



Mineral Industry Surveys

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TITANIUM IN THE SECOND QUARTER 2018

Titanium mill product shipments in the second quarter of 2018 were 9,660 metric tons (t), a slight increase from shipments in the previous quarter, and almost unchanged from those of the second quarter 2017. Ingot production in the second quarter of 2018 increased by 11% from that of the previous quarter and essentially unchanged from that of the second quarter 2017. Ingot and slab shipments in the second quarter of 2018 increased by 33% from those of the preceding quarter, and increased by 31% from shipments in the second quarter of 2017. Receipts of titanium scrap in the second quarter of 2018 totaled 18,700 t, a 3% increase compared with receipts from the previous quarter and a 5% increase compared with shipments in the second quarter of 2017 (table 1).

During the second quarter, approximately 80% of mill products and castings were produced for commercial and

military aerospace applications. Other applications for titanium mill products and castings included, in descending order of consumption, industrial, consumer, nonaerospace military, medical, and other. Data for titanium metal products are developed by the U.S. Geological Survey from a voluntary survey of domestic operations. Data for nonrespondents were estimated based on previously reported data.

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

(Metric tons)

	2017				2018		
	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	22,300	21,900	21,600	82,100	20,100	22,300	42,300
Mill products	10,000	9,560	8,570	38,000	9,460 [†]	9,660	19,100
Exports:							
Waste and scrap	2,040	1,910	2,350	9,450	2,020	2,490	4,510
Sponge	1,260	174	548	3,090	388	70	458
Ingot	2,110	2,230	2,460	9,010	2,190	3,140	5,330
Other unwrought	761	602	780	2,730	625	756	1,380
Bar, rod, profiles, wire	1,380	1,490	1,280	5,540	1,190	1,480	2,670
Bloom, sheet bar, slab	797	923	831	3,480	797	1,000	1,800
Other wrought	2,850	2,510	2,410	10,900	2,830	2,640	5,470
Total	11,200	9,840	10,700	44,200	10,000	11,600	21,600
Imports:							
Waste and scrap	6,960	6,470	6,340	25,200	5,950	6,470	12,400
Sponge ²	4,670	6,500	6,800	24,100	5,070	4,790	9,860
Ingot	501	641	225	1,550	321	682	1,000
Powder	52	32	37	157	65	40	105
Other unwrought	356	252	233	1,120	349	196	545
Wrought	2,170	2,530	1,270	7,920	1,960	1,910	3,870
Castings	7	6	8	25	17	22	39
Other	226	170	159	710	128	159	287
Total	14,900	16,600	15,100	60,800	13,900	14,300	28,100
Stocks, end of period:							
Sponge, industry	15,500	14,700	13,200	13,200	10,200	10,100	10,100
Scrap	13,500	15,500	15,200	15,200	16,000	13,300	13,300
Ingot	5,620	6,050	5,120	5,120	6,770	5,780	5,780
Consumption:							
Sponge	9,170	8,920	10,100	37,400	8,850	8,560	17,400
Scrap	15,600	16,100	16,900	62,400	13,900	11,000	24,900
Ingot	19,100	17,500	16,600	67,800	16,400	17,400	33,800
Shipments:							
Ingot and slab (producer net shipments)	4,800	5,920	6,110	21,500	4,750	6,300	11,100
Mill products (net shipments):							
Forging and extrusion billet	6,370	6,730	6,200	26,000	6,560	6,530	13,100
Other	3,250	2,290	2,360	11,000	2,900	3,130	6,030
Total	9,610	9,010	8,570	37,000	9,460	9,660	19,100
Castings	W	W	W	W	W	W	W
Receipts, scrap:							
Home	5,430	5,600	5,720	22,100	6,010	5,280	11,300
Purchased	12,500	13,300	12,600	48,600	12,100	13,500	25,600
Total	17,900	18,900	18,300	70,700	18,100	18,700	36,900

[†]Revised. 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	2017				2018		
		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	2,040	1,910	2,350	9,450	2,020	2,490	4,510
Unwrought:								
Sponge	8108.20.0010	1,260	174	548	3,090	388	70	458
Ingot	8108.20.0030	2,110	2,230	2,460	9,010	2,190	3,140	5,330
Other unwrought	8108.20.0090	761	602	780	2,730	625	756	1,380
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	1,380	1,490	1,280	5,540	1,190	1,480	2,670
Bloom, sheet bar, slab	8108.90.6020	797	923	831	3,480	797	1,000	1,800
Other	8108.90.8000	2,850	2,510	2,410	10,900	2,830	2,640	5,470
Ferrotitanium and ferrosilicon titanium	7202.91.0000	630	813	578	2,420	539	603	1,140
Ores and concentrates	2614.00.0000	2,740	1,930	1,420	8,940	44,800	1,760	46,500
Pigment:								
80% or more titanium dioxide	3206.11.0000	144,000	147,000	161,000	608,000	130,000	138,000	268,000
Other titanium dioxide	3206.19.0000	5,460	5,810	5,440	22,000	5,350	4,100	9,450
Unfinished titanium dioxide ³	2823.00.0000	1,210	1,060	748	4,130	978	1,220	2,190

