# THE MINERAL INDUSTRY OF TEXAS

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

Texas ranked sixth in the Nation in total nonfuel mineral production value[1] in 1995, down from fifth in 1994, according to the U.S. Geological Survey (USGS). The estimated value for 1995 was more than $1.6 billion, an 8% increase from that of 1994. This followed a 7.5% increase in 1994 from 1993 (based on final 1994 data). The State accounted for more than 4% of the U.S. total nonfuel mineral production value.

About 85% of the State's nonfuel mineral value came from industrial minerals, especially portland cement, crushed stone, construction sand and gravel, salt, and lime. Crushed stone production in Texas increased by about 10% in 1995 from that of 1994. Likewise, salt production increased by 35% and portland cement by 4%. These three mineral commodities combined accounted for almost 70% of the State's total rise in the production value of nonfuel minerals. Additionally, a 35% increase in Frasch sulfur production and a 12% increase in lime production accounted for a lesser, yet substantial, portion of the increase in mineral production value for Texas in 1995. Compared with 1994, the following nonfuel mineral values also increased: construction sand and gravel, magnesium metal, grade-A helium, common clays, talc and pyrophyllite, crude helium, ball clays, and bentonite clays. The value of the following mineral commodities decreased: industrial sand and gravel, masonry cement, dimension stone, crude gypsum, kaolin clays, sodium sulfate, fuller's earth clays, magnesium compounds, gemstones and iron ore.

Based on USGS estimates of the quantities of mineral produced in the 50 States in 1995, Texas climbed in rank from 2d to 1st in crushed stone, 8th to 7th in dimension stone, 9th to 8th in kaolin, and 11th to 9th in fuller's earth. The State remained first in the production of magnesium metal, second of two sodium sulfate-producing States, as well as second in portland cement, construction sand and

TABLE 1
**NONFUEL RAW MINERAL PRODUCTION IN TEXAS[1 2]**

| Mineral | | 1993 | | 1994 | | 1995[p] | |
|---|---|---|---|---|---|---|---|
| | | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) |
| Cement: | | | | | | | |
| Masonry | metric tons | 245,000 | $18,400 | 258,000 | $18,200 | 225,000 | $15,900 |
| Portland | do. | 8,130,000 | 398,000 | 8,620,000 | 456,000 | 8,990,000 | 475,000 |
| Clays[3] | thousand metric tons | 2,180 | 17,400 | 2,190 | 13,700 | 2,410 | 17,700 |
| Gemstones | | NA | 400 | NA | 448 | NA | 352 |
| Gypsum (crude) | thousand metric tons | 1,760 | 10,100 | 1,870 | 10,100 | 1,890 | 9,360 |
| Helium (crude) | million cubic meters | 6 | 5,390 | 7 | 7,050 | 7 | 7,330 |
| Lime | thousand metric tons | 1,370 | 86,400 | 1,210 | 76,200 | 1,360 | 87,200 |
| Salt | do. | 8,250 | 76,100 | 8,760 | [r]76,500 | 11,800 | 99,700 |
| Sand and gravel: | | | | | | | |
| Construction | do. | 47,100 | [e]195,000 | 56,700 | 242,000 | 55,600 | 245,000 |
| Industrial | metric tons | 1,430,000 | 28,600 | 1,570,000 | 37,900 | 1,540,000 | 37,400 |
| Stone (crushed) | thousand metric tons | 70,800 | 279,000 | 76,100 | 300,000 | 83,600 | 343,000 |
| Sulfur (Frasch) | do. | 1,160 | W | W | W | W | W |
| Talc and pyrophyllite | metric tons | 236,000 | 5,660 | 225,000 | 5,860 | 286,000 | 7,600 |
| Combined value of clays (ball, bentonite, fuller's earth, kaolin), fluorspar (1993), helium (Grade-A), iron ore (usable), magnesium compounds, magnesium metal, sodium sulfate (natural), stone [dimension (1993, 1995), dimension granite and limestone (1994)], and values indicated by symbol W | | XX | 311,000 | XX | 295,000 | XX | 316,000 |
| Total | | XX | 1,430,000 | XX | 1,540,000 | XX | 1,660,000 |

[e]Estimated. [p]Preliminary. [r]Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" 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]Excludes certain clays; kind and value included with "Combined value" data.

gravel, salt, Frasch sulfur, zeolites, talc and pyrophyllite, crude helium, and ball clays. Texas continued to rank third in grade-A helium and crude gypsum; sixth in industrial sand and gravel, magnesium compounds, and iron ore; and seventh in bentonite. While Texas was one of the top six States in the production of lime and the top nine in masonry cement, the State dropped from second to third in common clay production.

