,440	599	3,890

See footnotes at end of table.

TABLE 8--Continued
U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Metals--Continued:					
Tungsten, tungsten content--Continued:					
Miscellaneous tungsten-bearing materials, metal powders, carbide powder, unwrought, waste and scrap, wroughtwire, plate, sheet, strip, foil, other, oxides, calcium tungstate, other tungstates, other compounds	metric tons	5,070	62,100 r/	5,950	73,200
Ore and concentrate	do.	4,850	24,300	4,750	21,900
Vanadium:					
Aluminum-vanadium master alloy, gross weight	kilograms	11,300	20	298,000	496
Ferrovandium, vanadium content	do.	1,840,000	32,400	1,620,000	39,300
Metal, including waste and scrap, gross weight	do.	564,000	1,470	12,200	491
Miscellaneous chemicals, sulfates and vanadates, vanadium content	do.	150,000	1,140	129,000	1,430
Pentoxide, anhydride, vanadium content	do.	711,000	9,310	847,000	12,300
Vanadium-bearing ash, residues, slag from the manufacture of iron and steel, vanadium pentoxide content	do.	5,260,000	12,000	4,280,000	20,500
Other oxides and hydroxides of vanadium, vanadium content	do.	126,000	1,870	33,000	574
Zinc:					
Compounds, lithopone, chlorides, compounds n.s.p.f., oxide, sulfate, sulfide	metric tons	72,800 r/	79,600 r/	72,000	69,000
Ore and concentrates, zinc content	do.	49,600	31,400	46,300	23,700
Refined slab	do.	876,000	1,190,000	879,000	956,000
Rolled	do.	19,200	25,300	16,900	19,400
Zirconium and hafnium:					
Hafnium, unwrought, and waste and scrap	do.	7	1,290	11	1,860
Zirconium, ore and concentrates	do.	62,400	27,800	89,500	31,800
Zirconium oxide, includes germanium oxides and zirconium oxides	do.	4,220	44,600	3,900	35,600
Zirconium, unwrought and waste and scrap	do.	688	30,700	894	47,900
Total		XX	44,400,000 r/	XX	50,000,000
Industrial minerals:					
Abrasives, manufactured:					
Aluminum oxide, crude, ground and refined	metric tons	138,000	75,300	180,000	82,100
Boron carbide	do.	232	5,800	349	6,300
Metallic abrasives	do.	23,400	12,400	25,600	14,000
Silicon carbide, crude, ground and refined	do.	240,000	103,000	269,000	114,000
Asbestos, chrysotile, crocidolite, other unspecified fibers	do.	20,900	4,660	15,800	3,240
Barite:					
Barium chemicals	do.	47,000	38,000	47,200	40,400
Crude and ground	do.	2,240,000	122,000	1,870,000	108,000
Boron, contained boric oxide:					
Borax		54	17,000	14	5,160
Boric acid		26	11,800 e/	23	12,500
Colemanite		44	13,000 e/	47	13,900
Ulexite		157	31,400	170	34,000
Bromine:					
Compounds, contained bromine	metric tons	13,700	49,700	11,800	32,200
Elemental	do.	1,650	1,200	1,200	1,060
Cement, hydraulic and clinker		17,600	752,000	24,100	963,000
Clays:					
Artificially activated clay and activated earth	metric tons	18,600	10,300	18,900	9,630
Bentonite	do.	7,560	2,810	6,600	3,160
Chamotte or dina's earth	do.	33	14	1	2
China clay or kaolin	do.	30,400	7,270	52,900	12,600
Common blue clay and other ball clay	do.	823	261	2,670	563
Decolorizing earths and fuller's earth	do.	3,530	473	288	38
Fire clay	do.	69	79	2,150	184
Other clay	do.	2,720	2,040	2,900	1,610
Diamond, industrial:					
Diamond stones, natural and miners'	thousand carats	2,790	21,500	4,720	18,500
Powder, dust and grit, natural and synthetic	do.	254,000	109,000	221,000	96,400
Diatomite	metric tons	2,040	568	816	381

See footnotes at end of table.

