



# 2008 Minerals Yearbook

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## PENNSYLVANIA

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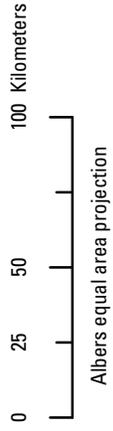
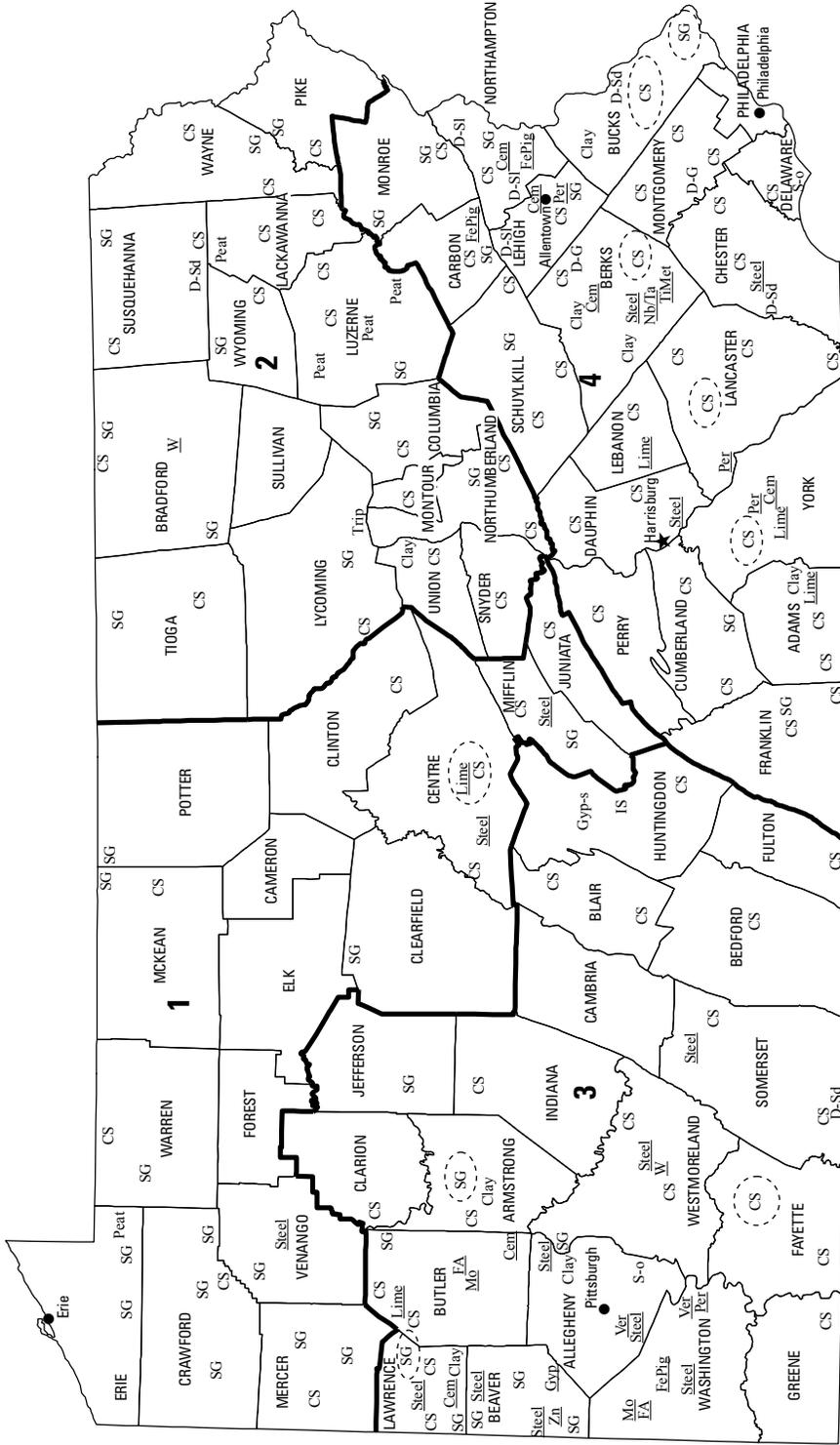
# PENNSYLVANIA

