

Mineral Industry Surveys

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CHROMIUM IN NOVEMBER 2023

Stainless steel production decreased by 9% in November 2023 compared with production in October 2023 and increased slightly compared with production in November 2022 (table 1). The leading import sources for ferrochromium in November 2023 into the United States were, in descending order of quantity by gross weight, South Africa, Kazakhstan, and India (table 4), whereas the leading import sources for chromium metal were the United Kingdom, China, and France (table 5).

Imports of chromite ore, chromium ferroalloys, stainless steel, and stainless-steel scrap commonly fluctuate from month to month (fig. 1, table 1). Imports of chromite ore increased by 65% in November 2023 compared with imports in October 2023 and were more than 6 times imports in November 2022. Imports of all grades of chromium

ferroalloys, including ferrochromium silicon, increased by 4% compared with imports in October 2023 and decreased by 7% compared with imports in November 2022 (table 3). Stainless steel imports in November 2023 decreased by 28% compared with imports in October 2023 and decreased by 7% compared with imports in November 2022. Stainless steel scrap imports in November 2023 were 14% less than imports in October 2023 and were essentially unchanged compared with those in November 2022 (table 1).

The U.S. chromium metal (99% chromium) average price was \$5.00 per pound in November 2023, essentially unchanged from the average price in October 2023 and 10% less than the average price in November 2022. The U.S. high-carbon ferrochromium (minimum 62% chromium) average price was 209.00 cents per pound of contained chromium in

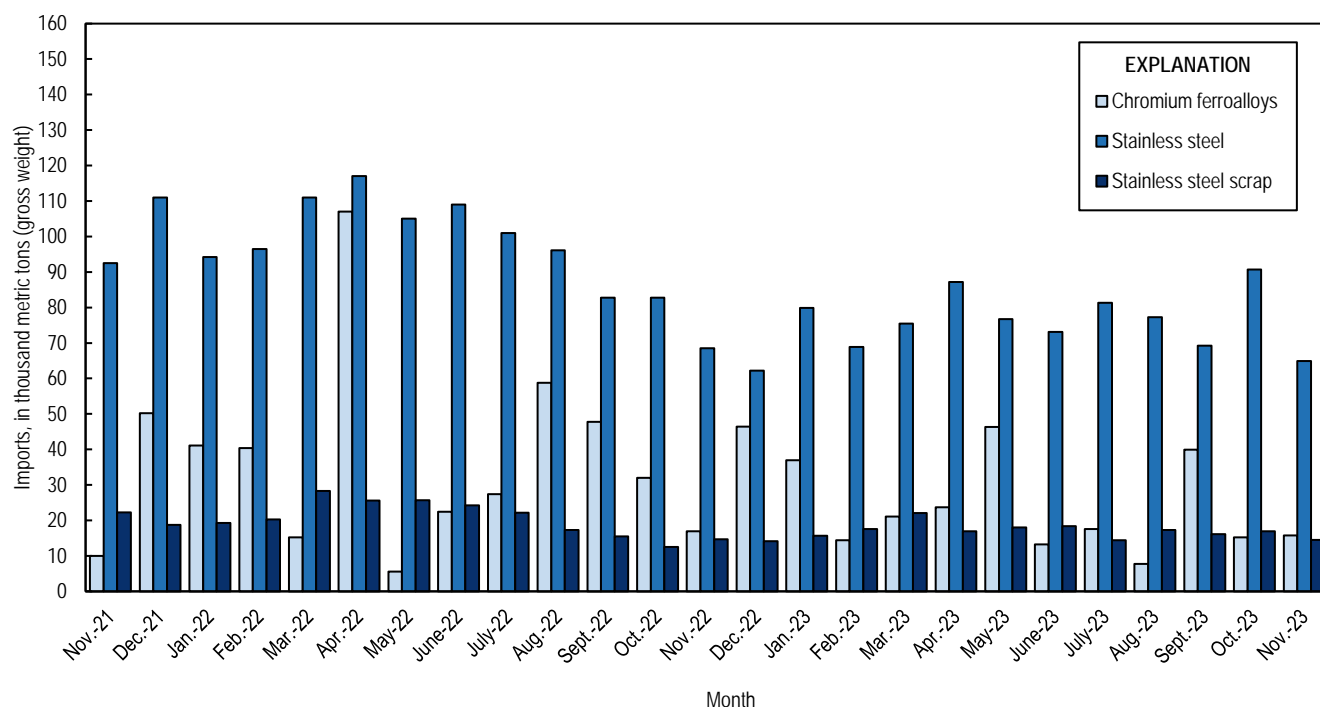


Figure 1. Chromium ferroalloys, stainless steel, and stainless steel scrap imports from November 2021 through November 2023. Source: U.S. Census Bureau.