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	2017				2018		
		2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	1st quarter– 2d quarter
Waste and scrap:								
	8108.30.0000							
Brazil		--	49	28	130	12	27	39
Canada		415	346	419	1,510	329	420	749
China		138	128	62	459	86	85	171
Czechia		17	91	70	231	146	76	222
France		715	629	912	2,940	796	791	1,590
Germany		1,160	1,200	859	4,020	731	939	1,670
India		17	27	18	71	28	45	73
Israel		54	66	72	274	106	98	204
Italy		500	525	584	1,860	358	647	1,010
Japan		1,180	978	730	3,550	991	771	1,760
Korea, Republic of		323	308	346	1,160	173	313	486
Mexico		159	286	229	812	238	196	434
Singapore		132	194	197	654	142	214	356
Spain		148	130	147	666	177	71	248
Sweden		63	--	--	63	68	--	68
Taiwan		41	59	58	222	45	23	68
United Kingdom		1,630	1,200	1,380	5,730	1,270	1,580	2,850
Other		265	250	231	892	252	173	425
Total		6,960	6,470	6,340	25,200	5,950	6,470	12,400
Unwrought:								
Sponge:								
	8108.20.0010							
Japan		3,840	5,400	5,450	19,400	4,610	4,410	9,020
Kazakhstan ^c		330	660	615	2,510	405	375	780
Russia		41	14	27	136	--	--	--
Ukraine		440	428	595	1,970	52	--	52
Other		16	(3)	109	126	4	(3)	4
Total		4,670	6,500	6,800	24,100	5,070	4,790	9,860
Ingot:								
	8108.20.0030							
Russia		484	612	225	1,490	314	682	996
Other		17	29	(3)	62	7	--	7
Total		501	641	225	1,550	321	682	1,000
Powder								
	8108.20.0015							
Other	8108.20.0095	52	32	37	157	65	40	105
	8108.20.0095	356	252	233	1,120	349	196	545
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	576	495	426	2,010	507	515	1,020
Bloom, sheet bar, slab	8108.90.6020	266	332	211	1,100	311	70	381
Plate, sheet, strip, foil	8108.90.6045	1,030	1,340	482	3,780	902	1,010	1,910
Tube and pipe	8108.90.6060	79	108	61	343	127	207	334
Other	8108.90.6075	221	249	87	690	113	110	223
Total		2,170	2,530	1,270	7,920	1,960	1,910	3,870
Other articles of titanium:								
Castings	8108.90.3030	7	6	8	25	17	22	39
Other	8108.90.3060	226	170	159	710	128	159	287
Ferrotitanium and ferrosilicon titanium	7202.91.0000	528	710	761	2,550	846	834	1,680

^cEstimated. -- 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	2017				2018		
		2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	1st quarter– 2d quarter
Ilmenite:	2614.00.6020							
Australia		53,800	95,800	30,000	229,000	53,600	62,800	116,000
Madagascar		50,000	64,000	11,000	198,000	53,000	39,000	92,000
Mozambique		65,000	43,200	57,000	191,000	34,700	49,000	83,700
Senegal		--	35,100	--	65,100	--	40,500	40,500
Ukraine		24,200	16,500	25,200	65,900	20,100	14,900	35,100
Other		--	--	--	11,900 ^r	2	5,200	5,200
Total		193,000	255,000	123,000	760,000^r	161,000	211,000	373,000
Titanium slag:	2620.99.5000							
Australia		--	--	--	1,500	--	--	--
Canada		28,900	22,500	32,200	106,000	27,700	36,900	64,600
Norway		--	13,200	19,500	32,700	--	10,000	10,000
South Africa		96,600	58,000	99,100	339,000	88,800	99,700	189,000
Total		126,000	93,600	151,000	479,000	117,000	147,000	263,000
Rutile:	2614.00.6040							
Australia		45,300	5,200	20,100	84,200	23,200	10,400	33,500
Kenya		--	9,040	4,500	30,500	--	--	--
Sierra Leone		60	10,100	40	10,200	40	--	40
South Africa		31,700	49,500	34,700	140,000	51,900	20,700	72,600
Ukraine		57	40	10,200	20,200	98	152	250
Other		21	3,500	6	3,530	40	20	60
Total		77,100	77,300	69,500	289,000	75,200	31,300	107,000
Synthetic rutile:	2614.00.3000							
Australia		9,560	12,000	--	33,600	9,010	--	9,010
Kenya		10,000	--	--	10,000	--	--	--
Other		737	498	120	1,500	--	--	--
Total		20,300	12,500	120	45,100	9,010	--	9,010
Titaniferous iron ore, Canada³		34	11,800	103	11,900	--	10,100	10,100

^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.

