

Mineral Industry Surveys

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TITANIUM IN THE SECOND QUARTER 2022

In the second quarter, U.S. imports of titanium mineral concentrates, excluding titaniferous iron ore, totaled 279,000 metric tons (t) (gross weight) and included ilmenite (114,000 t), rutile (101,000 t), synthetic rutile (101 t), and titanium slag (63,800 t) (table 4). Exports of all forms of titanium mineral concentrates were 60,900 t (table 2).

Imports of all forms of titanium pigment were 69,000 t compared with 56,500 t in the prior quarter (table 5). Exports of all forms of titanium pigment were 109,000 t compared with 103,000 t in the prior quarter (table 2).

Total imports of titanium metal, excluding ferrotitanium, were 13,000 t and were primarily in the form of sponge (52%) and waste and scrap (33%). Imports of sponge increased slightly, and waste and scrap increased by 26%, compared with the prior quarter (table 3).

Exports of all forms of titanium metal were 7,890 t, a 16% increase compared with the prior quarter (table 2). The net increase in imports was expected to result in increased production of titanium ingot and mill products.

Industry participation is key to the publication of aggregated totals of domestic titanium statistics. In the first quarter of 2022, domestic production, consumption, shipments, and stocks of sponge, ingot, slab, and mill products were withheld to avoid disclosing company proprietary data owing to limited responses (table 1).

The U.S. Geological Survey's (USGS) National Minerals Information Center canvasses the nonfuel mining and mineral processing industry in the United States for data on mineral production, consumption, recycling, stocks, and shipments. Reporting is voluntary, and the USGS greatly appreciates the

data provided by companies participating in the surveys throughout the United States. The data that companies provide are the foundation upon which the USGS builds its minerals information publications. Unless authorization is granted for release, the data furnished are aggregated to avoid disclosing company proprietary data and are treated as confidential by the Department of the Interior.

Companies may report on a monthly, quarterly, semiannual, and (or) annual basis, depending on the frequency of the surveys. Canvass forms are mailed shortly after the end of the reporting period and are requested to be returned within about 30 days. In addition to reporting by paper canvass forms, companies can electronically submit data to contribute to this valuable effort. Companies already registered with the USGS can sign up to report electronically by selecting the "Sign up" link at <https://mids.er.usgs.gov>. To notify the USGS of a new operation, or for further information on registering for electronic submissions, visit <https://mids.er.usgs.gov>. The USGS titanium metal quarterly survey has a canvas code of G37. For more information on how to participate in the titanium surveys, please contact Joseph Gambogi using the contact information listed above.

List services and web feed subscribers are the first to receive notification of USGS minerals information publications and data releases. For information on how to subscribe, go to <https://www.usgs.gov/centers/national-minerals-information-center/minerals-information-publication-list-services>.

TABLE 1
COMPONENTS OF U.S. TITANIUM METAL SUPPLY AND DEMAND¹

(Metric tons)