TABLE 8--Continued
 U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998		
	Quantity	Value	Quantity	Value	
Industrial minerals--Continued:					
Feldspar and nepheline syenite:					
Feldspar	metric tons	8,580	753	6,560	601
Nepheline syenite	do.	346,000	23,900	320,000	24,100
Fluorspar:					
Aluminum fluoride	do.	12,800	12,000	22,400	19,300
Cryolite	do.	9,270	7,150	15,200	9,080
Fluorspar	do.	536,000	69,500	503,000	62,700
Hydrofluoric acid, HF	do.	109,000	110,000	124,000	114,000
Gemstones		XX	8,380,000	XX	9,250,000
Graphite:					
Natural	metric tons	58,100	32,400	61,600	34,800
Electric furnace electrodes	do.	70,200	174,000	63,000	155,000
Gypsum:					
Boards		847	113,000	962	138,000
Crude		8,420	72,900	8,680	70,300
Plasters		9	2,100	12	2,570
Other		XX	41,200	XX	50,800
Helium, Grade-A	million cubic meters	(2/)	276	(2/)	401
Iodine, crude and potassium iodide	metric tons	6,380	94,100	5,960	98,600
Iron oxide pigments:					
Natural	do.	7,810 r/	3,010 r/	4,910	2,380
Synthetic	do.	60,400	72,400	62,600	61,800
Kyanite and related materials, andalusite	do.	8,170	1,680	9,610	1,850
Lime		274	26,500	231	22,700
Lithium chemicals:					
Carbonate	metric tons	5,090	10,200	13,500	23,500
Hydroxide	do.	113	682	319	998
Magnesium compounds:					
Compounds, chlorides, hydroxide, peroxide, sulfates	do.	52,700	19,200	66,300	20,100
Magnesite, crude and processed:					
Caustic-calcined magnesia	do.	133,000	19,800	127,000	19,300
Crude	do.	10,900	2,580	4,590	1,840
Dead-burned and fused magnesia	do.	279,000	51,900	427,000	76,300
Other magnesia	do.	17,700	13,500	17,000	14,300
Mica:					
Scrap and flake:					
Powder	do.	13,000	8,080	15,500	9,120
Waste	do.	10,200	2,260	7,280	1,930
Sheet:					
Unworked	do.	4,220	2,310	2,760	1,490
Worked	do.	1,540	12,300	1,610	12,200
Nitrogen, major compounds, gross weight		9,720	1,590,000	10,100	1,470,000
Peat moss	metric tons	754,000	133,000	761,000	142,000
Perlite, processed	do.	135,000	4,460	150,000	4,790
Phosphate rock and phosphatic materials		1,130	93,000	1,090	92,500
Potash:					
Potassium chloride	metric tons	8,940,000	590,000	7,730,000	619,000
Potassium nitrate	do.	19,200	5,430	23,900	6,170
Potassium sodium nitrate mixtures	do.	19,900	3,060	21,200	3,190
Potassium sulfate	do.	56,300	11,400	94,600	19,400
Pumice:					
Crude or unmanufactured		265	7,560 r/	286	7,930
Wholly or partially manufactured		1 r/	1,250	2	1,460
Salt		9,160	148,000	8,770	145,000
Sand and gravel:					
Construction		1,610	18,100	1,120	15,000
Industrial		39	3,200	44	2,750
Silica:					
Quartz crystal, cultured electronic- and optical-grade	metric tons	63	11,700	47	12,200
Tripoli and special silica, special silica stone products	do.	NA	3,090	NA	2,630

See footnotes at end of table.

TABLE 8--Continued
 U.S. IMPORTS FOR CONSUMPTION OF PRINCIPAL MINERALS AND PRODUCTS, EXCLUDING MINERAL FUELS 1/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral or product	1997		1998	
	Quantity	Value	Quantity	Value
Industrial minerals--Continued:				
Soda ash	101	13,400	83	10,800
Sodium sulfate	150	15,600	(3/)	(3/)
Stone:				
Crushed, chips and calcium carbonate fines	12,400	106,000	13,600	116,000
Dimension	NA	548,000	NA	698,000
Strontium:				
Compounds, carbonate and nitrate		metric tons		
Sulfate, celestite	44,000	28,100	41,500	25,700
	28,500	2,050	24,200	1,450
Sulfur:				
Elemental	2,060	64,900	2,270	58,400
Sulfuric acid, 100% H ₂ SO ₄	2,010	84,000	2,040	86,800
Talc, unmanufactured	123	21,100	165	23,300
Vermiculite e/	67	11,800	68	12,700
Wollastonite	1,720	NA	5,000 e/	NA
Total	XX	14,300,000	XX	15,400,000
Grand total	XX	58,700,000 r/	XX	65,400,000

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

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

2/ Less than 1/2 unit.

3/ Commodity no longer canvassed.