**LEGEND**

- County boundary
- ★ Capital
- City
- Crushed stone/sand and gravel district boundary

**MINERAL SYMBOLS**  
(Principal producing areas)

- Cem Cement plant
- Clay Common clay
- CS Crushed stone\*
- D-G Dimension granite
- D-Sd Dimension sandstone
- D-Sl Dimension slate
- FePig Iron oxide pigments plant
- FA Ferroalloys plant
- Gyp Gypsum plant
- Gyp-s Synthetic gypsum
- IS Industrial sand
- Lime Lime plant and quarry
- Mo Molybdenum plant
- Nb/Ta Niobium and tantalum plant
- Peat Peat
- Per Perlite plant
- S-o Sulfur (oil)
- SG Construction sand and gravel\*
- Steel Steel plant
- TiMet Titanium metal plant
- TriPoli Tripoli
- W Tungsten plant
- Ver Vermiculite plant
- Zn Zinc plant
- Concentration of mineral operations



Source: Pennsylvania Bureau of Topographic and Geological Survey/U.S. Geological Survey (2008).

# THE MINERAL INDUSTRY OF PENNSYLVANIA

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

In 2008, Pennsylvania's nonfuel raw mineral production<sup>1</sup> was valued at \$1.97 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$114 million, or 6.1%, increase from the \$1.86 billion total value for 2007, which had increased by \$124 million, or by 7.1%, from 2006 to 2007. Pennsylvania continued to rank 13th in the Nation in total nonfuel mineral production value and accounted for 2.8% of the U.S. total value. (The actual totals for 2006–08 are higher than those shown in table 1; tripoli data have been withheld to avoid disclosing company proprietary data.)

Pennsylvania continues to be among the Nation's leading producers of crushed stone and cement (portland and masonry). These three mineral commodities account for more than 85% of the State's total nonfuel mineral industry value. Combined with the production value of construction sand and gravel and lime, the next two highest production values, these commodities made up 98.4% of Pennsylvania's total nonfuel mineral industry value.

The increase in Pennsylvania's mineral production value was owing to an \$183 million rise in the value of crushed stone, a more than 19% increase. Production quantity fell by 8.6% and the unit value rose by 30%. The value of lime also increased significantly, rising more than \$13 million, or 11.7%. Industrial sand and gravel increased slightly less than \$500,000. These increases were offset by decreases in the production value of portland cement, construction sand and gravel, masonry cement, and dimension stone, in descending order of value. Portland cement decreased by \$58 million, construction sand and gravel by \$13.3 million, masonry cement by \$6.5 million, and dimension stone by \$5.2 million. The decreases in these values coincided with decreases in quantity produced of each. Smaller decreases took place in common clay, tripoli, and peat.

Pennsylvania continued to rank second in the Nation in the quantity of crushed stone produced, third in portland cement production, and fourth of four tripoli-producing States. The State also remained seventh in the production of masonry cement and lime, 10th in peat sales, and 11th in common clay production. The State rose in rank from 13th to 12th in dimension stone production and from 21st to 19th in the production of construction sand and gravel. Pennsylvania dropped from 15th to 16th in industrial sand and gravel production.

Producing exclusively industrial minerals and coal, Pennsylvania did not produce any primary metals from ores

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 2008 USGS mineral production data published in this chapter are those available as of July 1, 2010. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

mined in the State. In fact, the last metal-mining operation in the State closed more than 30 years ago. Metals that were produced in the State in 2008, principally steel, as well as ferroalloys, molybdenum, niobium, tantalum, titanium, tungsten, and zinc, were processed from materials acquired from other domestic and foreign sources. The State produced 5.8 million metric tons of raw steel in 2008, accounting for 6.3% of the U.S. total (American Iron and Steel Institute, 2009, p. 74). Additionally, Pennsylvania produced significant quantities of cadmium metal and finished iron oxide pigments, ranking first of three producing States and third of eight producing States, respectively.

The Pennsylvania Bureau of Topographic and Geologic Survey, within the Pennsylvania Geological Survey<sup>2</sup> (PGS), provided the following narrative information.