| | 2021 | | | | 2022 | | |
|---|--------------------|--------------------|--------------------|-----------------------------|-------------|------------|----------------------------|
| | 2d quarter | 3d quarter | 4th quarter | 1st quarter– 4th quarter | 1st quarter | 2d quarter | 1st quarter– 2d quarter |
| Production: | | | | | | | |
| Sponge | W | W | W | W | W | W | W |
| Ingot | W | W | W | W | W | W | W |
| Mill products | W | W | W | W | W | W | W |
| Exports: | | | | | | | |
| Waste and scrap | 2,270 ^r | 2,480 | 2,520 | 10,400 | 1,970 | 1,940 | 3,920 |
| Sponge | 50 | 32 | 27 | 117 | 79 | 5 | 84 |
| Ingot | 634 | 634 | 871 | 2,580 | 792 | 1,370 | 2,160 |
| Other unwrought | 436 | 802 | 439 | 2,030 | 398 | 393 | 791 |
| Bar, rod, profiles, wire | 909 | 1,190 ^r | 1,210 | 4,210 | 1,350 | 1,530 | 2,890 |
| Bloom, sheet bar, slab | 442 ^r | 328 | 358 | 1,700 | 468 | 436 | 904 |
| Other wrought | 1,460 | 1,480 | 1,840 | 6,190 ^r | 1,740 | 2,210 | 3,960 |
| Total | 6,200 ^r | 6,940 ^r | 7,260 ^r | 27,200 ^r | 6,810 | 7,890 | 14,700 |
| Imports: | | | | | | | |
| Waste and scrap | 2,680 ^r | 2,710 | 2,640 | 10,600 ^r | 3,430 | 4,320 | 7,760 |
| Sponge ² | 4,980 ^r | 3,430 | 5,380 | 16,000 ^r | 6,630 | 6,720 | 13,300 |
| Ingot | 48 | 341 | 266 | 875 | 453 | 30 | 483 |
| Powder | 59 | 59 | 51 | 214 | 28 | 51 | 79 |
| Other unwrought | 156 | 330 | 593 | 1,270 | 357 | 186 | 543 |
| Wrought | 1,700 ^r | 2,290 | 1,880 | 7,310 | 3,460 | 1,380 | 4,840 |
| Castings | 6 | 6 | 20 | 44 | 14 | 5 | 20 |
| Other | 129 ^r | 157 ^r | 168 ^r | 580 ^r | 283 | 296 | 579 |
| Total | 9,750 ^r | 9,320 ^r | 11,000 | 36,900 ^r | 14,700 | 13,000 | 27,600 |
| Stocks, end of period: | | | | | | | |
| Sponge, industry | W | W | W | W | W | W | W |
| Scrap | W | W | W | W | W | W | W |
| Ingot | W | W | W | W | W | W | W |
| Consumption: | | | | | | | |
| Sponge | W | W | W | W | W | W | W |
| Scrap | W | W | W | W | W | W | W |
| Ingot | W | W | W | W | W | W | W |
| Shipments: | | | | | | | |
| Ingot and slab (producer net shipments) | W | W | W | W | W | W | W |
| Mill products (net shipments): | | | | | | | |
| Forging and extrusion billet | W | W | W | W | W | W | W |
| Other | W | W | W | W | W | W | W |
| Total | W | W | W | W | W | W | W |
| Castings | W | W | W | W | W | W | W |
| Receipts, scrap: | | | | | | | |
| Home | W | W | W | W | W | W | W |
| Purchased | W | W | W | W | W | W | W |
| Total | W | W | W | W | W | W | W |

^rRevised. W Withheld to avoid disclosing company proprietary data.

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

²Estimated by the U.S. Geological Survey.

TABLE 2
U.S. EXPORTS OF TITANIUM PRODUCTS¹

(Metric tons)

| | HTS ² Code | 2021 | | | | 2022 | | |
|--|-----------------------|--------------------|------------|--------------------|-----------------------------|-------------|------------|----------------------------|
| | | 2d quarter | 3d quarter | 4th quarter | 1st quarter– 4th quarter | 1st quarter | 2d quarter | 1st quarter– 2d quarter |
| Metal: | | | | | | | | |
| Waste and scrap | 8108.30.0000 | 2,270 [†] | 2,480 | 2,520 [†] | 10,400 | 1,970 | 1,940 | 3,920 |
| Unwrought: | | | | | | | | |
| Sponge | 8108.20.0010 | 50 | 32 | 27 | 117 | 79 | 5 | 84 |
| Ingot | 8108.20.0030 | 634 | 634 | 871 | 2,580 | 792 | 1,370 | 2,160 |
| Other | 8108.20.0090 | 436 | 802 | 439 | 2,030 | 398 | 393 | 791 |
| Wrought: | | | | | | | | |
| Bar, rod, profiles, wire | 8108.90.6031 | 909 | 1,190 | 1,210 | 4,210 | 1,350 | 1,530 | 2,890 |
| Bloom, sheet bar, slab | 8108.90.6020 | 442 [†] | 328 | 358 | 1,700 | 468 | 436 | 904 |
| Other | 8108.90.8000 | 1,460 | 1,480 | 1,840 | 6,190 [†] | 1,740 | 2,210 | 3,960 |
| Ferrotitanium and ferrosilicon titanium | 7202.91.0000 | 346 | 206 | 331 | 1,280 [†] | 313 | 397 | 710 |
| Ores and concentrates | 2614.00.0000 | 1,700 | 3,360 | 46,500 | 54,100 | 65,600 | 60,900 | 127,000 |
| Pigment: | | | | | | | | |
| 80% or more titanium dioxide | 3206.11.0000 | 128,000 | 115,000 | 103,000 | 466,000 [†] | 96,700 | 102,000 | 199,000 |
| Other titanium dioxide | 3206.19.0000 | 3,420 [†] | 3,080 | 2,810 [†] | 13,000 | 3,120 | 3,680 | 6,800 |
| Unfinished titanium dioxide ³ | 2823.00.0000 | 4,610 | 3,430 | 3,540 [†] | 15,600 | 3,520 | 3,280 | 6,790 |

