

THE MINERAL INDUSTRY OF TEXAS

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the University of Texas at Austin, Bureau of Economic Geology, for collecting information on all nonfuel minerals.

In 1999, the preliminary estimated value¹ of nonfuel mineral production for Texas was \$1.78 billion, according to the U.S. Geological Survey (USGS). This was about a 2% decrease from that of 1998,² and followed a 2.2% increase from 1997 to 1998. Texas ranked sixth in the Nation (it was fifth in 1998) in total nonfuel mineral production value, of which the State accounted for almost 5% of the U.S. total.

In 1999, 91% of Texas' nonfuel mineral value came from the production of the State's top five industrial minerals, in descending order of value: portland cement, crushed stone, construction sand and gravel, lime, and salt. (The following mineral listings are in descending order of relative change in value.) Although crushed stone, portland cement, and lime values showed a total increase of \$77 million, the State's nonfuel mineral value dropped, mostly owing to a cessation of production of magnesium metal and crude and Grade-A helium, as well as decreased values in construction sand and gravel (table 1). In 1998, increases of \$70 million in the value of construction sand and gravel, \$59 million in crushed stone, and \$45 million in portland cement provided most of the State's overall rise in value. Dimension stone, lime, and masonry cement had smaller yet significant increases in value (table 1). Decreases in the values of magnesium metal, Frasch sulfur, and Grade-A helium, as well as smaller yet significant drops in those of industrial sand and gravel, salt, and common clays, offset a large portion of the overall increase in nonfuel mineral values for the year (table 1). All other value changes for 1998 and 1999 were relatively small and inconsequential to the State's net changes in value.

Based upon USGS estimates of the quantities of minerals produced in the 50 States in 1999, Texas remained first in crushed stone; second in portland cement, construction sand and gravel, salt, talc, ball clay, and zeolites; second of two Frasch

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon 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 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000, and are expected to change. For some mineral commodities, such as, construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. A telephone listing for the specialists may be retrieved over the Internet at URL <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 URL <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

sulfur- and two greensand marl-producing States; third in gypsum and common clay; fifth in lime; and eighth in masonry cement. Whereas the State increased to 2d from 3d of three crude helium-producing States, it dropped to 6th from 4th in industrial sand and gravel and to 11th from 10th in the production of dimension stone.

The Texas metal industry produced raw steel, primary aluminum, copper, and smaller amounts of other metals. Sources of plant feed included scrap metal and ores acquired from other domestic or foreign sources. Texas produced an estimated 3.75 million metric tons of raw steel, as reported by the American Iron and Steel Institute. Based upon USGS data, the State ranked eighth in primary aluminum production.

The following narrative information was provided by the Texas Bureau of Economic Geology³ (BEG). The nonfuel mineral industry of Texas continued to grow during 1999. The only significant decrease in nonfuel mineral value resulted from the November 1998 shut down of Dow Chemical Co.'s magnesium metal plant in Freeport (Olafson, 1998). Dow concluded that damage from recent tropical storms and hurricanes had resulted in continued production problems and that costs had become too high to keep the operation going. In much of the rest of the minerals industry, the increase in population and growth in industry spurred activity in mineral production by creating a demand for materials used in developing infrastructure. Production of aggregate and most other industrial minerals needed for manufacturing building products responded to increased construction activity.

Overall, annual job growth in mining, reported by the Texas Labor Market Review, decreased 10.3% between December 1998 and December 1999 (Griffis, 1998; 1999). However, records of the Texas Workforce Commission show increases in employment in construction and manufacturing related to mineral products during 1999. The construction job annual growth rate was 4.9%. Between December 1998 and December 1999, jobs related to stone, clay, and glass products increased by 2%, and those related to concrete, gypsum, and plaster products increased by about 6.5%. The overall decrease was mostly the result of extensive layoffs in the oil and gas industry. Persistently low crude oil prices affected sectors of the mining, construction, and manufacturing industries that supported drilling activities in Texas.

According to the BEG, overall activity in the State's nonfuel mineral industry was above average during 1999. Based upon recent trends in population growth and commercial development, production of the State's mineral resources used in construction and basic infrastructure was expected to continue to grow.

³Sigrud Clift, Public Information Geologist, authored the text of mineral industry information submitted by the Texas Bureau of Economic Geology.

References Cited

Griffis, Clayton, ed., 1998, Texas labor market review: Austin, Texas Workforce Commission, December, 8 p.

———1999, Texas labor market review: Austin, Texas Workforce Commission, December, 10 p.