November 2023, 3% less compared with the average price in October 2023 and 28% less than the average price in November 2022 (fig. 2) (Argus Metals International, 2023).

Industry News

Afarak Group SE (Finland) reported it resumed operations at its low-carbon ferrochromium smelter in Germany. The Elektrowerk Weisweiler smelter was idled in October owing to decreased demand (Afarak Group SE, 2023; CRU Group, 2023).

References Cited

Afarak Group SE, 2023, Production report Q3 2023: Helsinki, Finland, Afarak Group SE, November 3. (Accessed January 10, 2024, at <https://otp.tools.investis.com/clients/fi/afarak1/omx/omx-story.aspx?cid=175&newsid=76940&culture=en-US>.)

Argus Metals International, 2023, Prices & data: Argus Media Group—Argus Nonferrous Metals, December 7. (Accessed January 10, 2024, via <https://www.argusmedia.com/metals>.)
CRU Group, 2023, Ferroalloys weekly review: CRU Group, November 17. (Accessed November 21, 2023, via <https://crugroup.com/>.)

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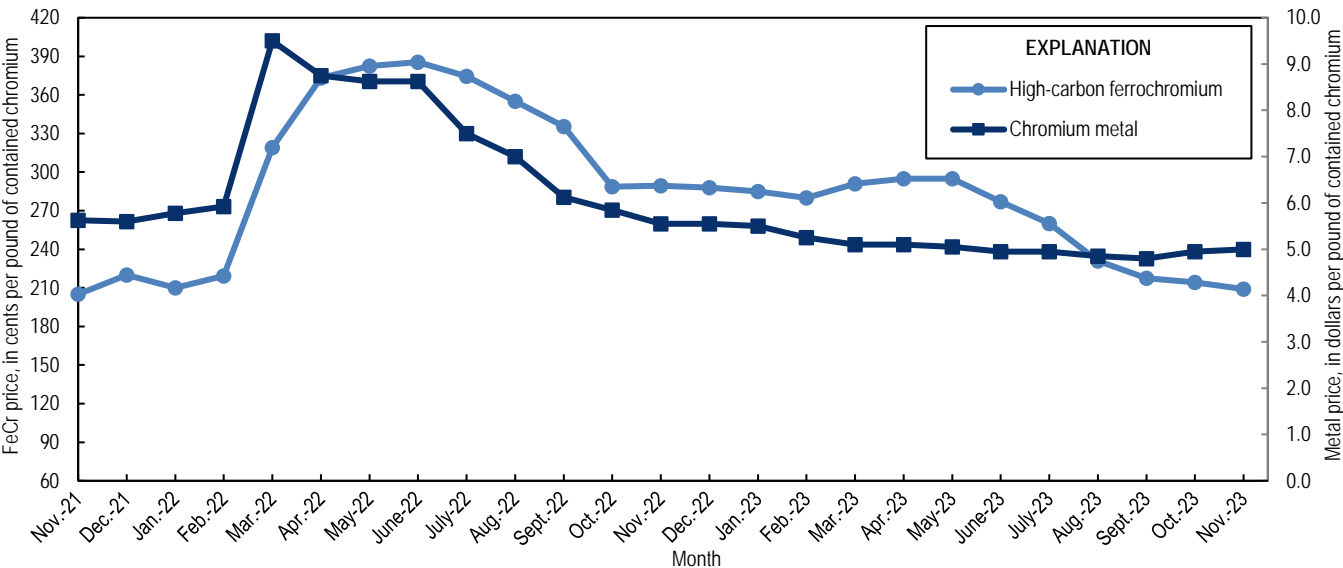


