

Mineral Industry Surveys

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TUNGSTEN IN NOVEMBER 2000

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from hydrogen-reduced metal powder, was 12% higher during January through November 2000 than net production during the same period in 1999, according to the U.S. Geological Survey.

Total U.S. reported consumption of ferrotungsten, tungsten metal powder, tungsten carbide powder, tungsten scrap, and other tungsten materials in January through November 2000 was 5% higher than that during the same period in 1999. These materials were used to make alloys, cemented carbides, mill products, catalysts, and pigments.

Data for U.S. imports and exports for November 2000 will be published in a subsequent issue.

Note

All data in this report have been rounded to no more than three

significant digits. Totals and percentages were calculated by using unrounded data.

Update

Prices for tungsten ore concentrates in dollars per metric ton unit from Metal Bulletin are listed below. Prices in dollars per short ton unit were converted from metric ton unit prices and rounded to the nearest dollar. These prices represent combined prices for wolframite and scheelite ore concentrates with a minimum tungsten trioxide (WO_3) content of 65%. The prices for December 1 to 31, 2000, are as follows:

Low—\$50/metric ton unit WO_3 (\$45/short ton unit WO_3)
High—\$55/metric ton unit WO_3 (\$50/short ton unit WO_3)

TABLE 1
U.S. SALIENT TUNGSTEN STATISTICS 1/

(Metric tons, tungsten content)

| Period | Concentrate | | | | Reported scrap consumption | Intermediate products | | | |
|---------------------|------------------------------|-------------------------------|-----------------------|-------------------------|----------------------------------|-----------------------|---------------------------------|-----------------------|-------------------------|
| | Reported consump- tion | Imports for consumption | Stocks, end of period | | | Net production 4/ | Reported consump- tion 5/ | Stocks, end of period | |
| | | | Industry 2/ | U.S. Gov- ernment 3/ | | | | Industry 6/ | U.S. Gov- ernment 3/ |
| 1999: | | | | | | | | | |
| November | W | 71 | W | 34,600 | 398 | 600 | 661 | 1,070 | 2,700 |
| December | W | 66 | W | 34,600 | 316 | 720 | 722 | 1,070 | 2,700 |
| January-December 7/ | 2,100 | 2,870 | XX | XX | 5,220 | 8,500 | 8,320 | XX | XX |
| 2000: | | | | | | | | | |
| January | W | 267 | W | 34,600 | 482 | 765 | 749 | 1,040 | 2,700 |
| February | W | 56 | W | 34,600 | 444 | 775 | 690 | 1,100 | 2,650 |
| March | W | 209 | W | 34,600 | 462 | 905 | 754 | 1,140 | 2,600 |
| April | W | 277 | W | 34,600 | 396 | 848 | 746 | 1,250 | 2,480 |
| May | W | 336 | W | 33,900 | 361 | 835 | 728 r/ | 1,340 | 2,320 |
| June | W | 169 | W | 33,900 | 418 | 823 | 701 r/ | 1,410 | 2,320 |
| July | W | 196 | W | 33,900 | 426 | 777 | 745 r/ | 1,300 | 2,290 |
| August | W | 136 | W | 33,900 | 444 | 687 | 665 r/ | 1,270 | 2,280 |
| September | W | 97 | W | 33,500 | 394 | 781 | 746 r/ | 1,230 | 2,250 |
| October | W | 342 | W | 33,500 | 436 r/ | 734 r/ | 732 r/ | 1,200 r/ | 2,180 |
| November | W | NA | W | 33,500 | 432 | 776 | 717 | 1,240 | 2,180 |
| Total | W | NA | XX | XX | 4,700 | 8,710 | 7,970 | XX | XX |

r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; not included in total. XX Not applicable.

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

2/ Reported by consumers.

3/ Data from Defense National Stockpile Center. Includes material committed for sale pending shipment.

4/ Net production of tungsten metal powder, tungsten carbide powder, chemicals, and other products.

5/ Includes estimates and scrap.

6/ Reported by producers.

7/ Does not include withheld data.

TABLE 2
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF
AMMONIUM PARATUNGSTATE, BY MONTH 1/

(Metric tons, tungsten content)

| Period | Production | Consumption | Stocks, end of period 2/ |
|------------------|------------|-------------|--------------------------------|
| 1999: | | | |
| November | 499 | 604 | 363 |
| December | 500 | 490 | 376 |
| January-December | 7,330 | 7,490 | XX |
| 2000: | | | |
| January | 552 | 641 | 402 |
| February | 575 | 695 | 237 |
| March | 740 | 729 | W |
| April | W | 726 | 123 |
| May | W | 671 | W |
| June | W | W | 68 |
| July | W | W | W |
| August | W | 944 | 212 |
| September | 508 | 694 | W |
| October | W | 871 r/ | 146 |
| November | W | W | 109 |
| Total 3/ | 2,380 | 5,970 | XX |

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

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

2/ Producers and consumers.