[†]Revised.

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

²Harmonized Tariff Schedule of the United States.

³Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM METAL¹

(Metric tons)

| | HTS ² Code | 2021 | | | | 2022 | | |
|---|-----------------------|--------------------|--------------------|------------------|-----------------------------|------------------|------------|----------------------------|
| | | 2d quarter | 3d quarter | 4th quarter | 1st quarter– 4th quarter | 1st quarter | 2d quarter | 1st quarter– 2d quarter |
| Waste and scrap: | 8108.30.0000 | | | | | | | |
| Canada | | 400 | 328 | 381 | 1,460 | 451 | 354 | 806 |
| China | | 11 | 3 | 6 | 47 | 151 | 158 | 309 |
| France | | 173 | 217 | 308 | 1,160 | 457 | 384 | 841 |
| Germany | | 583 ^r | 573 | 665 | 2,210 ^r | 629 | 671 | 1,300 |
| Italy | | 201 | 99 | 114 | 449 | 186 | 366 | 552 |
| Japan | | 293 | 235 | 191 | 857 | 216 | 491 | 707 |
| Korea, Republic of | | 179 | 376 | 103 | 755 | 367 | 313 | 680 |
| Mexico | | 151 | 172 | 229 | 766 | 165 | 313 | 479 |
| Poland | | 19 | 8 | 18 | 153 | 45 | 140 | 185 |
| Singapore | | 50 | 67 | 60 | 238 | 52 | 146 | 197 |
| United Kingdom | | 335 | 312 | 385 | 1,500 | 453 | 686 | 1,140 |
| Other | | 284 ^r | 322 ^r | 182 ^r | 1,040 ^r | 261 ^r | 299 | 560 |
| Total | | 2,680 ^r | 2,710 | 2,640 | 10,600 ^r | 3,430 | 4,320 | 7,760 |
| Unwrought: | | | | | | | | |
| Sponge: | 8108.20.0010 | | | | | | | |
| China | | 14 | (3) | -- | 14 | 3 | 2 | 5 |
| Japan | | 4,620 ^r | 3,050 | 4,180 | 13,900 | 6,270 | 5,860 | 12,100 |
| Kazakhstan ^e | | 267 ^r | 329 ^r | 1,120 | 1,770 ^r | 300 | 454 | 754 |
| Russia | | 12 | 8 | 44 | 94 | 32 | 37 | 69 |
| Saudi Arabia | | -- | 18 | -- | 18 | 18 | 234 | 252 |
| Ukraine | | -- | -- | -- | -- | -- | 9 | 9 |
| Other | | 69 ^r | 17 ^r | 34 | 156 ^r | (3) ^r | 124 | 124 |
| Total | | 4,980 ^r | 3,430 ^r | 5,380 | 16,000 ^r | 6,630 | 6,720 | 13,300 |
| Ingot: | 8108.20.0030 | | | | | | | |
| Kazakhstan | | -- | 144 | 116 | 260 | 65 | -- | 65 |
| Russia | | 48 | 196 | 151 | 614 | 388 | 30 | 418 |
| Other | | -- | 1 | -- | 1 | -- | -- | -- |
| Total | | 48 | 341 | 266 | 875 | 453 | 30 | 483 |
| Powder | 8108.20.0015 | 59 | 59 | 51 | 214 | 28 | 51 | 79 |
| Other | 8108.20.0095 | 156 | 330 | 593 | 1,270 | 357 | 186 | 543 |
| Wrought: | | | | | | | | |
| Bar, rod, profiles, wire | 8108.90.6031 | 648 ^r | 599 | 507 | 2,160 | 873 | 522 | 1,400 |
| Bloom, sheet bar, slab | 8108.90.6020 | 177 ^r | 1,060 | 627 | 2,180 | 1,740 | 334 | 2,070 |
| Plate, sheet, strip, foil | 8108.90.6045 | 672 | 489 | 549 | 2,270 ^r | 659 | 361 | 1,020 |
| Tube and pipe | 8108.90.6060 | 66 ^r | 102 ^r | 70 | 281 ^r | 61 | 61 | 123 |
| Other | 8108.90.6075 | 135 | 43 | 126 | 407 ^r | 128 | 100 | 228 |
| Total | | 1,700 ^r | 2,290 | 1,880 | 7,310 | 3,460 | 1,380 | 4,840 |
| Other articles of titanium: | | | | | | | | |
| Castings | 8108.90.3030 | 6 | 6 | 20 | 44 | 14 | 5 | 20 |
| Other | 8108.90.3060 | 129 ^r | 157 ^r | 168 ^r | 580 ^r | 283 | 296 | 579 |
| Ferrotitanium and ferrosilicon titanium | 7202.91.0000 | 1,220 | 1,010 ^r | 569 | 4,150 ^r | 534 | 1,140 | 1,680 |