The PGS continued to be an active participant in the STATEMAP program. STATEMAP is a component of the congressionally mandated National Cooperative Geologic Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers.

In 2008, digital maps of bedrock geology were produced under the STATEMAP program covering the following areas of Pennsylvania: the New Holland quadrangle, Lancaster County; the McAlevys Fort quadrangle, Huntingdon, Centre, and Mifflin Counties; the Newton Hamilton quadrangle, Huntingdon, Juniata, and Mifflin Counties; the Airville and Pennsylvania portion of the Fawn Grove quadrangles, Lancaster and York Counties; and a portion of the Philadelphia quadrangle, Montgomery and Philadelphia Counties.

Digital maps of surficial geology were produced under the STATEMAP program covering the following areas: the Aldenville 7.5-minute quadrangle, Wayne County; the Clifford 7.5-minute quadrangle, Susquehanna and Lackawanna Counties; the Damascus 7.5-minute quadrangle, Wayne County; the Forest City 7.5-minute quadrangle, Wayne, Susquehanna, and Lackawanna Counties; the Galilee 7.5-minute quadrangle, Wayne County; the Honesdale 7.5-minute quadrangle, Wayne County; the Pleasant View Summit 7.5-minute quadrangle, Luzerne, Lackawanna, Carbon, and Monroe Counties; the Shickshinny 7.5-minute quadrangle, Columbia and Luzerne Counties; the Sterling 7.5-minute quadrangle, Wayne and

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<sup>2</sup>John H. Barnes, P.G., Supervisory Geologist with the Pennsylvania Geological Survey, authored the text of the State mineral industry information provided by that State agency.

Lackawanna Counties; the Thornhurst 7.5-minute quadrangle, Monroe, Lackawanna, and Luzerne Counties; the Waymart 7.5-minute quadrangle, Wayne and Lackawanna Counties; the Wayne County portion of the Narrowsburg 7.5-minute quadrangle; the Wayne County portion of the Newfoundland 7.5-minute quadrangle; the Wayne County portion of the White Mills 7.5-minute quadrangle; the Wilkes-Barre East 7.5-minute quadrangle, Luzerne County; and the Wilkes-Barre West 7.5-minute quadrangle, Luzerne County.

In addition, PGS produced three new publications in 2008 (Cuffey and others, 2008; Skema and others 2008a, p.102; Skema and others, 2008b, p.87). The Survey continued its program of making older publications available on the Internet in a digital format that can be read or downloaded at no charge. Such publications made available in 2008 included a map of Pennsylvania rock types, digital and geologic shaded-relief maps, a carbonate rock map, and a land-cover map (Clark, 1970; Berg and others, 1984; U.S. Geological Survey, 1999, 2000; Miles, 2008).

More information regarding the geology, hydrology, mineral resources, and mining history of Pennsylvania, as well as a variety of PGS publications is available from the PGS. Much of this information, PGS contact information, and several educational series publications regarding both nonfuel and fuel minerals are available over the Internet at <http://www.dcnr.state.pa.us/topogeo/>. Complete information on obtaining all Pennsylvania Geological Survey publications can be found in the PGS listing of publications, which is online at <http://www.dcnr.state.pa.us/topogeo/pub/lop.pdf>.

## References Cited

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- U.S. Geological Survey, comp., 1999, Digital shaded-relief map of Pennsylvania: Pennsylvania Geological Survey, 4th ser., Map 65, scale 1:500,000, 1:1,350,000 [compiled by USGS and PGS, 2008], Web and tabloid edition.
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TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN PENNSYLVANIA<sup>1,2</sup>

(Thousand metric tons and thousand dollars)

