

Mineral Industry Surveys

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TITANIUM IN THE FOURTH QUARTER 2018

Titanium mill product shipments in the fourth quarter of 2018 were 9,310 metric tons (t), a decrease of 3% from shipments in the previous quarter, and an increase of 9% from fourth quarter 2017 shipments. Ingot production in the fourth quarter of 2018 decreased by 6% from that of the previous quarter and decreased by 4% from that of the fourth quarter 2017. Ingot/slab shipments in the fourth quarter of 2018 increased by 25% from those of the preceding quarter, and by 11% from shipments in the fourth quarter of 2017.

Receipts of titanium scrap in the fourth quarter of 2018 totaled 18,500 t, a decrease of 7% compared with receipts from the previous quarter and a slight increase from receipts in the fourth quarter of 2017 (table 1).

Titanium mill product shipments in 2018 totaled 38,000 t, an increase of 3% from those of 2016. Ingot production increased by 3%, and ingot shipments increased by 8% during the same period. Receipts of titanium scrap totaled 75,200 t in 2018, an increase of 6% from those of 2017 (table 1).

During 2018, 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 were 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				
	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
Production:							
Sponge	W	W	W	W	W	W	W
Ingot	21,600	82,100	20,100	22,300	21,900	20,700	85,000
Mill products	8,570	38,000	9,460	9,660	9,580	9,310	38,000
Exports:							
Waste and scrap	2,350	9,450	2,020	2,490	3,210	4,150	11,900
Sponge	548	3,090	388	70	30	46	534
Ingot	2,460	9,010	2,190	3,140	2,950	2,310	10,600
Other unwrought	780	2,730	625	756	755	632	2,770
Bar, rod, profiles, wire	1,280	5,540	1,190	1,480	1,380	1,850	5,890
Bloom, sheet bar, slab	831	3,480	797	1,000	442	357	2,600
Other wrought	2,410	10,900	2,830	2,640	2,790	3,040	11,300
Total	10,700	44,200	10,000	11,600	11,600	12,400	45,500
Imports:							
Waste and scrap	6,340	25,200	5,950	6,470	7,200	7,360	27,000
Sponge ²	6,800	24,100	5,070	4,790	7,110	6,420	23,400
Ingot	225	1,550	321	682	629	319	1,950
Powder	37	157	65	40	46	42	193
Other unwrought	233	1,120	349	196	332	315	1,190
Wrought	1,270	7,910	1,960	1,910	2,030	1,850	7,740
Castings	8	25	17	22	20	25	84
Other	159	710	128	159	195	204	686
Total	15,100	60,800 ^r	13,900	14,300	17,600	16,500	62,200
Stocks, end of period:							
Sponge, industry	13,200	13,200	10,200	10,100	10,700 ^r	10,700	10,700
Scrap	15,200	15,200	16,000	13,300	15,900	15,900	15,900
Ingot	5,120	5,120	6,770	5,780	6,040	8,530	8,530
Consumption:							
Sponge	10,100	37,400	8,850	8,560	8,920	8,860	35,200
Scrap	16,900	62,400	13,900	11,000	16,300	10,900	52,100
Ingot	16,600	67,800	16,400	17,400	17,500	16,200	67,600
Shipments:							
Ingot and slab (producer net shipments)	6,110	21,500	4,750	6,300	5,470	6,810	23,300
Mill products (net shipments):							
Forging and extrusion billet	6,200	26,000	6,560	6,530	6,730	6,010	25,800
Other	2,360	11,000	2,900	3,130	2,850	3,310	12,200
Total	8,570	37,000	9,460	9,660	9,580	9,310	38,000
Castings	W	W	W	W	W	W	W
Receipts, scrap:							
Home	5,720	22,100	6,010	5,280	6,060	5,900	23,200
Purchased	12,600	48,600	12,100	13,500	13,800	12,600	52,000
Total	18,300	70,700	18,100	18,700	19,800	18,500	75,200