Figure 2. Average monthly prices for U.S. high-carbon ferrochromium (FeCr) and chromium metal from November 2021 through November 2023. Source: Argus Metals International.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

| | 2022 | 2023 | | | |
|--|----------------------|---------------------|------------------------|----------|----------------------|
| | January– December | September | October | November | January– November |
| Production, stainless steel ² | 2,020,000 | 146,000 | 151,000 | 137,000 | 1,670,000 |
| Components of U.S. supply: | | | | | |
| Stainless steel scrap receipts | 537,000 ^e | 28,000 | 41,700 ^r | 31,700 | 406,000 ^e |
| Stainless steel scrap consumption | 806,000 ^e | 18,900 ^r | 20,000 ^{r, e} | 18,600 | 508,000 ^e |
| Imports for consumption: | | | | | |
| Chromite ore | 121,000 | 24,500 | 2,070 | 3,430 | 96,900 |
| Ferrochromium: | | | | | |
| More than 4% carbon | 399,000 | 38,200 | 9,220 | 12,800 | 216,000 |
| More than 3% but not more than 4% carbon | 36 | -- | 30 | 2 | 70 |
| More than 0.5% but not more than 3% carbon | 2,250 | 54 | 104 | 504 | 2,490 |
| Not more than 0.5% carbon | 42,100 | 1,690 | 5,500 | 2,410 | 32,000 |
| Ferrochromium silicon | 17,100 | -- | 324 | -- | 1,680 |
| Total ferroalloy imports | 461,000 | 39,900 | 15,200 | 15,800 | 252,000 |
| Chromium metal ³ | 14,900 | 841 | 1,190 | 1,000 | 11,200 |
| Stainless steel | 1,130,000 | 69,200 | 90,700 | 64,900 | 845,000 |
| Stainless steel scrap | 240,000 | 16,100 | 16,900 | 14,500 | 188,000 |
| Exports: | | | | | |
| Chromite ore | 2,220 | 218 | 92 | 97 | 1,990 |
| Chromium ferroalloys: | | | | | |
| High-carbon ferrochromium | 3,640 | 30 | 141 | 236 | 3,880 |
| Low-carbon ferrochromium | 637 | -- | -- | 6 | 333 |
| Ferrochromium silicon | 40 | -- | -- | -- | 83 |
| Total ferroalloy exports | 4,310 | 30 | 141 | 242 | 4,300 |
| Chromium metal | 567 | 48 | 47 | 26 | 418 |
| Stainless steel | 350,000 | 23,900 | 26,900 | 25,400 | 312,000 |
| Stainless steel scrap | 403,000 | 47,200 | 49,600 | 28,500 | 479,000 |

^eEstimated. ^rRevised. -- Zero.

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

²Source: American Iron and Steel Institute.

³Includes waste and scrap and other.

TABLE 2
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL¹

| | Chromite ore | | Chromium ferroalloys ² | | | Chromium metal ³ | |
|-------------------------------|-------------------------------|----------------------|-----------------------------------|-----------------------------------|----------------------|-------------------------------|----------------------|
| | Gross weight (metric tons) | Value (thousands) | Gross weight (metric tons) | Chromium content (metric tons) | Value (thousands) | Gross weight (metric tons) | Value (thousands) |
| 2022: | | | | | | | |
| November | 64 | \$54 | 36 | 22 | \$32 | 22 | \$730 |
| December | 180 | 151 | 896 | 432 | 841 | 83 | 1,530 |
| January–December ⁴ | 2,220 | 1,640 | 4,310 | 2,170 | 4,420 | 567 | 12,800 |
| 2023: | | | | | | | |
| January | 124 | 110 | 1,020 | 398 | 1,130 | 43 | 1,120 |
| February | 158 | 145 | 418 | 141 | 446 | 20 | 675 |
| March | 129 | 121 | 505 | 117 | 455 | 26 | 846 |
| April | 203 | 173 | 279 | 64 | 311 | 16 | 488 |
| May | 255 | 223 | 989 | 373 | 896 | 49 | 1,830 |
| June | 167 | 145 | 463 | 104 | 424 | 78 | 2,360 |
| July | 230 | 178 | 89 | 37 | 113 | 16 | 589 |
| August | 312 | 233 | 122 | 27 | 146 | 49 | 839 |
| September | 218 | 161 | 30 | 18 | 33 | 48 | 1,030 |
| October | 92 | 83 | 141 | 59 | 142 | 47 | 1,030 |
| November | 97 | 66 | 242 | 76 | 237 | 26 | 1,200 |
| January–November ⁴ | 1,990 | 1,640 | 4,300 | 1,410 | 4,330 | 418 | 12,000 |

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

²Includes low- and high-carbon ferrochromium and ferrochromium silicon.

³Includes chromium metal, waste and scrap, and unwrought powders.

⁴May include revised data that are not broken out by specific month(s).