Magnesium metal, extracted from seawater, was the only metal produced from the State's natural resources. Very small quantities of iron ore were mined for industrial use as a cattle feed nutrient, road aggregate, and in the manufacture of cement. In addition to the production of magnesium metal, the Texas metals industry produced raw steel, primary aluminum, copper, lead, and smaller amounts of other metals. Sources of plant feed included scrap metal and ores acquired from other domestic or foreign sources. Texas was among the top seven State's that produced raw steel, with an estimated output of nearly 3.9 million metric tons (4.3 million short tons), as reported by the American Iron and Steel Institute. The State ranked ninth in primary aluminum production.

According to the Texas Bureau of Economic Geology (TBEG), the pattern of declining employment rates that emerged in late 1994 in the mining and oil and gas industries continued through 1995. The November 1995 unemployment rate (seasonally adjusted) was 6% compared with 5.7% for November 1994. Employment in the Texas mining industry decreased from 161,500 in October 1994 to 155,400 in October 1995. Oil and gas industry employment fell from 153,500 to 147,300 during the same period.

In other minerals industry-related matters, a bill requiring registration of geologists in the State did not survive the 1995 Texas Legislature. Geologists who sponsored the bill planned to resubmit it to the 75th Legislature in 1997. Lastly, TBEG was in the process of revising its mineral producers list for Texas. The project is scheduled for completion by mid-1996.

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[1]The 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 1995 USGS mineral production data published in this chapter are estimated as of Dec. 1995. Estimates for some commodities, e.g., construction sand and gravel, crushed stone, and portland cement, are periodically updated. To obtain the most recent information please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset and request Document No. 1000 for a telephone listing of all mineral commodity specialists or call USGS information at (703) 648-4000 for the specialist's name and number.

TABLE 2

## TEXAS: CRUSHED STONE[1] SOLD OR USED BY PRODUCERS IN 1994, BY USE[2]

| Use | Quantity (thousand metric tons) | Value (thousands) | Unit value |
|---|---|---|---|
| Coarse aggregate (+1 1/2 inch): | | | |
| Macadam | W | W | $8.13 |
| Riprap and jetty stone | 536 | $3,410 | 6.36 |
| Filter stone | 196 | 993 | 5.07 |
| Other coarse aggregate | W | W | 8.87 |
| Coarse aggregate, graded: | | | |
| Concrete aggregate, coarse | 13,500 | 63,900 | 4.74 |
| Bituminous aggregate, coarse | 7,470 | 35,400 | 4.73 |
| Bituminous surface-treatment aggregate | 1,370 | 6,260 | 4.57 |
| Railroad ballast | 488 | 2,560 | 5.24 |
| Other graded coarse aggregate | W | W | 7.71 |
| Fine aggregate (-3/8 inch): | | | |
| Stone sand, concrete | 2,310 | 9,730 | 4.22 |
| Stone sand, bituminous mix or seal | 2,160 | 7,150 | 3.31 |
| Screening, undesignated | 999 | 2,750 | 2.75 |
| Other fine aggregate | W | W | 4.41 |
| Coarse and fine aggregates: | | | |
| Graded road base or subbase | 21,500 | 63,600 | 2.95 |
| Unpaved road surfacing | 170 | 813 | 4.78 |
| Terrazzo and exposed aggregate | 6 | 280 | 46.70 |
| Crusher run or fill or waste | 2,660 | 6,150 | 2.31 |
| Other coarse and fine aggregates | W | W | 4.00 |
| Other construction materials[3] | 833 | 4,330 | 5.20 |
| Agricultural: | | | |
| Agricultural limestone | ([4]) | ([4]) | 3.48 |
| Poultry grit and mineral food | ([4]) | ([4]) | 9.73 |
| Other agricultural uses | ([4]) | ([4]) | 4.19 |
| Chemical and metallurgical: | | | |
| Cement manufacture | 10,700 | 25,600 | 2.40 |
| Lime manufacture | 2,780 | 11,600 | 4.19 |
| Flux stone | ([4]) | ([4]) | 5.18 |
| Chemical stone | ([4]) | ([4]) | 3.93 |
| Sulfur oxide removal | ([4]) | ([4]) | 3.99 |
| Special: | | | |
| Asphalt fillers or extenders | ([4]) | ([4]) | 11.60 |
| Whiting or whiting substitute | ([4]) | ([4]) | 11.60 |
| Other fillers or extenders | 1,060 | 20,800 | 19.60 |
| Other specified uses not listed | 1,290 | 6,800 | 5.26 |
| Unspecified:[5] | | | |
| Actual | 805 | 2,920 | 3.62 |
| Estimated | 5,310 | 25,400 | 4.79 |
| Total | 76,100 | 300,000 | 3.95 |