TABLE 9
COMPARISON OF WORLD AND U.S. PRODUCTION OF SELECTED NONFUEL MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Mineral or product	1997			1998			
	World	U.S.	U.S. percent of world	World	U.S.	U.S. percent of world	
Metals, mine basis:							
Antimony 2/	metric tons	155,000 r/	356	0.2	140,000	242	0.2
Arsenic trioxide	do.	41,700 r/	--	--	40,800	--	--
Bauxite 3/		123,000	NA	NA	122,000	NA	NA
Beryl 4/	metric tons	6,910	5,770	83.5	7,220	6,080	84.2
Chromite		13,300 r/	--	--	12,700	--	--
Cobalt 2/ 4/	metric tons	27,100 r/	--	--	26,300	--	--
Columbium-tantalum concentrate, gross weight 4/	do.	43,600 r/	--	--	44,800	--	--
Copper 2/		11,400	1,940	17.0	12,200	1,860	15.2
Gold 2/	kilograms	2,420,000	362,000 r/	15.0 r/	2,480,000	366,000	14.8
Iron ore, gross weight		1,070,000 r/	63,000	5.9 r/	1,020,000	62,900	6.2
Lead 2/		3,140 r/	459	14.6 r/	3,100	493	15.9
Manganese ore, gross weight		19,800 r/	--	--	18,700	--	--
Mercury	metric tons	2,470 r/	W	NA	2,320	NA	NA
Molybdenum 2/	do.	139,000 r/	60,300 e/	43.4 r/	135,000	53,300	39.5
Nickel 2/		1,120	--	--	1,140	--	--
Platinum-group metals	kilograms	281,000 r/	11,000 e/	3.9 r/	287,000	13,800 e/	4.8
Silver 2/	metric tons	16,000 r/	2,180 r/	13.6 r/	16,400	2,060	12.6
Tin 2/	do.	210,000 r/	--	--	206,000	--	--
Titanium concentrates, gross weight:							
Ilmenite, including leucoxene		4,070 r/	W	NA	4,650	601 5/	12.9
Rutile	metric tons	427,000 r/	W	NA	426,000	(6/)	NA
Tungsten 2/	do.	33,200 r/	-- r/	-- r/	32,200	--	--
Vanadium 2/	do.	40,400 r/	NA	NA	42,000 7/	NA	NA
Zinc 2/		7,530 r/	632	8.4 r/	7,540	755	10.0
Metals, refinery basis:							
Aluminum		21,500 r/	3,600	16.7 r/	22,100	3,710	16.8
Bismuth	metric tons	4,070 r/	W	NA	3,780	--	--
Cadmium	do.	19,200 r/	2,060	10.7 r/	19,600	1,880	9.6
Cobalt	do.	27,100 r/	--	--	30,900	--	--
Copper, primary and secondary		13,600 r/	2,450	18.0 r/	14,100	2,480	17.6
Iron and steel:							
Direct-reduced iron		35,800 r/	510	1.4 r/	37,500	1,740	4.6
Iron, pig		551,000 r/	49,600	9.0	541,000	48,200	8.9
Steel, raw		802,000 r/	98,500	12.3	781,000	98,600	12.6
Lead, primary and secondary 8/		5,820 r/	1,450	24.9 r/	5,880	1,450	24.7
Magnesium, primary and secondary	metric tons	481,000 r/	202,000 r/	42.0 r/	468,000	182,000	38.9
Nickel 9/		1,010	16	1.6	1,050	4	0.4
Selenium 10/	kilograms	1,720,000 r/	W r/	NA r/	1,450,000	W	NA
Tellurium	do.	109,000 r/	W	NA	115,000	W	NA
Tin, smelter 11/	metric tons	231,000 r/	12,400 r/	5.4 r/	225,000	16,100	7.2
Zinc, smelter, primary and secondary		7,850 r/	367	4.7	8,230	368	4.5
Industrial minerals:							
Asbestos		2,060 r/	7	0.3	1,840	6	0.3
Barite		6,660 r/	692 12/	10.4 r/	5,890	476 12/	8.1
Boron minerals		4,360 r/	1,190 12/	27.3 r/	4,440	1,240 12/	27.9
Bromine	metric tons	517,000 r/	247,000 12/	47.8 r/	514,000	230,000 12/	44.7
Celestite 4/	do.	294,000 r/	--	--	276,000	--	--
Cement, hydraulic		1,540,000 r/	84,300 13/	5.5 r/	1,520,000	85,500 13/	5.6
Clays:							
Bentonite 4/		9,750 r/	4,020	41.2 r/	9,330	3,820	40.9
Fuller's earth		3,350 r/	2,370	70.7 r/	3,320	2,350	70.8
Kaolin 4/		40,400 r/	9,410	23.3 r/	39,800	9,450	23.7
Diamond, natural	thousand carats	121,000 r/	--	--	115,000	--	--
Diatomite		2,170 r/	773 12/	35.6 r/	2,150	725 12/	33.7
Feldspar		8,150 r/	900	11.0 r/	8,080	820	10.1
Fluorspar		4,510 r/	-- 14/	--	4,700	-- 14/	--
Graphite, natural	metric tons	581,000 r/	--	--	578,000	--	--

