

# Mineral Industry Surveys

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## TITANIUM IN THE SECOND QUARTER 2023

In the second quarter of 2023, U.S. imports of titanium mineral concentrates, excluding titaniferous iron ore, totaled 277,000 metric tons (t) (gross weight) and included ilmenite (104,000 t), rutile (92,700 t), and titanium slag (79,600 t). Imports of slag and rutile increased by 149% and 30%, respectively, compared with the prior period. Meanwhile, imports of ilmenite decreased by 21%. There were no imports of synthetic rutile in the first half of 2023 (table 4).

Exports of all forms of titanium mineral concentrates in the second quarter of 2023 were 40,400 t, a 29% decrease compared with the prior period (table 2).

Imports of all forms of titanium pigment in the second quarter of 2023 were 57,700 t unchanged compared with the prior quarter (table 5). Exports of all forms of titanium pigment were 73,700 t compared with 65,900 t in the prior quarter (table 2).

In the second quarter of 2023, total imports of titanium metal, excluding ferrotitanium, were 19,800 t and were primarily in the form of sponge (53%) and waste and scrap (35%). Imports of sponge were unchanged while imports of scrap increased by 16% compared with those in the prior quarter. Imports of ingot, powder, and other unwrought products decreased by 49% (table 3). Exports of all forms of titanium metal in the first quarter of 2023 were 8,990 t, a 5% decrease compared with those in the prior quarter (table 1).

Industry participation is key to the publication of aggregated totals of domestic titanium statistics. In the second quarter of 2023, 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 15 to 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 DEMAND<sup>1</sup>

(Metric tons)

	2022				2023		
	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	1,990 <sup>r</sup>	2,610 <sup>r</sup>	2,050 <sup>r</sup>	8,610 <sup>r</sup>	2,690	2,070	4,770
Sponge	5	9	12	105	33	121	154
Ingot	1,370	732	749	3,630 <sup>r</sup>	1,540	1,060	2,610
Other unwrought	393	258	444	1,490	500	677	1,180
Bar, rod, profiles, wire	1,550 <sup>r</sup>	1,860	1,780	6,510 <sup>r</sup>	2,100	2,130	4,220
Bloom, sheet bar, slab	436	488	397	1,790	438	589	1,030
Other wrought	2,200 <sup>r</sup>	2,180 <sup>r</sup>	2,390 <sup>r</sup>	8,520 <sup>r</sup>	2,130	2,350	4,480
Total	7,950 <sup>r</sup>	8,130 <sup>r</sup>	7,820 <sup>r</sup>	30,700 <sup>r</sup>	9,440	8,990	18,400
Imports:							
Waste and scrap	4,340	4,880	6,630	19,300	6,020	6,990	13,000
Sponge <sup>2</sup>	6,490	7,670	10,100	30,900	10,400	10,400	20,800
Ingot	45	94	113	733	740	661	1,400
Powder	51	75	41	194	69	75	144
Other unwrought	186	202	101	847	900	128	1,030
Wrought	1,380	1,180	993	7,010	1,340	1,280	2,620
Castings	5	11	7	38	7	12	20
Other	282	160	165	861	213	219	433
Total	12,800	14,300	18,200	59,800	19,700	19,800	39,500
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

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data.

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

<sup>2</sup>Estimated by the U.S. Geological Survey.

TABLE 2  
U.S. EXPORTS OF TITANIUM PRODUCTS<sup>1</sup>

(Metric tons)

	HTS <sup>2</sup> Code	2022				2023		
		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	1,990 <sup>r</sup>	2,610 <sup>r</sup>	2,050 <sup>r</sup>	8,610 <sup>r</sup>	2,690	2,070	4,770
Unwrought:								
Sponge	8108.20.0010	5	9	12	105	33	121	154
Ingot	8108.20.0030	1,370	732	749	3,630 <sup>r</sup>	1,540	1,060	2,610
Other	8108.20.0090	393	258	444	1,490	500	677	1,180
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	1,550 <sup>r</sup>	1,860	1,780	6,510 <sup>r</sup>	2,100	2,130	4,220
Bloom, sheet bar, slab	8108.90.6020	436	488	397	1,790	438	589	1,030
Other	8108.90.8000	2,200 <sup>r</sup>	2,180 <sup>r</sup>	2,390 <sup>r</sup>	8,520 <sup>r</sup>	2,130	2,350	4,480
Ferrotitanium and ferrosilicon titanium	7202.91.0000	397	466	496	1,670	316	331	647
Ores and concentrates	2614.00.0000	60,900	75,100	63,300	262,000 <sup>r</sup>	56,600	40,400	97,100
Pigment:								
80% or more titanium dioxide	3206.11.0000	101,000 <sup>r</sup>	98,300 <sup>r</sup>	59,600 <sup>r</sup>	354,000	59,900	68,100	128,000
Other titanium dioxide	3206.19.0000	3,680	3,270 <sup>r</sup>	2,470	12,500	3,040	2,640	5,690
Unfinished titanium dioxide <sup>3</sup>	2823.00.0000	3,280	2,520 <sup>r</sup>	2,070 <sup>r</sup>	11,400 <sup>r</sup>	2,950	2,880	5,830

<sup>r</sup>Revised.