Olafson, Steve, 1998, Dow magnesium plant to shut down in Freeport: Houston Chronicle, November 20, p. 2c.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	203	18,900 e/	216	20,500 e/	222	21,000 e/
Portland	8,280	576,000 e/	8,430	621,000 e/	8,640	636,000 e/
Clays:						
Common	2,150	13,600	2,120	10,100	2,130	9,820
Kaolin	35	7,600	W	W	W	W
Gemstones	NA	11	NA	11	NA	11
Gypsum, crude	2,260	15,700	2,260	15,500	2,310	15,800
Lime	1,470	91,500	1,620	101,000	1,750	109,000
Salt	9,780	91,000	9,420	83,900	9,400	83,800
Sand and gravel:						
Construction	60,100	284,000	74,600	354,000	71,600	347,000
Industrial	1,830	48,800	1,760	38,500	1,750	38,800
Stone:						
Crushed	81,000	338,000	99,300	397,000	110,000	451,000
Dimension	metric tons	35,300	11,300	40,900	16,700	37,100
Talc and pyrophyllite	do.	274,000	6,760	274,000	6,770	W
Zeolites	do.	(3/)	NA	(3/)	NA	NA
Combined values of clays (ball, bentonite, fuller's earth), greensand marl (1998-99), helium [crude, Grade-A (1997-98)], magnesium compounds (1997-98), magnesium metal (1997-98), sodium sulfate [natural (1997)], sulfur (Frasch), and values indicated by symbol W						
	XX	281,000	XX	158,000	XX	46,700
Total	XX	1,780,000	XX	1,820,000	XX	1,780,000

e/ Estimated. p/ Preliminary. NA Not available. 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 no more than three significant digits; may not add to totals shown.

3/ Withheld to avoid disclosing company proprietary data.

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

Kind	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	109	77,400	\$322,000	\$4.16	120	92,500	\$370,000	\$4.00
Dolomite	1	W	W	3.06	1	W	W	3.77
Granite	2	W	W	6.02	10	489	2,090	4.27
Marble	11	W	W	20.33	34	W	W	29.24
Calcareous marl	2	W	W	2.24	2	W	W	3.86
Sandstone and quartzite	5	709	4,910	6.92	5	938	4,070	4.34
Traprock	1	W	W	7.44	1	W	W	7.19
Volcanic cinder and scoria	1	156	809	5.19	2	W	W	5.04
Miscellaneous stone	3	W	W	2.46	16	3,260	10,800	3.31
Total or average	XX	81,000	338,000	4.17	XX	99,300	397,000	4.00

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

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

TABLE 3
TEXAS: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	\$12.40
Riprap and jetty stone	171	\$1,450	8.50
Filter stone	76	363	4.78
Other coarse aggregate	1,790	5,250	2.94
Coarse aggregate, graded:			
Concrete aggregate, coarse	15,500	74,600	4.80
Bituminous aggregate, coarse	5,050	29,100	5.77
Bituminous surface-treatment aggregate	714	3,340	4.67
Railroad ballast	W	W	4.95
Other graded coarse aggregate	6,110	23,700	3.88
Fine aggregate (-3/8 inch):			
Stone sand, concrete	3,200	15,100	4.72
Stone sand, bituminous mix or seal	1,250	4,710	3.76
Screening, undesignated	1,230	4,010	3.25
Other fine aggregate	2,900	9,060	3.13
Coarse and fine aggregates:			
Graded road base or subbase	19,900	68,800	3.46
Unpaved road surfacing	68	248	3.65
Terrazzo and exposed aggregate	75	986	13.15
Crusher run or fill or waste	3,590	10,400	2.89
Other coarse and fine aggregates	3,290	10,900	3.32
Other construction materials	441	1,920	4.36
Agricultural:			
Agricultural limestone	175	863	4.93
Poultry grit and mineral food	W	W	6.72
Other agricultural uses	245	2,070	8.44
Chemical and metallurgical:			
Cement manufacture	10,300	35,900	3.49
Lime manufacture	(3/)	(3/)	5.38
Flux stone	(3/)	(3/)	5.99
Chemical stone	(3/)	(3/)	4.14
Sulfur oxide removal	(3/)	(3/)	4.66
Special:			
Mine dusting or acid water treatment	(3/)	(3/)	4.36
Asphalt fillers or extenders	(3/)	(3/)	10.38
Other fillers or extenders	807	10,700	13.29
Other miscellaneous uses:			
Waste material	36	159	4.42
Other specified uses not listed	37	325	8.78
Unspecified: 4/			
Actual	5,240	21,000	4.00
Estimated	15,400	51,500	3.33
Total or average	99,300	397,000	4.00

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

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

2/ Includes calcareous marl, dolomite, granite, limestone, marble, miscellaneous stone, sandstone and quartzite, traprock, and volcanic cinder and scoria.

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

4/ Reported and estimated production without a breakdown by end use.