Mineral	2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>Cement:</b>						
Masonry	384	52,200 <sup>e</sup>	304	40,500 <sup>e</sup>	254	34,000 <sup>e</sup>
Portland	6,020	599,000 <sup>e</sup>	5,660	568,000 <sup>e</sup>	5,150	510,000 <sup>e</sup>
Clays, common	742	5,630	683	4,890 <sup>r</sup>	640	4,840
Gemstones, natural	NA	1	NA	1	NA	1
Lime	1,160	115,000	1,100	112,000	1,130	126,000
Peat	1	52	2	79	2	62
<b>Sand and gravel:</b>						
Construction	18,400	126,000	18,300	143,000	15,800	129,000
Industrial	696	15,500	685	15,800	677	16,300
<b>Stone:</b>						
Crushed	113,000	807,000 <sup>r</sup>	111,000 <sup>r</sup>	960,000 <sup>r</sup>	102,000	1,140,000
Dimension	63 <sup>r</sup>	16,200 <sup>r</sup>	59 <sup>r</sup>	16,200 <sup>r</sup>	42	11,100
Tripoli	W	W	W	W	W	W
Total	XX	1,740,000 <sup>r</sup>	XX	1,860,000 <sup>r</sup>	XX	1,970,000

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

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

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2  
PENNSYLVANIA: CRUSHED STONE SOLD OR USED, BY TYPE<sup>1</sup>

Type	2007			2008		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone <sup>2</sup>	108 <sup>r</sup>	61,100 <sup>r</sup>	\$559,000 <sup>r</sup>	123	58,400	\$581,000
Dolomite	16	11,800	93,100	21	12,000	113,000
Marble	-- <sup>r</sup>	-- <sup>r</sup>	-- <sup>r</sup>	--	--	--
Granite	8 <sup>r</sup>	4,540 <sup>r</sup>	38,500 <sup>r</sup>	8	4,160	40,100
Traprock	9	7,210	56,900	9	6,350	215,000
Sandstone and quartzite	62 <sup>r</sup>	15,300 <sup>r</sup>	122,000 <sup>r</sup>	62	11,600	109,000
Slate	28 <sup>r</sup>	1,920 <sup>r</sup>	16,300 <sup>r</sup>	26	1,520	16,100
Miscellaneous stone	17 <sup>r</sup>	9,260 <sup>r</sup>	74,400 <sup>r</sup>	29	7,720	69,300
Total	XX	111,000 <sup>r</sup>	960,000 <sup>r</sup>	XX	102,000	1,140,000

<sup>r</sup>Revised. XX Not applicable. -- Zero.

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

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

TABLE 3  
PENNSYLVANIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	W	W
Riprap and jetty stone	W	W
Filter stone	1,610	15,400
Other coarse aggregate	1,440	13,800
Coarse aggregate, graded:		
Concrete aggregate, coarse	4,040	35,800
Bituminous aggregate, coarse	5,870	61,200
Bituminous surface-treatment aggregate	1,400	15,100
Railroad ballast	892	7,380
Other graded coarse aggregate	6,580	56,400
Fine aggregate (-¾ inch):		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	2,670	26,300
Screening, undesignated	W	W
Other fine aggregate	2,790	27,500
Coarse and fine aggregates:		
Graded road base or subbase	8,950	77,600
Unpaved road surfacing	630	6,990
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	3,450	31,600
Roofing granules	W	W
Other coarse and fine aggregates	9,960	76,300
Other construction materials	1,570	13,900
Agricultural, limestone	611	5,220
Chemical and metallurgical:		
Cement manufacture	4,540	58,400
Lime manufacture	851	15,500
Flux stone	W	W
Chemical stone	W	W
Sulfur oxide removal	784	6,400
Special:		
Mine dusting or acid water treatment	W	W
Asphalt fillers or extenders	W	W
Whiting or whiting substitute	W	W
Other fillers or extenders	261	2,580
Other miscellaneous uses and specified uses not listed	760	16,900
Unspecified: <sup>2</sup>		
Reported	18,100	174,000
Estimated	19,000	190,000
Total	102,000	1,140,000

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

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

<sup>2</sup>Reported and estimated production without a breakdown by end use.