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

<sup>2</sup>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM METAL<sup>1</sup>

(Metric tons)

	HTS <sup>2</sup> Code	2022				2023		
		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		354	491	515	1,810	495	731	1,230
China		158	264	157	731	218	222	440
France		384	557	659	2,040	867	800	1,670
Germany		689	498	662	2,450	661	878	1,540
Italy		366	342	460	1,350	349	305	654
Japan		491	492	1,140	2,340	831	765	1,600
Korea, Republic of		313	212	276	1,170	167	296	463
Mexico		313	531	642	1,650	407	550	958
Poland		140	180	220	585	203	281	484
Singapore		146	156	165	519	210	273	483
United Kingdom		686	686	998	2,840	1,120	967	2,090
Other		299	469	741	1,770	486	922	1,410
Total		4,340	4,880	6,630	19,300	6,020	6,990	13,000
Unwrought:								
Sponge:	8108.20.0010							
China		--	--	6	6	56	20	76
Japan		5,710	5,120	8,120	25,200	8,330	7,850	16,200
Kazakhstan <sup>e</sup>		422	1,240	1,160	3,120	1,070	738	1,810
Russia		37	35	--	104	--	--	--
Saudi Arabia		234	1,260	792	2,300	936	1,780	2,720
Ukraine		9	--	--	9	--	--	--
Other		71	17	17	106	21	20	42
Total		6,490	7,670	10,100	30,900	10,400	10,400	20,800
Ingot:	8108.20.0030							
Kazakhstan		14	94	107	281	605	652	1,260
Russia		30	--	5	423	135	8	144
Other		--	--	--	29	(3)	(3)	(3)
Total		45	94	113	733	740	661	1,400
Powder	8108.20.0015	51	75	41	194	69	75	144
Other	8108.20.0095	186	202	101	847	900	128	1,030
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	522	494	333	2,220	806	587	1,390
Bloom, sheet bar, slab	8108.90.6020	334	35	49	2,160	64	3	68
Plate, sheet, strip, foil	8108.90.6045	361	296	294	1,610	268	475	742
Tube and pipe	8108.90.6060	61	179	147	449	58	63	120
Other	8108.90.6075	100	177	169	574	149	151	300
Total		1,380	1,180	993	7,010	1,340	1,280	2,620
Other articles of titanium:								
Castings	8108.90.3030	5	11	7	38	7	12	20
Other	8108.90.3060	282	160	165	861	213	219	433
Ferrotitanium and ferrosilicon titanium	7202.91.0000	1,130 <sup>r</sup>	1,240 <sup>r</sup>	731	3,630	490	1,050	1,540

<sup>e</sup>Estimated. <sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM CONCENTRATES<sup>1</sup>

(Metric tons)

	HTS <sup>2</sup> Code	2022				2023		
		2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	1st quarter– 2d quarter
Ilmenite:	2614.00.6020							
Madagascar		35,000	59,400	90,000	277,000	15,000	40,000	55,000
Mozambique		69,900	50,100	22,600	143,000	65,000	44,000	109,000
Senegal		9,000	29,000	8,000	91,100	20,000	20,000	40,000
Ukraine		--	--	7,700	17,900	20,000	--	20,000
Other		40	40	--	80	12,600	230	12,800
Total		114,000	139,000	128,000	529,000	133,000	104,000	237,000
Titanium slag:	2620.99.5000							
Canada		319	47,000	31,600	85,100	17,000	47,000	64,000
Norway		17,500	15,000	15,000	47,500	--	15,000	15,000
South Africa		46,000	58,900	35,100	188,000	15,000	17,600	32,600
Other		--	15,000 <sup>r</sup>	195	15,200 <sup>r</sup>	--	--	--
Total		63,800	136,000	82,000	336,000	32,000	79,600	112,000
Rutile:	2614.00.6040							
Australia		35,300	19,100	23,700	109,000 <sup>r</sup>	14,500	33,900	48,400
Canada		--	5,360	10,000	17,400	--	--	--
Kenya		3,060	371	20,300	28,700	12,000	--	12,000
South Africa		62,300	28,900	29,300	168,000	44,700	58,800	104,000
Spain		1	13,800	(3)	13,800	1	(3)	1
Ukraine		150	20,300	57	34,000	308	--	308
Other		352	4	78	479	1	80	81
Total		101,000	87,900	83,500	371,000 <sup>r</sup>	71,600	92,700	164,000
Synthetic rutile:	2614.00.3000							
Australia		100	--	--	305	--	--	--
Sierra Leone		1	--	84	85	--	--	--
Other		--	17	--	17	--	--	--
Total		101	17	84	408	--	--	--
Titaniferous iron ore, Canada <sup>4</sup>	2614.00.6020	--	--	24	46	7,510	22	7,530

<sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Less than ½ unit.