3/ Does not include withheld data.

TABLE 3
U.S. PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS 1/

(Metric tons, tungsten content)

| Product | Net production 2/ | | | | Stocks at end of period | | |
|---|-------------------|---------|----------|-----------------|-------------------------|----------|----------|
| | 1999 | 2000 | | Year to date | 1999 | 2000 | |
| | | October | November | | | October | November |
| Metal powder | 4,540 | 374 r/ | 373 | 4,610 | 626 | 505 r/ | 579 |
| Tungsten carbide powder (made from metal powder) | 3,960 | 360 r/ | 403 | 4,100 | 441 | 634 r/ | 656 |
| Cast and crystalline carbide powder; other | W | W | W | W | W | W | W |
| Chemicals | W | W | W | W | W | 57 | W |
| Total 3/ | 8,500 | 734 r/ | 776 | 8,710 | 1,070 | 1,200 r/ | 1,240 |

r/ Revised. W Withheld to avoid disclosing company proprietary data; not included in "Total."

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

2/ Gross production less quantity used to make other products in table.

3/ Does not include withheld data.

TABLE 4
U.S. REPORTED CONSUMPTION OF TUNGSTEN, BY END USE IN 2000 1/ 2/ 3/

(Metric tons, tungsten content)

| End use | October | November | Year to date |
|---|---------|----------|--------------|
| Steels | 37 | 38 | 453 |
| Superalloys | 30 | 28 | 324 |
| Other alloys (excludes steels and superalloys) 4/ | W | W | W |
| Cemented carbides 5/ | 477 | 477 | 5,360 |
| Mill products made from metal powder | W | W | W |
| Chemical uses | W | W | W |
| Miscellaneous and unspecified | 188 r/ | 174 | 1,840 |
| Total | 732 r/ | 717 | 7,970 |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

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

2/ Does not include materials used in making primary tungsten products.

3/ Includes estimates.

4/ Includes welding and hard-facing rods and materials, wear- and corrosion-resistant alloys, and nonferrous alloys.

5/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

TABLE 5
U.S. REPORTED CONSUMPTION AND CONSUMER STOCKS OF TUNGSTEN MATERIALS 1/ 2/ 3/

(Metric tons, tungsten content)

| Period | Ferro- tungsten | Tungsten metal powder | Tungsten carbide powder | Tungsten scrap | Other tungsten materials 4/ | Total |
|---------------------|--------------------|-----------------------------|-------------------------------|-------------------|-----------------------------------|--------|
| Consumption: | | | | | | |
| 1999: | | | | | | |
| November | 39 | 87 | 499 | 26 | 11 | 661 |
| December | 43 | 146 | 495 | 28 | 10 | 722 |
| January-December | 473 | 1,500 | 5,930 | 317 | 103 | 8,320 |
| 2000: | | | | | | |
| January | 41 | 182 | 486 | 31 | 8 | 749 |
| February | 42 | 120 | 489 | 31 | 9 | 690 |
| March | 52 | 152 | 507 | 34 | 8 | 754 |
| April | 41 | 178 | 481 | 35 | 11 | 746 |
| May | 41 | 145 r/ | 495 | 38 | 9 | 728 r/ |
| June | 37 | 126 r/ | 496 | 32 | 10 | 701 r/ |
| July | 36 | W | 483 | 28 | W | 745 r/ |
| August | 37 | 106 r/ | 485 | 29 | 8 | 665 r/ |
| September | 36 | W | 498 | 32 | W | 746 r/ |
| October | 36 | 176 r/ | 476 | 36 | 8 | 732 r/ |
| November | 36 | W | 476 | 34 | W | 717 |
| January-November | 436 | 1,710 | 5,370 | 361 | 97 | 7,970 |
| Stocks: | | | | | | |
| 1999: | | | | | | |
| November | 25 | 17 | 494 | 26 | 13 | 575 |
| December | 33 | 15 | 475 | 22 | 12 | 557 |
| 2000: | | | | | | |
| January | 33 | 18 | 413 | 24 | 12 | 499 |
| February | 27 | 14 | 415 | 29 | 11 | 497 |
| March | 38 | 16 | 413 | 33 | 14 | 514 |
| April | 37 | 16 | 418 | 35 | 11 | 517 |
| May | 29 | 17 | 418 | 31 | 13 | 508 |
| June | 52 | 17 | 415 | 27 | 16 | 526 |
| July | 48 | 13 | 409 | 28 | 11 | 509 |
| August | 44 | 14 | 420 | 30 | 11 | 520 |
| September | 41 | 12 | 412 | 40 | 11 | 516 |
| October | 49 | 16 | 414 | 39 | 11 | 530 r/ |
| November | 44 | 21 | 405 | 41 | 11 | 522 |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in total.