TABLE 4  
PENNSYLVANIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch) <sup>2</sup>	W	W	W	W	1,200	12,300
Coarse aggregate, graded <sup>3</sup>	1,030	8,760	1,180	11,000	4,650	45,300
Fine aggregate (-¾ inch) <sup>4</sup>	W	W	W	W	1,090	9,440
Coarse and fine aggregates <sup>5</sup>	W	W	W	W	4,570	38,400
Other construction materials	43	381	--	--	1,460	13,000
Agricultural <sup>6</sup>	W	W	W	W	W	W
Chemical and metallurgical <sup>7</sup>	--	--	W	W	W	W
Special <sup>8</sup>	--	--	W	W	W	W
Other miscellaneous uses and specified uses not listed	--	--	104	2,210	607	13,500
Unspecified: <sup>9</sup>						
Reported	3,650	35,200	1,780	17,100	6,250	60,200
Estimated	981	10,000	5,000	49,000	2,200	21,000
Total	7,270	68,300	11,200	106,000	24,900	248,000
District 4						
	Quantity	Value				
Construction:						
Coarse aggregate (+1½ inch) <sup>2</sup>	2,400	24,200				
Coarse aggregate, graded <sup>3</sup>	11,900	111,000				
Fine aggregate (-¾ inch) <sup>4</sup>	4,520	43,500				
Coarse and fine aggregates <sup>5</sup>	16,800	301,000				
Other construction materials	66	583				
Agricultural <sup>6</sup>	W	W				
Chemical and metallurgical <sup>7</sup>	4,050	54,400				
Special <sup>8</sup>	W	W				
Other miscellaneous uses and specified uses not listed	50	1,170				
Unspecified: <sup>9</sup>						
Reported	6,400	61,700				
Estimated	11,000	110,000				
Total	58,300	721,000				

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

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

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

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

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

<sup>5</sup>Includes crusher run or fill or waste, graded road base or subbase, roofing granules, terrazzo and exposed aggregate, unpaved road surfacing, and other coarse and fine aggregates.

<sup>6</sup>Includes limestone.

<sup>7</sup>Includes cement and lime manufacture, chemical stone, flux stone, and sulfur oxide removal.

<sup>8</sup>Includes mine dusting or acid water treatment, asphalt fillers or extenders, whiting or whiting substitute, and other fillers or extenders.

<sup>9</sup>Reported and estimated production without a breakdown by end use.

TABLE 5  
PENNSYLVANIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	2,570	\$25,000	\$9.72
Plaster and gunite sands	13	214	16.46
Concrete products (blocks, bricks, pipe, decorative, etc.)	116	\$603	5.20
Asphaltic concrete aggregates and other bituminous mixtures	1,090	11,200	10.26
Road base and coverings	1,660	14,100	8.51
Fill	1,300	5,170	3.97
Snow and ice control	201	1,410	7.02
Roofing granules	4	62	15.50
Other miscellaneous uses <sup>2</sup>	464	6,240	13.44
Unspecified: <sup>3</sup>			
Reported	1,570	12,900	8.22
Estimated	6,790	52,400	7.72
Total or average	15,800	129,000	8.19

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

<sup>2</sup>Includes railroad ballast.

<sup>3</sup>Reported and estimated production without a breakdown by end use.

TABLE 6  
PENNSYLVANIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,  
BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		Districts 3 and 4 <sup>2</sup>	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products <sup>3</sup>	1,150	9,020	316	3,230	1,240	13,600
Asphaltic concrete aggregates and road base materials	1,490	14,900	740	6,150	519	4,270
Fill	55	277	169	417	1,060	4,340
Snow and ice control	187	1,300	W	W	W	W
Other miscellaneous uses <sup>4</sup>	162	2,860	4	64	303	3,510
Unspecified: <sup>5</sup>						
Reported	127	1,040	452	3,650	991	8,220
Estimated	1,100	8,490	1,720	13,300	3,970	30,600
Total	4,270	37,900	3,400	26,800	8,090	64,500
	Unspecified districts					
	Quantity	Value				
Concrete aggregates and concrete products <sup>3</sup>	1	6				
Asphaltic concrete aggregates and road base materials	3	29				
Fill	14	132				
Snow and ice control	4	32				
Other miscellaneous uses <sup>4</sup>	8	13				
Unspecified: <sup>5</sup>						
Reported	--	--				
Estimated	--	--				
Total	29	210				

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

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

<sup>2</sup>Specified districts are combined to avoid disclosing company proprietary data.

<sup>3</sup>Includes plaster and gunite sands.

<sup>4</sup>Includes railroad ballast and roofing granules.

<sup>5</sup>Reported and estimated production without a breakdown by end use.