See footnotes at end of table.

TABLE 9--Continued
COMPARISON OF WORLD AND U.S. PRODUCTION OF SELECTED NONFUEL MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Mineral or product	1997			1998		
	World	U.S.	U.S. percent of world	World	U.S.	U.S. percent of world
Industrial minerals--Continued:						
Gypsum	106,000 r/	18,600 r/	17.5 r/	106,969	19,000	17.8
Iodine, crude	metric tons 15,800 r/	1,320	8.4 r/	21,300	1,490	7.0
Lime	115,000 r/	19,700 12/ 13/	17.1 r/	115,000	20,100 12/ 13/	17.5
Magnesite, crude	10,600 r/	W	NA	10,700	W	NA
Mica, including scrap and flake 15/	metric tons 307,000 r/	114,000	37.1 r/	288,000	87,100	30.2
Nitrogen, N content of ammonia	104,000 r/	13,300 r/ 16/	12.8 r/	106,000	14,700 16/	13.9
Peat 17/	25,800 r/	661 r/	2.6 r/	25,500	676	2.7
Perlite 4/	1,840	706 12/	38.4 r/	1,840	685 12/	37.3
Phosphate rock, gross weight	144,000 r/	45,900 r/	31.9 r/	145,000	44,200	30.5
Potash, K ₂ O equivalent	25,400 r/	1,400 r/	5.5 r/	25,100	1,300	5.2
Pumice 18/	11,600 r/	577 12/	5.0 r/	11,500	583 12/	5.1
Salt	199,000 r/	41,500 r/ 13/	20.9 r/	192,000	41,300 13/	21.5
Sand and gravel, industrial, silica 4/	126,000 r/	28,700 12/	22.8 r/	110,000	28,200 12/	25.6
Sodium compounds, n.e.s., natural and manufactured:						
Soda ash 19/	32,600 r/	10,700	32.8 r/	31,700	10,100	31.9
Sulfate 20/	5,520	580	10.5	NA	NA	NA
Sulfur, all forms	58,300 r/	12,000	20.6 r/	57,800	11,600	20.1
Talc and pyrophyllite 21/	8,690 r/	1,050	12.1 r/	8,140	1,060	13.0
Vermiculite	metric tons 293,000 r/	W	NA	292,000	W	NA

e/ Estimated. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits.

2/ Content of ore and concentrate.

3/ U.S. figures represent dried bauxite equivalent of crude ore; to the extent possible, individual country figures that are included in the world total are also on the dried bauxite basis, but for some countries, available data are insufficient to permit this adjustment.

4/ World total does not include an estimate for output in China.

5/ Includes synthetic rutile and rutile.

6/ Included with "Ilmenite and leucoxene."

7/ Does not include U.S. production.

8/ Includes bullion.

9/ Refined nickel plus nickel content of ferronickel, nickel oxide, and other nickel salts.

10/ U.S. production includes semirefined selenium exported for further refining.

11/ Includes tin content of alloys made directly from ore.

12/ Quantity sold or used by producers.

13/ Includes Puerto Rico.

14/ Shipments.

15/ Excludes U.S. production of low-quality sericite and sheet mica.

16/ Synthetic anhydrous ammonia; excludes coke oven byproduct ammonia.

17/ Data for the United States exclude proprietary amounts of fuel peat.

18/ World total does not include estimates for output in Japan, Mexico, the former U.S.S.R, and Congo (Kinshasa), formerly Zaire.

19/ U.S. production is natural only.

20/ As of December 31, 1998, sodium sulfate world production data will no longer be published owing to termination of reporting by U.S. respondents.

21/ Data for the United States exclude proprietary pyrophyllite production.