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

2/ Does not include materials used in making primary tungsten products.

3/ Includes estimates.

4/ Includes tungsten chemicals.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

| Period and country of origin | Ores and concentrates | Ammonium tungstates | Ferrotungsten | Metal powder | Tungsten carbide powder | Other 2/ | Total | Total year to date |
|------------------------------|-----------------------|---------------------|---------------|--------------|-------------------------|----------|-------|--------------------|
| 1999 | 2,870 | 1,920 | 669 | 310 | 790 | 3,100 | 9,670 | XX |
| 2000: | | | | | | | | |
| August | 136 | 291 | 43 | 64 | 60 | 203 | 796 | 6,250 |
| September | 97 | 108 | 15 | 8 | 71 | 98 | 398 | 6,650 |
| October: | | | | | | | | |
| Australia | -- | -- | -- | -- | -- | 36 | 36 | 36 |
| Austria | -- | -- | -- | -- | 5 | 5 | 10 | 52 |
| Belgium | -- | -- | -- | (3/) | -- | (3/) | (3/) | 4 |
| Bolivia | 25 | -- | -- | -- | -- | -- | 25 | 365 |
| Brazil | -- | -- | -- | -- | -- | -- | -- | (3/) |
| Canada | -- | -- | -- | -- | 57 | (3/) | 57 | 449 |
| China | 55 | 164 | 15 | 44 | 31 | 59 | 368 | 3,840 |
| Estonia | -- | -- | -- | -- | -- | -- | -- | 8 |
| France | -- | -- | -- | -- | 1 | 1 | 2 | 8 |
| Germany | -- | 12 | -- | 5 | 10 | 9 | 35 | 343 |
| Hong Kong | -- | 32 | -- | -- | -- | (3/) | 32 | 41 |
| Hungary | -- | -- | -- | -- | -- | -- | -- | 6 |
| India | -- | -- | -- | -- | -- | (3/) | (3/) | (3/) |
| Ireland | -- | -- | -- | -- | (3/) | -- | (3/) | (3/) |
| Israel | -- | -- | -- | 4 | 1 | 2 | 7 | 130 |
| Italy | -- | -- | -- | -- | -- | (3/) | (3/) | 1 |
| Japan | -- | -- | -- | 5 | 1 | 2 | 8 | 43 |
| Kazakhstan | -- | -- | -- | -- | -- | -- | -- | 31 |
| Korea, Republic of | -- | -- | -- | 1 | 4 | (3/) | 5 | 14 |
| Liechtenstein | -- | -- | -- | -- | -- | (3/) | (3/) | (3/) |
| Luxembourg | -- | -- | -- | -- | -- | -- | -- | 12 |
| Mexico | -- | -- | -- | -- | -- | -- | -- | (3/) |
| Mongolia | 15 | -- | -- | -- | -- | -- | 15 | 29 |
| Netherlands | -- | -- | -- | -- | -- | (3/) | (3/) | 10 |
| Netherlands Antilles | -- | -- | -- | -- | -- | -- | -- | (3/) |
| New Zealand | -- | -- | -- | -- | -- | -- | -- | 7 |
| Peru | 9 | -- | -- | -- | -- | -- | 9 | 107 |
| Poland | -- | -- | -- | -- | -- | -- | -- | (3/) |
| Portugal | 224 | -- | -- | -- | -- | -- | 224 | 452 |
| Russia | -- | 28 | -- | -- | -- | 47 | 75 | 1,310 |
| Rwanda | 14 | -- | -- | -- | -- | -- | 14 | 87 |
| Singapore | -- | -- | -- | -- | -- | (3/) | (3/) | 1 |
| South Africa | -- | -- | -- | -- | -- | -- | -- | 1 |
| Spain | -- | -- | -- | -- | -- | (3/) | (3/) | (3/) |
| Sweden | -- | -- | -- | -- | -- | (3/) | (3/) | (3/) |
| Switzerland | -- | -- | -- | -- | -- | (3/) | (3/) | 3 |
| Taiwan | -- | -- | -- | -- | -- | -- | -- | (3/) |
| Thailand | -- | -- | -- | -- | -- | (3/) | (3/) | 12 |
| United Kingdom | -- | -- | -- | 20 | -- | 1 | 21 | 189 |
| Total | 342 | 236 | 15 | 79 | 109 | 161 | 942 | 7,590 |
| Total, year to date | 2,090 | 1,720 | 457 | 474 | 824 | 2,030 | 7,590 | XX |

XX Not applicable. -- Zero.

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

2/ Includes other unwrought tungsten, wrought tungsten, calcium and other tungstates, tungsten oxides, tungsten chlorides, other tungsten compounds, ash and compounds, ash and residues containing mainly tungsten, and other mixtures of inorganic compounds containing tungsten. Tungsten content estimated in part.