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND
CHROMIUM METAL¹

(Metric tons)

| | 2022 | 2023 | | |
|--|----------------------|---------|----------|-----------------------------------|
| | January– December | October | November | January– November ² |
| Chromite ore: | | | | |
| Not more than 40% chromic oxide: | | | | |
| Gross weight | 5,750 | 200 | 156 | 4,030 |
| Chromic oxide content | 1,750 | 78 | 40 | 1,100 |
| More than 40% but less than 46% chromic oxide: | | | | |
| Gross weight | 17,100 | 840 | 2,730 | 18,500 |
| Chromic oxide content | 7,400 | 366 | 1,180 | 8,010 |
| 46% or more chromic oxide: | | | | |
| Gross weight | 98,200 | 1,030 | 537 | 74,400 |
| Chromic oxide content | 83,300 | 494 | 263 | 65,300 |
| Total, all grades: | | | | |
| Gross weight | 121,000 | 2,070 | 3,430 | 96,900 |
| Chromic oxide content | 92,500 | 938 | 1,480 | 74,500 |
| Ferrochromium: | | | | |
| Low-carbon: ³ | | | | |
| Not more than 0.5% carbon: | | | | |
| Gross weight | 42,100 | 5,500 | 2,410 | 32,000 |
| Chromium content | 29,500 | 3,530 | 1,620 | 21,400 |
| More than 0.5% but not more than 3% carbon: | | | | |
| Gross weight | 2,250 | 104 | 504 | 2,490 |
| Chromium content | 1,520 | 65 | 312 | 1,620 |
| Total, low-carbon: | | | | |
| Gross weight | 44,300 | 5,600 | 2,920 | 34,500 |
| Chromium content | 31,000 | 3,590 | 1,930 | 23,000 |
| Medium-carbon: ⁴ | | | | |
| Gross weight | 36 | 30 | 2 | 70 |
| Chromium content | 25 | 21 | 1 | 50 |
| High-carbon: ⁵ | | | | |
| Gross weight | 399,000 | 9,220 | 12,800 | 216,000 |
| Chromium content | 224,000 | 5,440 | 7,370 | 121,000 |
| Total, all grades: | | | | |
| Gross weight | 444,000 | 14,900 | 15,800 | 250,000 |
| Chromium content | 256,000 | 9,050 | 9,300 | 144,000 |
| Chromium metal: | | | | |
| Unwrought powders | 13,500 | 1,030 | 790 | 9,520 |
| Waste and scrap | 519 | 29 | 66 | 407 |
| Other than waste and scrap and unwrought powders | 927 | 133 | 146 | 1,310 |
| Total, all grades | 14,900 | 1,190 | 1,000 | 11,200 |

-- Zero.

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

²May include revised data that are not broken out by specific month(s).

³Ferrochromium containing not more than 3% carbon.

⁴Ferrochromium containing more than 3% carbon but not more than 4% carbon.

⁵Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2023, BY GRADE AND COUNTRY OR LOCALITY¹