^eEstimated. ^rRevised. -- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM CONCENTRATES¹

(Metric tons)

| | HTS ² Code | 2021 | | | | 2022 | | |
|--|-----------------------|------------|------------|---------------------|-----------------------------|----------------|------------|----------------------------|
| | | 2d quarter | 3d quarter | 4th quarter | 1st quarter– 4th quarter | 1st quarter | 2d quarter | 1st quarter– 2d quarter |
| Ilmenite: | 2614.00.6020 | | | | | | | |
| Madagascar | | 77,000 | 59,000 | 64,100 | 291,000 | 93,000 | 35,000 | 128,000 |
| Mozambique | | 51,400 | 104,000 | 40,600 | 232,000 | -- | 69,900 | 69,900 |
| Senegal | | 39,000 | 20,800 | 29,000 | 88,800 | 45,000 | 9,010 | 54,000 |
| Ukraine | | -- | 20,300 | -- | 20,300 | 10,200 | -- | 10,200 |
| Other | | 1 | (3) | 40 | 41 | -- | 40 | 40 |
| Total | | 167,000 | 204,000 | 134,000 | 632,000 | 148,000 | 114,000 | 262,000 |
| Titanium slag: | 2620.99.5000 | | | | | | | |
| Canada | | 10,100 | 52,300 | 48,300 | 131,000 | 6,130 | 319 | 6,440 |
| Norway | | 19,100 | 20,900 | 17,500 | 57,500 | -- | 17,500 | 17,500 |
| South Africa | | 18,000 | 39,500 | 17,300 | 151,000 | 48,000 | 46,000 | 94,000 |
| Total | | 47,200 | 113,000 | 83,000 | 339,000 | 54,100 | 63,800 | 118,000 |
| Rutile: | 2614.00.6040 | | | | | | | |
| Australia | | 57,900 | 46,500 | 5,100 ^r | 127,000 ^r | 12,700 | 35,300 | 47,900 |
| Canada | | 13,200 | 11 | 35,700 | 48,900 | 2,020 | -- | 2,020 |
| Kenya | | -- | 10,200 | -- | 20,200 | 5,000 | 3,060 | 8,060 |
| Sierra Leone | | -- | -- | -- | -- | 40 | 332 | 372 |
| South Africa | | 28,900 | 35,500 | 27,900 | 123,000 | 47,400 | 62,300 | 110,000 |
| Ukraine | | 722 | 278 | 376 | 1,660 | 13,500 | 150 | 13,600 |
| Other | | 4 | 5 | 11 | 213 | 6 ^r | 21 | 26 |
| Total | | 101,000 | 92,500 | 69,000 ^r | 320,000 ^r | 80,600 | 101,000 | 182,000 |
| Synthetic rutile: | 2614.00.3000 | | | | | | | |
| Australia | | -- | -- | 100 | 100 | 205 | 100 | 305 |
| Netherlands | | 7 | -- | 300 | 307 | -- | -- | -- |
| Sierra Leone | | 160 | 100 | -- | 260 | -- | 1 | 1 |
| South Africa | | -- | 95 | -- | 95 | -- | -- | -- |
| Ukraine | | 27 | -- | 200 | 227 | -- | -- | -- |
| Total | | 194 | 195 | 601 | 990 | 205 | 101 | 307 |
| Titaniferous iron ore, Canada ⁴ | 2614.00.6020 | 4,710 | -- | 8,810 | 13,500 | 22 | -- | 22 |