³Includes materials consumed for purposes other than the production of titanium commodities, principally heavy aggregate and steel-furnace flux.

Titaniumiferous 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	2017				2018		
		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		35	143	106	557	85	241	326
Belgium		2,110	2,190	2,150	8,930	1,840	2,920	4,760
Canada		23,700 ^r	20,100	21,200	85,600 ^r	20,200	21,500	41,600
China		10,100 ^r	8,190	7,990	36,600 ^r	9,380	14,600	23,900
Czechia		550	657	1,400	3,440	1,260	1,740	3,000
Finland		206	86	146	1,840	119	243	362
Germany		4,330	4,300	4,650	17,400	3,690	5,200	8,890
India		373	242	389	1,310	576	384	960
Italy		873	665	525	2,540	332	390	722
Japan		2,010	1,510	1,600	6,600	1,400	1,590	2,990
Mexico		2,420	2,410	2,450	11,400	3,930	2,130	6,060
Norway		817	391	391	1,890	384	920	1,300
Spain		2,010	1,720	826	5,880	1,580	2,760	4,340
Ukraine		1,340	566	696	3,230	496	836	1,330
Other		821	816	873	3,900	883	2,020	2,900
Total		51,600 ^r	44,000	45,400	191,000 ^r	46,100	57,400	104,000
Other titanium dioxide:	3206.19.0000							
Canada		2,760	3,060	2,540	10,800	2,740	3,070	5,810
China		494	391	297	1,380	508	969	1,480
Columbia		68	85	147	317	17	136	153
France		24	30	138	216	189	389	578
Germany		71	72	79	291	126	92	218
India		68	57	22	258	58	53	111
Italy		225	139	143	807	155	132	287
Japan		46	29	20	151	49	52	101
Other		99	64	53	418	171	101	272
Total		3,860	3,920	3,440	14,700	4,010	5,000	9,010
Unfinished titanium dioxide: ³	2823.00.0000							
Canada		60	122	177	435	42	217	259
China		3,790	3,690	3,830	14,400	5,500	6,560	12,100
Czechia		960	669	168	2,570	36	109	145
Finland		392	259	56	1,530	36	151	187
France		886	347	828	3,870	726	292	1,020
Germany		1,920	1,660	1,640	6,460	878	1,020	1,900
India		1,080	276	562	2,210	733	1,340	2,080
Israel		100	102	20	442	(4)	1	1
Japan		90	26	135	322	186	215	401
Korea, Republic of		121	70	40	360	109	151	260
Other		230	118	189	878	78	211	289
Total		9,630	7,340	7,650	33,400	8,330	10,300	18,600
Grand total		65,100	55,200	56,400	239,000	58,500	72,600	131,000

^rRevised.

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.

⁴Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6
PRICES FOR TITANIUM MATERIALS

(End of period)

		2017				2018	
		1st quarter	2d quarter	3d quarter	4th quarter	1st quarter	2d quarter
Concentrate:							
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	100-110	160-180	160-185	160-185	NA	NA
Ilmenite, CIF, China ¹	do.	NA	NA	NA	NA	185-200	190-200
Ilmenite, import ²	do.	151	191	177	164	170	249
Titanium slag, import ²	do.	672 ^r	686 ^r	692 ^r	644 ^r	789 ^r	729
Rutile, natural:¹							
Bagged, f.o.b. Australian ports	do.	750-800	770-890	770-850	770-850	950-1,200	1000-1,250
Bulk, f.o.b. Australian ports	do.	700-750	710-770	710-770	710-770	800-900	800-900
Metal:							
Sponge metal, Japan, import ²	dollars per kilogram	10.50	10.50	10.80 ^r	11.30	10.90	10.70
Titanium mill products	producer price index ³	164	167	167	170	174	174
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	0.40-0.55	0.50-0.60	0.55-0.65	0.55-0.65	0.65-0.70	0.70-0.75
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	1.70-1.80	1.80-1.95	2.10-2.20	2.10-2.20	2.20-2.50	2.30-2.70
Pigment:							
Titanium dioxide pigment, import ²	dollars per metric ton	2,391 ^r	2,526 ^r	2,635 ^r	2,703 ^r	2,509 ^r	2,667
Titanium dioxide pigment	producer price index ³	167	203	198	205	216	214

^rRevised. do. Ditto. NA Not available.

¹Source: Industrial Minerals (London).

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: Platts Metals Week.