| Grade and country or locality | November | | | January–November ² | | |
|---|-------------------------------|-----------------------------------|-----------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
| | Gross weight (metric tons) | Chromium content (metric tons) | Value ³ (thousands) | Gross weight (metric tons) | Chromium content (metric tons) | Value ³ (thousands) |
| High-carbon ferrochromium: ⁴ | | | | | | |
| Albania | -- | -- | -- | 1,090 | 723 | \$2,910 |
| Austria | 140 | 93 | \$381 | 140 | 93 | 381 |
| Brazil | -- | -- | -- | 900 | 500 | 896 |
| China | -- | -- | -- | 27 | 19 | 81 |
| Finland | 2,270 | 1,190 | 5,450 | 14,300 | 7,520 | 20,500 |
| India | 2,780 | 1,740 | 4,300 | 11,200 | 7,080 | 19,100 |
| Kazakhstan | 2,690 | 1,860 | 8,050 | 34,700 | 23,800 | 130,000 |
| Oman | 162 | 96 | 250 | 405 | 241 | 616 |
| South Africa | 4,500 | 2,190 | 4,930 | 104,000 | 50,900 | 116,000 |
| Sweden | 295 | 198 | 889 | 5,020 | 3,350 | 17,100 |
| Switzerland | -- | -- | -- | 253 | 170 | 866 |
| Turkey | -- | -- | -- | 15,500 | 10,400 | 40,600 |
| Zimbabwe | -- | -- | -- | 28,200 | 15,700 | 36,900 |
| Total | 12,800 | 7,370 | 24,300 | 216,000 | 121,000 | 386,000 |
| Medium-carbon ferrochromium, India ⁵ | 2 | 1 | 5 | 70 | 50 | 386 |
| Low-carbon ferrochromium: ⁶ | | | | | | |
| More than 0.5% but not more than 3% carbon: | | | | | | |
| Brazil | 504 | 312 | 1,470 | 1,510 | 940 | 4,630 |
| China | -- | -- | -- | 25 | 16 | 105 |
| India | -- | -- | -- | 100 | 66 | 398 |
| Kazakhstan | -- | -- | -- | 856 | 599 | 5,860 |
| Total | 504 | 312 | 1,470 | 2,490 | 1,620 | 11,000 |
| Not more than 0.5% carbon: | | | | | | |
| Brazil | 123 | 48 | 339 | 1,140 | 659 | 2,530 |
| China | -- | -- | -- | 270 | 188 | 1,090 |
| Germany | 448 | 307 | 2,330 | 9,540 | 6,560 | 52,100 |
| India | 632 | 402 | 2,430 | 8,000 | 4,790 | 31,300 |
| Japan | 121 | 85 | 994 | 1,830 | 1,250 | 15,400 |
| Kazakhstan | 968 | 692 | 4,550 | 9,310 | 6,620 | 53,900 |
| Russia | -- | -- | -- | 85 | 63 | 572 |
| Turkey | 120 | 83 | 476 | 1,820 | 1,270 | 9,620 |
| United Kingdom | -- | -- | -- | 1 | 1 | 26 |
| Total | 2,410 | 1,620 | 11,100 | 32,000 | 21,400 | 167,000 |
| All grades: | | | | | | |
| Albania | -- | -- | -- | 1,090 | 723 | 2,910 |
| Austria | 140 | 93 | 381 | 140 | 93 | 381 |
| Brazil | 627 | 360 | 1,810 | 3,550 | 2,100 | 8,060 |
| China | -- | -- | -- | 322 | 223 | 1,270 |
| Finland | 2,270 | 1,190 | 5,450 | 14,300 | 7,520 | 20,500 |
| Germany | 448 | 307 | 2,330 | 9,540 | 6,560 | 52,100 |
| India | 3,410 | 2,150 | 6,740 | 19,400 | 12,000 | 51,200 |
| Japan | 121 | 85 | 994 | 1,830 | 1,250 | 15,400 |
| Kazakhstan | 3,660 | 2,550 | 12,600 | 44,800 | 31,000 | 189,000 |
| Oman | 162 | 96 | 250 | 405 | 241 | 616 |
| Russia | -- | -- | -- | 85 | 63 | 572 |
| South Africa | 4,500 | 2,190 | 4,930 | 104,000 | 50,900 | 116,000 |
| Sweden | 295 | 198 | 889 | 5,020 | 3,350 | 17,100 |
| Switzerland | -- | -- | -- | 253 | 170 | 866 |
| Turkey | 120 | 83 | 476 | 17,300 | 11,700 | 50,200 |
| United Kingdom | -- | -- | -- | 1 | 1 | 26 |
| Zimbabwe | -- | -- | -- | 28,200 | 15,700 | 36,900 |
| Total | 15,800 | 9,300 | 36,900 | 250,000 | 144,000 | 564,000 |

-- Zero.

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

²May include revised data that are not broken out by specific month(s).

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Ferrochromium containing more than 4% carbon.

⁵Ferrochromium containing more than 3% carbon but not more than 4% carbon.

⁶Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2023,
BY GRADE AND BY COUNTRY OR LOCALITY¹