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."
[1]Includes calcareous marl, dolomite, granite, limestone, marble, miscellaneous stone, sandstone, traprock, and volcanic cinder and scoria.
[2]Data are rounded to three significant digits; may not add to totals shown.
[3]Includes roofing granules.
[4]Withheld to avoid disclosing company proprietary data; included with "Other specified uses not listed."
[5]Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3

## TEXAS: CRUSHED STONE SOLD OR USED, BY KIND[1]

| Kind | 1993 | | | | 1994 | | | |
|---|---|---|---|---|---|---|---|---|
| | Number of quarries | Quantity (thousand metric tons) | Value (thousands) | Unit value | Number of quarries | Quantity (thousand metric tons) | Value (thousands) | Unit value |
| Limestone | r127 | r66,900 | r$258,000 | r$3.86 | 109 | 72,000 | $285,000 | $3.96 |
| Dolomite | r1 | W | W | 3.05 | 1 | W | W | 2.84 |
| Marble | 20 | W | W | W | 20 | W | W | W |
| Calcareous marl | 2 | W | W | 3.11 | 2 | W | W | 1.76 |
| Granite | 14 | 25 | W | W | 14 | 4 | W | W |
| Traprock | 3 | 250 | 1,810 | 7.23 | 3 | 413 | 2,820 | 6.83 |
| Sandstone | 6 | 825 | 5,270 | 6.39 | 5 | 524 | 3,840 | 7.33 |
| Quartzite | 1 | W | W | 8.42 | — | — | — | — |
| Volcanic cinder and scoria | 1 | W | W | 4.20 | 1 | W | W | 5.47 |
| Miscellaneous stone | r9 | r1,760 | r5,320 | r3.03 | 7 | 1,500 | 4,530 | 3.03 |
| Total | XX | r71,700 | r281,000 | r3.92 | XX | 76,100 | 300,000 | 3.95 |

rRevised. W Withheld to avoid disclosing company proprietary data; included with "Total." XX Not applicable.
[1]Previously published and 1994 data are rounded to three significant digits, may not add to totals shown.

TABLE 4

## TEXAS: CRUSHED STONE[1] SOLD OR USED BY PRODUCERS IN 1994, BY USE AND DISTRICT[2]

(Thousand metric tons and thousand dollars)

| Use | District 1 | | District 4 | | District 5 | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Construction aggregates: | | | | | | |
| Coarse aggregate (+1 1/2 inch)[3] | — | — | W | W | W | W |
| Coarse aggregate, graded[4] | — | — | W | W | 10,200 | 50,300 |
| Fine aggregate (-3/8 inch)[5] | — | — | W | W | W | W |
| Coarse and fine aggregate[6] | ([7]) | ([7]) | 2,460 | 7,470 | 4,510 | 18,100 |
| Other construction materials[8] | — | — | 898 | 5,530 | 2,140 | 7,560 |
| Agricultural[9] | — | — | ([7]) | ([7]) | ([10]) | ([10]) |
| Chemical and metallurgical[11] | — | — | ([7]) | ([7]) | 6,640 | 20,400 |
| Special[12] | — | — | — | — | ([10]) | ([10]) |
| Other miscellaneous uses[13] | — | — | — | — | 942 | 9,440 |
| Unspecified:[14] | | | | | | |
| Actual | — | — | 8 | 9 | 241 | 1,080 |
| Estimated | ([7]) | ([7]) | 2,500 | 12,400 | 1,830 | 8,470 |
| Total | 322 | 1,590 | 7,460 | 30,300 | 26,500 | 115,000 |

See footnotes at end of table.

TABLE 4—Continued

## TEXAS: CRUSHED STONE[1] SOLD OR USED BY PRODUCERS IN 1994, BY USE AND DISTRICT[2]

(Thousand metric tons and thousand dollars)

| Use | District 7 | | District 9 | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| Construction aggregates: | | | | |
| Coarse aggregate (+1 1/2 inch)[3] | 499 | 2,580 | — | — |
| Coarse aggregate, graded[4] | 11,600 | 52,500 | (7) | (7) |
| Fine aggregate (-3/8 inch)[5] | 3,500 | 13,100 | — | — |
| Coarse and fine aggregate[6] | 16,400 | 43,200 | (7) | (7) |
| Other construction materials[8] | 305 | 1,240 | — | — |
| Agricultural[9] | (7) | (7) | — | — |
| Chemical and metallurgical[11] | 6,290 | 16,600 | — | — |
| Special[12] | (7) | (7) | — | — |
| Other miscellaneous uses[13] | — | — | — | — |
| Unspecified:[14] | | | | |
| Actual | 556 | 1,830 | — | — |
| Estimated | 547 | 2,710 | 179 | 470 |
| Total | 40,400 | 149,000 | 1,480 | 3,910 |