^rRevised. -- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Less than ½ unit.

⁴Includes materials consumed for purposes other than the production of titanium commodities, principally heavy aggregate and steel-furnace flux.

Titaniferous iron ore from Canada is classified as ilmenite under the Harmonized Tariff Schedule of the United States and is not included in the previous ilmenite totals.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM PIGMENT¹

(Metric tons)

| | HTS ² Code | 2021 | | | | 2022 | | |
|---|-----------------------|---------------------|---------------------|---------------------|-----------------------------|--------------------|------------|----------------------------|
| | | 2d quarter | 3d quarter | 4th quarter | 1st quarter– 4th quarter | 1st quarter | 2d quarter | 1st quarter– 2d quarter |
| 80% or more titanium dioxide: | 3206.11.0000 | | | | | | | |
| Australia | | 3,570 | 4,400 ^r | 3,690 | 12,600 | 2,560 | 3,060 | 5,630 |
| Belgium | | 2,290 ^r | 1,940 | 2,720 | 9,020 ^r | 1,710 | 1,540 | 3,260 |
| Canada | | 29,400 | 24,300 | 22,100 | 102,000 | 24,500 | 29,800 | 54,300 |
| China | | 3,260 | 2,720 | 2,610 | 15,400 | 4,170 | 5,560 | 9,740 |
| Czechia | | 1,250 | 1,450 | 1,820 | 5,840 | 1,180 | 1,770 | 2,950 |
| Germany | | 6,270 | 6,020 | 4,430 ^r | 22,000 | 3,470 | 3,440 | 6,910 |
| Italy | | 2,070 | 1,760 | 1,760 | 6,790 | 1,420 | 1,110 | 2,530 |
| Japan | | 1,340 ^r | 1,200 | 871 | 4,600 ^r | 1,180 | 1,470 | 2,650 |
| Mexico | | 490 | 1,680 | 1,480 ^r | 4,230 ^r | 879 | 2,790 | 3,670 |
| Spain | | 2,440 | 2,320 | 1,920 | 8,820 | 2,240 | 1,820 | 4,060 |
| Other | | 4,410 ^r | 5,730 ^r | 4,700 ^r | 19,100 ^r | 4,220 ^r | 4,270 | 8,490 |
| Total | | 56,800 ^r | 53,600 ^r | 48,100 ^r | 210,000 | 47,500 | 56,600 | 104,000 |
| Other titanium dioxide: | 3206.19.0000 | | | | | | | |
| Canada | | 3,450 | 3,270 | 2,980 ^r | 13,300 | 3,120 | 3,190 | 6,300 |
| China | | 224 | 453 | 534 | 1,570 | 297 | 160 | 457 |
| Italy | | 312 | 277 | 278 | 1,070 ^r | 255 | 468 | 723 |
| Mexico | | 188 | 127 | 92 | 527 | 191 | 292 | 483 |
| Other | | 358 | 293 | 316 ^r | 1,210 ^r | 462 | 793 | 1,260 |
| Total | | 4,540 | 4,420 | 4,200 ^r | 17,600 ^r | 4,320 | 4,900 | 9,220 |
| Unfinished titanium dioxide: ³ | 2823.00.0000 | | | | | | | |
| Canada | | 1,120 | 1,470 | 316 | 4,180 | 304 | 945 | 1,250 |
| China | | 1,090 ^r | 1,950 ^r | 3,070 ^r | 7,200 | 1,530 | 2,870 | 4,400 |
| France | | 191 ^r | 669 ^r | 794 | 2,060 ^r | 1,010 | 1,110 | 2,120 |
| Germany | | 1,020 | 719 | 1,140 | 3,360 | 641 | 740 | 1,380 |
| India | | 754 | 741 | 493 | 2,600 | 545 | 1,110 | 1,660 |
| Korea, Republic of | | 662 | 770 | 471 | 2,200 | 280 | 198 | 479 |
| Other | | 504 ^r | 515 ^r | 439 ^r | 1,880 ^r | 344 | 488 | 832 |
| Total | | 5,340 ^r | 6,830 ^r | 6,720 ^r | 23,500 ^r | 4,660 | 7,460 | 12,100 |
| Grand total | | 66,700 ^r | 64,800 | 59,100 | 251,000 | 56,500 | 69,000 | 125,000 |