TABLE 4
TEXAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998,
BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 3/	W	W	W	W	W	W
Coarse aggregate, graded 4/	W	W	W	W	370	1,450
Fine aggregate (-3/8 inch) 5/	W	W	W	W	W	W
Coarse and fine aggregate 6/	24	98	W	W	W	W
Other construction materials	147	1,240	559	2,380	89	393
Agricultural 7/	--	--	(8/)	(8/)	(8/)	(8/)
Chemical and metallurgical 9/	--	--	--	--	(8/)	(8/)
Special 10/	--	--	--	--	--	--
Other miscellaneous uses	--	--	--	--	--	--
Unspecified: 11/						
Actual	--	--	--	--	--	--
Estimated	330	1,090	(8/)	(8/)	(8/)	(8/)
Total	501	2,430	711	2,970	3,820	14,400
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 3/	W	W	271	1,190	37	217
Coarse aggregate, graded 4/	W	W	8,710	44,200	--	--
Fine aggregate (-3/8 inch) 5/	W	W	3,120	11,200	--	--
Coarse and fine aggregate 6/	1,390	5,000	3,760	15,800	163	798
Other construction materials	5,960	28,300	(8/)	(8/)	--	--
Agricultural 7/	--	--	(8/)	(8/)	--	--
Chemical and metallurgical 9/	(8/)	(8/)	3,800	13,800	--	--
Special 10/	(8/)	(8/)	(8/)	(8/)	--	--
Other miscellaneous uses	--	--	(8/)	(8/)	--	--
Unspecified: 11/						
Actual	--	--	2,340	9,700	--	--
Estimated	1,650	5,170	8,460	27,300	394	1,290
Total	9,540	40,700	31,700	133,000	594	2,310
Use	District 7		District 9		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 3/	1,670	5,210	--	--	--	--
Coarse aggregate, graded 4/	13,500	60,600	--	--	--	--
Fine aggregate (-3/8 inch) 5/	3,960	15,900	--	--	--	--
Coarse and fine aggregate 6/	17,700	55,200	3,540	13,100	--	--
Other construction materials	(8/)	(8/)	--	--	--	--
Agricultural 7/	(8/)	(8/)	--	--	--	--
Chemical and metallurgical 9/	6,400	23,100	--	--	--	--
Special 10/	(8/)	(8/)	--	--	--	--
Other miscellaneous uses	(8/)	(8/)	--	--	--	--
Unspecified: 11/						
Actual	2,900	11,300	--	--	--	--
Estimated	1,590	5,580	328	1,100	16	125
Total	48,600	187,000	3,870	14,200	16	125

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

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

2/ District 8 included with District 9 to avoid disclosing company proprietary data.

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

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

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

6/ Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material fill), and other coarse and fine aggregates.

7/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

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

9/ Includes cement manufacture, chemical stone or alkali works, flux stone, lime manufacture, and sulfur oxide removal.

10/ Includes asphalt fillers or extenders, mine dusting or acidic water treatment, and other fillers or extenders.

11/ Reported and estimated production without a breakdown by end use.

TABLE 5
TEXAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value	Unit
	(thousand metric tons)	(thousands)	value
Concrete aggregate and concrete products	19,200	\$98,500	\$5.13
Plaster and gunite sands	293	1,520	5.18
Concrete products (blocks, bricks, pipe, decorative, etc.)	205	704	3.43
Asphaltic concrete aggregates and other bituminous mixtures	1,310	9,140	6.96
Road base and coverings	2,930	9,770	3.34
Road stabilization (cement)	684	2,590	3.79
Road stabilization (lime)	13	69	5.31
Fill	7,680	13,500	1.76
Snow and ice control	4	34	8.50
Roofing granules	80	884	11.05
Other miscellaneous uses 2/	135	955	7.07
Unspecified: 3/			
Actual	13,300	77,300	5.83
Estimated	28,800	139,000	4.84
Total or average	74,600	354,000	4.75

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

2/ Includes filtration.

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

TABLE 6
TEXAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	484	4,040	W	W	251	1,200	189	1,600
Asphaltic concrete aggregates and other bituminous mixtures	702	6,120	--	--	--	--	W	W
Road base and coverings 3/	369	1,770	W	W	W	W	W	W
Other miscellaneous uses 4/	W	W	--	--	W	W	W	W
Unspecified: 5/								
Actual	W	W	W	W	--	--	W	W
Estimated	2,630	11,700	470	2,110	825	3,760	1,480	8,560
Total	4,350	24,400	1,450	9,000	1,090	5,060	1,780	11,000
Use	District 5		District 6		District 7		District 8	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	3,200	17,800	W	W	1,860	7,330	10,200	46,800
Asphaltic concrete aggregates and other bituminous mixtures	--	--	--	--	W	W	W	W
Road base and coverings 3/	1,160	2,990	W	W	W	W	1,890	6,600
Other miscellaneous uses 4/	148	1,470	--	--	1,160	2,010	5,660	9,800
Unspecified: 5/								
Actual	9,640	56,700	W	W	W	W	W	W
Estimated	4,770	21,400	1,430	7,740	3,670	17,900	10,000	44,800
Total	19,700	102,000	1,720	9,060	9,320	43,200	28,100	109,000
Use	District 9		Unspecified					
	Quantity	Value	Quantity	Value				
Concrete aggregate and concrete products 2/	2,690	15,700	--	--				
Asphaltic concrete aggregates and other bituminous mixtures	W	W	--	--				
Road base and coverings 3/	W	W	--	--				
Other miscellaneous uses 4/	W	W	--	--				
Unspecified: 5/								
Actual	--	--	538	2,560				
Estimated	3,480	21,300	--	--				
Total	6,580	39,300	538	2,560				

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

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

2/ Includes plaster and gunite sands.

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

4/ Includes fill, filtration, roofing granules, and snow and ice control.

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

6/ Includes production within the State with no districts reported.