^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	2017		2018				1st quarter– 4th quarter
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	
Metal:								
Waste and scrap	8108.30.0000	2,350	9,450	2,020	2,490	3,210	4,150	11,900
Unwrought:								
Sponge	8108.20.0010	548	3,090	388	70	30	46	534
Ingot	8108.20.0030	2,460	9,010	2,190	3,140	2,950	2,310	10,600
Other unwrought	8108.20.0090	780	2,730	625	756	755	632	2,770
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	1,280	5,540	1,190	1,480	1,380	1,830	5,870
Bloom, sheet bar, slab	8108.90.6020	831	3,480	797	1,000	442	357	2,600
Other	8108.90.8000	2,410	10,900	2,830	2,640	2,790	3,040	11,300
Ferrotitanium and ferrosilicon titanium	7202.91.0000	578	2,420	539	603	1,000	975	3,120
Ores and concentrates	2614.00.0000	1,420	8,940	44,800	1,760	2,760	2,120	51,400
Pigment:								
80% or more titanium dioxide	3206.11.0000	161,000	608,000	130,000	138,000	126,000	114,000	508,000
Other titanium dioxide	3206.19.0000	5,440	22,000	5,350	4,100	3,200	3,160	15,800
Unfinished titanium dioxide ³	2823.00.0000	748	4,130	978	1,220	1,180	1,290	4,670

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				
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
Waste and scrap:								
	8108.30.0000							
Brazil		28	130	12	27	--	9	48
Canada		419	1,510	329	420	388	381	1,520
China		62	459	86	85	195	269	635
Czechia		70	231	146	76	83	67	372
France		912	2,940	796	791	1,180	961	3,720
Germany		859	4,020	731	939	1,020	766	3,460
India		18	71	28	45	43	15	131
Israel		72	274	106	98	89	99	392
Italy		584	1,860	358	647	555	568	2,130
Japan		730	3,550	991	771	887	1,130	3,780
Korea, Republic of		346	1,160	173	313	461	339	1,290
Mexico		229	812	238	196	386	373	1,190
Singapore		197	654	142	214	138	92	586
Spain		147	666	177	71	141	81	470
Sweden		--	63	68	--	--	91	159
Taiwan		58	222	45	23	28	16	112
United Kingdom		1,380	5,730	1,270	1,580	1,420	1,900	6,180
Other		231	892	252	173	183	202	810
Total		6,340	25,200	5,950	6,470	7,200	7,360	27,000
Unwrought:								
Sponge:								
	8108.20.0010							
Japan		5,450	19,400	4,610	4,410	6,870	6,180	22,100
Kazakhstan ^e		615	2,510	405	375	225	225	1,230
Russia		27	136	--	--	--	13	13
Ukraine		595	1,970	52	--	--	--	52
Other		109	126	4	(3)	17	1	22
Total		6,800	24,100	5,070	4,790	7,110	6,420	23,400
Ingot:								
	8108.20.0030							
Russia		225	1,490	314	682	629	314	1,940
Other		(3)	62	7	--	(3)	4	11
Total		225	1,550	321	682	629	319	1,950
Powder	8108.20.0015	37	157	65	40	46	42	193
Other	8108.20.0095	233	1,120	349	196	332	315	1,190
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	426	2,010	507	515	618	507	2,150
Bloom, sheet bar, slab	8108.90.6020	211	1,100	311	70	80	5	466
Plate, sheet, strip, foil	8108.90.6045	482	3,780	902	1,010	950	919	3,780
Tube and pipe	8108.90.6060	61	343	127	207	205	147	686
Other	8108.90.6075	87	683 ^r	113	110	172	270	665
Total		1,270	7,910	1,960	1,910	2,030	1,850	7,740
Other articles of titanium:								
Castings	8108.90.3030	8	25	17	22	20	25	84
Other	8108.90.3060	159	710	128	159	195	204	686
Ferrotitanium and ferrosilicon titanium	7202.91.0000	761	2,550	846	834	552	477	2,710