| Grade and country or locality | November | | January–November ² | |
|---|-------------------------------|-----------------------------------|-------------------------------|-----------------------------------|
| | Gross weight (metric tons) | Value ³ (thousands) | Gross weight (metric tons) | Value ³ (thousands) |
| Unwrought powders: | | | | |
| Canada | -- | -- | (4) | \$6 |
| China | 339 | \$3,230 | 4,820 | 46,400 |
| France | 38 | 501 | 312 | 5,050 |
| Germany | 1 | 50 | 102 | 913 |
| India | 39 | 323 | 156 | 1,750 |
| Japan | -- | -- | (4) | 5 |
| Korea, Republic of | -- | -- | 47 | 688 |
| Russia | -- | -- | 495 | 4,600 |
| Spain | 14 | 66 | 18 | 85 |
| United Kingdom | 359 | 5,000 | 3,570 | 55,900 |
| Total | 790 | 9,170 | 9,520 | 115,000 |
| Waste and scrap: | | | | |
| Canada | 4 | 23 | 114 | 787 |
| China | 26 | 143 | 38 | 466 |
| Germany | -- | -- | (4) | 13 |
| Japan | -- | -- | 26 | 238 |
| Korea, Republic of | -- | -- | (4) | 5 |
| Russia | -- | -- | 1 | 11 |
| Taiwan | -- | -- | 12 | 47 |
| United Kingdom | 35 | 309 | 216 | 1,800 |
| Total | 66 | 475 | 407 | 3,370 |
| Other than waste and scrap and unwrought powders: | | | | |
| Brazil | -- | -- | 41 | 809 |
| Canada | -- | -- | (4) | 221 |
| China | 1 | 204 | 11 | 1,130 |
| France | 133 | 1,470 | 1,040 | 14,800 |
| Germany | 1 | 140 | 32 | 2,370 |
| Japan | (4) | 15 | 5 | 157 |
| Korea, Republic of | (4) | 17 | (4) | 67 |
| Malaysia | -- | -- | (4) | 24 |
| Russia | -- | -- | 110 | 1,080 |
| South Africa | 10 | 90 | 31 | 290 |
| Switzerland | -- | -- | (4) | 16 |
| Taiwan | -- | -- | (4) | 59 |
| United Kingdom | -- | -- | 35 | 643 |
| Total | 146 | 1,930 | 1,310 | 21,600 |
| All grades: | | | | |
| Brazil | -- | -- | 41 | 809 |
| Canada | 4 | 23 | 114 | 1,010 |
| China | 366 | 3,570 | 4,870 | 48,000 |
| France | 171 | 1,970 | 1,350 | 19,800 |
| Germany | 2 | 190 | 134 | 3,300 |
| India | 39 | 323 | 156 | 1,750 |
| Japan | (4) | 15 | 31 | 400 |
| Korea, Republic of | (4) | 17 | 48 | 759 |
| Malaysia | -- | -- | (4) | 24 |
| Russia | -- | -- | 606 | 5,690 |
| South Africa | 10 | 90 | 31 | 290 |
| Spain | 14 | 66 | 18 | 85 |
| Switzerland | -- | -- | (4) | 16 |
| Taiwan | -- | -- | 12 | 106 |
| United Kingdom | 395 | 5,310 | 3,820 | 58,300 |
| Total | 1,000 | 11,600 | 11,200 | 140,000 |

-- Zero.

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

²May include revised data that are not broken out by specific month(s).

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2023¹

| Stainless steel product | November | | January–November ² | |
|----------------------------------|-------------------------------|-----------------------------------|-------------------------------|-----------------------------------|
| | Gross weight (metric tons) | Value ³ (thousands) | Gross weight (metric tons) | Value ³ (thousands) |
| Exports: | | | | |
| Ingot | 931 | \$6,580 | 10,100 | \$74,800 |
| Flat-rolled (width > 600 mm) | 13,300 | 56,500 | 166,000 | 704,000 |
| Flat-rolled (width < 600 mm) | 4,690 | 43,900 | 53,200 | 511,000 |
| Bars and rods in irregular coils | 94 | 1,040 | 2,380 | 17,200 |
| Other bars and rods | 2,560 | 39,000 | 32,300 | 449,000 |
| Wire | 617 | 14,200 | 6,580 | 149,000 |
| Tubes, pipes, hollow profiles | 3,220 | 39,100 | 40,800 | 454,000 |
| Total | 25,400 | 200,000 | 312,000 | 2,360,000 |
| Stainless steel scrap | 28,500 | 29,900 | 479,000 | 422,000 |
| Grand total | 53,900 | 230,000 | 790,000 | 2,780,000 |
| Imports: | | | | |
| Ingot | 13,300 | 39,300 | 151,000 | 449,000 |
| Flat-rolled (width > 600 mm) | 26,000 | 81,700 | 315,000 | 1,080,000 |
| Flat-rolled (width < 600 mm) | 2,970 | 14,600 | 48,600 | 237,000 |
| Bars and rods in irregular coils | 2,170 | 11,200 | 29,600 | 144,000 |
| Other bars and rods | 10,000 | 56,900 | 129,000 | 782,000 |
| Wire | 2,740 | 15,100 | 35,800 | 212,000 |
| Tubes, pipes, hollow profiles | 7,610 | 60,900 | 135,000 | 1,120,000 |
| Total | 64,900 | 280,000 | 845,000 | 4,030,000 |
| Stainless steel scrap | 14,500 | 16,000 | 188,000 | 218,000 |
| Grand total | 79,400 | 296,000 | 1,030,000 | 4,240,000 |

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

²May include revised data that are not broken out by specific month(s).

³Export value is free alongside ship. Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.