3/ Less than 1/2 unit.

Note: Imports of waste and scrap in October 2000 totaled 129 metric tons, tungsten content.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

| Period and country of destination | Ores and concentrates 2/ | Ammonium tungstates | Metal powder 2/ | Tungsten carbide powder | Other 3/ | Total | Total, year to date |
|--------------------------------------|-----------------------------|------------------------|--------------------|-------------------------------|----------|-------|---------------------------|
| 1999 | 26 | 103 | 711 | 701 | 498 | 2,040 | XX |
| 2000: | | | | | | | |
| August: | 1 | -- | 41 | 79 | 37 | 157 | 1,150 |
| September: | 2 | 7 | 43 | 75 | 50 | 177 | 1,330 |
| October: | | | | | | | |
| Australia | -- | -- | -- | 1 | -- | 1 | 7 |
| Austria | -- | -- | -- | 6 | -- | 6 | 7 |
| Barbados | -- | -- | -- | -- | -- | -- | (4/) |
| Belgium | -- | -- | -- | (4/) | 1 | 1 | 11 |
| Bolivia | -- | -- | -- | -- | -- | -- | (4/) |
| Brazil | -- | -- | 1 | (4/) | 2 | 3 | 21 |
| Canada | -- | -- | 5 | 14 | 7 | 26 | 255 |
| Chile | -- | -- | (4/) | -- | -- | (4/) | (4/) |
| China | -- | -- | 1 | 2 | 1 | 4 | 9 |
| Czech Republic | -- | 19 | -- | -- | -- | 19 | 25 |
| Denmark | -- | -- | -- | -- | -- | -- | 14 |
| Egypt | -- | -- | -- | -- | -- | -- | 6 |
| France | -- | -- | (4/) | 4 | 2 | 6 | 31 |
| Germany | -- | -- | 11 | 32 | 16 | 59 | 432 |
| Hong Kong | -- | -- | -- | -- | -- | -- | 3 |
| Hungary | -- | -- | -- | -- | 3 | 3 | 26 |
| India | -- | -- | -- | 1 | 2 | 4 | 19 |
| Indonesia | -- | -- | -- | -- | -- | -- | 8 |
| Ireland | -- | -- | -- | -- | (4/) | (4/) | 2 |
| Israel | -- | -- | -- | -- | (4/) | (4/) | 18 |
| Italy | 1 | -- | 1 | 1 | (4/) | 3 | 75 |
| Japan | -- | -- | 3 | (4/) | 3 | 6 | 51 |
| Korea, Republic of | 2 | -- | (4/) | -- | (4/) | 3 | 9 |
| Luxembourg | -- | -- | -- | -- | -- | -- | 1 |
| Malaysia | -- | -- | -- | -- | (4/) | (4/) | 3 |
| Mexico | -- | -- | 3 | 1 | 2 | 5 | 54 |
| Netherlands | -- | -- | -- | 5 | 1 | 5 | 51 |
| New Zealand | -- | -- | -- | -- | (4/) | (4/) | (4/) |
| Philippines | -- | -- | -- | -- | -- | -- | (4/) |
| Russia | 8 | -- | -- | -- | -- | -- | 8 |
| Saudi Arabia | -- | -- | -- | -- | -- | -- | 5 |
| Singapore | -- | -- | 1 | (4/) | (4/) | 1 | 8 |
| South Africa | -- | -- | (4/) | -- | -- | (4/) | 18 |
| Spain | -- | 1 | (4/) | -- | 3 | 3 | 12 |
| Sri Lanka | -- | -- | -- | -- | -- | -- | (4/) |
| Sweden | -- | -- | -- | -- | (4/) | (4/) | 120 |
| Switzerland | -- | -- | -- | -- | (4/) | (4/) | 1 |
| Taiwan | -- | -- | 1 | -- | (4/) | 1 | 17 |
| Turkey | -- | -- | -- | 1 | -- | 1 | 3 |
| United Arab Emirates | -- | -- | (4/) | -- | -- | (4/) | 1 |
| United Kingdom | 4 | -- | 3 | 86 | 2 | 95 | 256 |
| Venezuela | -- | -- | -- | (4/) | (4/) | (4/) | 2 |
| Other | -- | -- | (4/) | -- | (4/) | (4/) | 2 |
| Total | 15 | 20 | 30 | 155 | 46 | 265 | 1,590 |
| Total, year to date | 59 | 51 | 371 | 723 | 387 | 1,590 | XX |

XX Not applicable. -- Zero.

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

2/ Tungsten content estimated from reported gross weight.

3/ Includes wrought tungsten, ferrotungsten, and other tungstates. Tungsten content estimated in part.

4/ Less than 1/2 unit.

Note: Estimated exports of waste and scrap in October 2000 totaled 103 metric tons, tungsten content.

Source: U.S. Census Bureau.