^rRevised. -- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 6
PRICES FOR TITANIUM MATERIALS

(End of period)

| | | 2021 | | | | 2022 | |
|--|-----------------------------------|-------------|-------------|-------------|-------------|------------------|-------------|
| | | 1st quarter | 2d quarter | 3d quarter | 4th quarter | 1st quarter | 2d quarter |
| Concentrate: | | | | | | | |
| Ilmenite, CIF, China ¹ | dollars per metric ton | 260–270 | 280–290 | 290–310 | 360–400 | 360–400 | 410–470 |
| Titanium slag, import ² | | | | | | | |
| Canada | do. | 1,100 | 1,200 | 1,020 | 870 | 950 | NA |
| Norway | do. | NA | 730 | 800 | 780 | NA | 870 |
| South Africa | do. | 510 | 540 | 780 | 790 | 760 | 810 |
| Rutile, natural: ¹ | | | | | | | |
| Bagged, f.o.b. Australian ports | do. | 1,300–1,400 | 1,400–1,500 | 1,450–1,500 | 1,450–1,550 | 1,700–2,000 | 2,200–2,300 |
| Bulk, f.o.b. Australian ports | do. | 1,200–1,300 | 1,350–1,450 | 1,350–1,450 | 1,400–1,500 | 1,400–1,500 | 1,450–1,500 |
| Metal: | | | | | | | |
| Sponge metal, Japan, import ² | dollars per kilogram | 11.10 | 11.70 | 11.50 | 11.60 | 10.90 | 10.70 |
| Titanium mill products | producer price index ³ | 168 | 168 | 169 | 171 | 178 ^r | 183 |
| Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴ | dollars per pound | 1.50–1.90 | 1.50–1.90 | 1.50–1.90 | 1.50–1.90 | 3.00–3.50 | 3.00–3.50 |
| Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴ | do. | 4.00–4.30 | 4.00–4.30 | 4.00–4.30 | 4.00–4.30 | 7.00–8.00 | 7.00–8.00 |
| Pigment: | | | | | | | |
| Titanium dioxide pigment, import ² | dollars per metric ton | 2,740 | 2,890 | 3,030 | 3,240 | 3,390 | 3,430 |

do. Ditto. ^rRevised. NA Not available.

¹Source: Fastmarkets IM.

²Unit value based on landed-duty-paid U.S. imports for consumption.

³June 1982=100. Source: U.S. Department of Labor, Bureau of Labor Statistics.

⁴Source: S&P Global Platts Metals Week.