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."
[1]Production reported in District 2 and 3 was included with "District 4;" District 6 and 8 was included with "District 5" to avoid disclosing company proprietary data.
[2]Data are rounded to three significant digits; may not add to totals shown.
[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 ballast, and 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 or fill), and other coarse and fine aggregates.
[7]Withheld to avoid disclosing company proprietary data; included in "Total."
[8]Includes roofing granules.
[9]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.
[10]Included with "Other miscellaneous uses."
[11]Includes cement manufacture, chemical stone for alkali works, flux stone, lime manufacture, and sulfur oxide removal.
[12]Includes asphalt fillers or extenders, other fillers or extenders, and whiting or whiting substitute.
[13]Includes other specified uses not listed.
[14]Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5

## TEXAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY MAJOR USE CATEGORY[1]

| Use | Quantity (thousand metric tons) | Value (thousands) | Value per ton |
|---|---|---|---|
| Concrete aggregate (including concrete sand) | 23,000 | $110,000 | $4.81 |
| Plaster and gunite sands | 348 | 1,910 | 5.50 |
| Concrete products (blocks, brick, pipe, decorative, etc.) | 327 | 1,200 | 3.67 |
| Asphaltic concrete aggregates and other bituminous mixtures | 2,130 | 12,300 | 5.78 |
| Road base and coverings[2] | 3,390 | 13,100 | 3.88 |
| Fill | 7,510 | 13,100 | 1.75 |
| Other[3] | 275 | 858 | 3.12 |
| Unspecified:[4] | | | |
| Actual | 5,940 | 29,200 | 4.92 |
| Estimated | 13,800 | 59,600 | 4.31 |
| Total or average | 56,700 | 242,000 | 4.26 |

[1]Data are rounded to three significant digits; may not add to totals shown.
[2]Includes road and other stabilization (cement and lime).
[3]Includes filtration, railroad ballast, and roofing granules.
[4]Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6

## TEXAS: CONSTRUCTION SAND AND GRAVEL[1] SOLD OR USED IN 1994, BY USE AND DISTRICT[2]

(Thousand metric tons and thousand dollars)

| Use | District 1 | | District 3 | | District 4 | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Concrete aggregate and concrete products[3] | 1,350 | 9,290 | 1,700 | 8,000 | 235 | 1,650 |
| Asphaltic concrete aggregates and road base materials[4] | 1,010 | 5,800 | ([5]) | ([5]) | ([5]) | ([5]) |
| Other miscellaneous uses[7] | — | — | ([5]) | ([5]) | ([5]) | ([5]) |
| Unspecified:[8] | | | | | | |
| Actual | 48 | 216 | — | — | 128 | 943 |
| Estimated | 805 | 3,400 | 113 | 476 | 934 | 5,040 |
| Total | 3,210 | 18,700 | 2,550 | 12,200 | 1,360 | 7,950 |

| | District 5 | | District 6 | | District 7 | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Concrete aggregate and concrete products[3] | 4,920 | 29,800 | — | — | 2,430 | 9,940 |
| Asphaltic concrete aggregates and road base materials[4] | 3,160 | 7,760 | 33 | 144 | 1,270 | 2,530 |
| Other miscellaneous uses[7] | 235 | 584 | — | — | 31 | 213 |
| Unspecified:[8] | | | | | | |
| Actual | 3,110 | 16,800 | 292 | 1,150 | 1,990 | 9,450 |
| Estimated | 4,510 | 17,500 | 639 | 3,890 | 1,400 | 6,430 |
| Total | 15,900 | 72,400 | 963 | 5,190 | 7,120 | 28,600 |

| | District 8 | | District 9 | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| Concrete aggregate and concrete products[3] | 10,800 | 42,400 | 2,230 | 12,500 |
| Asphaltic concrete aggregates and road base materials[4] | 6,020 | 13,900 | [6]752 | [6]4,390 |
| Other miscellaneous uses[7] | — | — | — | — |
| Unspecified:[8] | | | | |
| Actual | 378 | 651 | — | — |
| Estimated | 4,350 | 18,000 | 1,080 | 4,870 |
| Total | 21,500 | 75,000 | [6]4,060 | [6]21,800 |

[1]Production reported in District 2 was included with "District 3" to avoid disclosing company proprietary data.
[2]Data are rounded to three significant digits; may not add to totals shown.
[3]Includes plaster and gunite sands.
[4]Includes fill, road and other stabilization (cement and lime).
[5]Withheld to avoid disclosing company proprietary data; included with "Total."
[6]Includes unspecified within all districts.
[7]Includes filtration, railroad ballast, and roofing granules.
[8]Includes production reported without a breakdown by end use and estimates for nonrespondents.

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