<sup>4</sup>Includes 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 PIGMENT<sup>1</sup>

(Metric tons)

	HTS <sup>2</sup> Code	2022				2023		
		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		3,060	3,230	5,760	14,600	390	1,740	2,130
Belgium		1,540	2,920	3,700	9,880	1,100	573	1,670
Canada		29,800	25,500	18,800	98,700 <sup>r</sup>	22,100	21,700	43,800
China		5,560	4,940 <sup>r</sup>	2,720 <sup>r</sup>	17,400	4,680	5,490	10,200
Czechia		1,770	1,290	1,970	6,210	1,020	859	1,880
Germany		3,490 <sup>r</sup>	3,020	4,410	14,400 <sup>r</sup>	1,580	2,200	3,790
Italy		1,110	1,940	1,400	5,870	556	343	899
Japan		1,470	1,520	1,340 <sup>r</sup>	5,510	782	1,190	1,970
Mexico		2,790	6,240	3,420	13,300	9,920	8,850	18,800
Norway		1,080	1,500	2,600	6,430	942	382	1,320
Spain		1,820	3,000	5,870	12,900	2,410	2,280	4,690
United Kingdom		676	2,780	3,190	7,400	474	542	1,020
Other		2,460 <sup>r</sup>	2,920 <sup>r</sup>	1,540	9,120 <sup>r</sup>	1,720	2,040	3,760
Total		56,600	60,800	56,700	222,000	47,700	48,200	95,900
Other titanium dioxide:	3206.19.0000							
Canada		3,190	3,620 <sup>r</sup>	3,180	13,100	3,550	3,370	6,920
China		160	255	136	856 <sup>r</sup>	237	190	428
France		8	11	182	204 <sup>r</sup>	381	182	563
India		182	242	135	687	342	200	542
Italy		468	459	86	1,270	217	200	416
Mexico		292	220	204	907	152	127	279
Other		603	475	349	1,760	419	336	754
Total		4,900	5,280	4,270	18,800	5,300	4,600	9,900
Unfinished titanium dioxide: <sup>3</sup>	2823.00.0000							
Canada		945	432	333	2,010	203	204	407
China		2,870	2,200 <sup>r</sup>	1,640	8,240 <sup>r</sup>	2,530	2,310	4,840
France		1,110	1,590	1,970	5,680	1,190	501	1,690
Germany		740	757 <sup>r</sup>	819	2,960 <sup>r</sup>	161	688	849
India		1,110	745	417	2,820	234	561	796
Japan		118	171 <sup>r</sup>	232	590 <sup>r</sup>	87	53	140
Korea, Republic of		198	292	226	996	238	464	701
Other		369	251	99	996 <sup>r</sup>	171	154	326
Total		7,460	6,440	5,740	24,300	4,820	4,930	9,750
Grand total		69,000	72,500	66,700	265,000	57,800	57,700	116,000

<sup>r</sup>Revised.

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

<sup>2</sup>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 6  
AVERAGE PRICES FOR TITANIUM MATERIALS

		2022				2023	
		1st quarter	2d quarter	3d quarter	4th quarter	1st quarter	2d quarter
Concentrate:							
Ilmenite, CIF, China <sup>1</sup>	dollars per metric ton	380	410	431	415	408	404
Titanium slag, import <sup>2</sup>							
Canada	do.	946	2,770	1,040 <sup>r</sup>	1,060	1,160	1,190
Norway	do.	NA	867	NA	1,040	NA	1,005
South Africa	do.	756	734	717 <sup>r</sup>	858	793	901
Rutile, natural: <sup>1</sup>							
Bagged, f.o.b. Australian ports	do.	1,720	2,170	2,250	2,200	2,200	2,200
Bulk, f.o.b. Australian ports	do.	1,450	1,460	1,480	1,490	1,500	1,480
Metal:							
Sponge metal, Japan, import <sup>2</sup>	dollars per kilogram	10.70	10.70 <sup>r</sup>	11.40	11.50 <sup>r</sup>	11.30	12.20
Titanium mill products	producer price index <sup>3</sup>	178	181	196	200	206	208
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) <sup>4</sup>	dollars per pound	1.98	3.25	3.25	3.18	2.25	2.25
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti <sup>4</sup>	do.	4.70	7.50	5.43	3.94	3.10	3.45
Pigment, titanium dioxide pigment, import <sup>2</sup>	dollars per metric ton	3,320	3,380	3,520	3,560	3,320	3,310

<sup>1</sup>Revised. do. Ditto. NA Not available.

<sup>2</sup>Source: Fastmarkets IM.

<sup>3</sup>Unit value based on landed-duty-paid U.S. imports for consumption.

<sup>4</sup>June 1982=100. Source: U.S. Department of Labor, Bureau of Labor Statistics.

<sup>5</sup>Source: S&P Global Platts Metals Week.