^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	2017		2018				
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
Ilmenite:	2614.00.6020							
Australia		30,000	229,000	53,600	62,800	77,300	62,100	256,000
Madagascar		11,000	198,000	53,000	39,000	74,000	3,020	169,000
Mozambique		57,000	191,000	34,700	49,000	25,000	32,200	141,000
Senegal		--	65,100	--	40,500	--	25,700	66,200
Ukraine		25,200	65,900	20,100	14,900	--	33,500	68,600
Other		--	11,900	2	15,300	--	16	15,300
Total		123,000	760,000	161,000	222,000	176,000	157,000	716,000
Titanium slag:	2620.99.5000							
Australia		--	1,500	--	--	--	--	--
Canada		32,200	106,000	27,700	36,900	29,200	42,600	136,000
Norway		19,500	32,700	--	10,000	10,500	--	20,500
South Africa		99,100	339,000	88,800	99,700	74,900	79,900	343,000
Total		151,000	479,000	117,000	147,000	115,000	123,000	500,000
Rutile:	2614.00.6040							
Australia		20,100	84,200	32,200 ^r	10,400	17,100 ^r	6,180	65,800
Kenya		4,500	30,500	--	--	--	--	--
Sierra Leone		40	10,200	40	--	--	10,000	10,000
South Africa		34,700	140,000	51,900	20,700	44,600 ^r	46,200	163,000
Ukraine		10,200	20,200	98	152	156	20	426
Other		6	3,530	40	20	5,030	16	5,100
Total		69,500	289,000	84,200^r	31,300	66,900^r	62,400	245,000
Synthetic rutile:	2614.00.3000							
Australia		--	33,600	9,010	--	--	6,000	15,000
Kenya		--	10,000	--	--	--	--	--
Other		120	1,500	--	--	53	20	73
Total		120	45,100	9,010	--	53	6,020	15,100
Titaniferous iron ore, Canada³		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				
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
80% or more titanium dioxide:	3206.11.0000							
Australia		106	557	85	241	259	655	1,240
Belgium		2,150	8,930	1,840	2,920	4,340	3,880	13,000
Canada		21,200	85,600	20,200 ^r	21,500	22,800 ^r	21,200	85,600
China		7,990	36,600	9,430 ^r	14,600	14,200	10,300	48,500
Czechia		1,400	3,440	1,260	1,740	1,290	1,340	5,630
Finland		146	1,840	119	243	234	256	852
Germany		4,650	17,400	3,690 ^r	5,200	4,180 ^r	8,410	21,500
India		389	1,310	576	384	182	172	1,310
Italy		525	2,540	332	390	339	409	1,470
Japan		1,600	6,600	1,400	1,590	1,560	1,090	5,640
Mexico		2,450	11,400	3,930	2,130	1,300	1,710	9,060
Norway		391	1,890	384	920	1,040	913	3,250
Spain		826	5,880	1,580	2,760	1,380	1,960	7,670
Ukraine		696	3,230	496	836	1,100	973	3,410
Other		873	3,900	883	2,020 ^r	2,010	2,310	7,230
Total		45,400	191,000	46,200 ^r	57,400 ^r	56,200 ^r	55,500	215,000
Other titanium dioxide:	3206.19.0000							
Canada		2,540	10,800	2,740	3,070	2,450	2,640	10,900
China		297	1,380	666 ^r	1,100 ^r	1,060	776	3,600
Columbia		147	317	17	136	80	102	335
France		138	216	189	389	188	6	772
Germany		79	291	126	92	47	56	321
India		22	258	58	53	82	82	275
Italy		143	807	155	132	418	89	794
Japan		20	151	49	52	70	72	243
Other		53	418	171	101	133	177	582
Total		3,440	14,700	4,170 ^r	5,130 ^r	4,530	4,000	17,800
Unfinished titanium dioxide: ³	2823.00.0000							
Canada		177	435	42	217	18	--	277
China		3,830	14,400	5,500	6,560	5,320 ^r	4,470	21,900
Czechia		168	2,570	36	109	72	56	273
Finland		56	1,530	36	151	73	55	315
France		828	3,870	726	292	224	809	2,050
Germany		1,640	6,460	878	1,020	1,690	1,150	4,730
India		562	2,210	733	1,340	604	516	3,200
Israel		20	442	(4)	1	2	--	3
Japan		135	322	186	215	161	113	675
Korea, Republic of		40	360	109	151	12	60	332
Other		189	787	78	211	1,140	252	1,680
Total		7,650	33,300	8,330	10,300	9,320 ^r	7,480	35,400
Grand total		56,400	239,000	58,700 ^r	72,800 ^r	70,100 ^r	67,000	269,000

^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.

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
Concentrate:						
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	160-185	NA	NA	NA	NA
Ilmenite, CIF, China ¹	do.	NA	185-200	190-200	160-180	164-180
Titanium slag, import ²	do.	601-728	622-742 ^r	638-749 ^r	642-790 ^r	770-790
Rutile, natural:¹						
Bagged, f.o.b. Australian ports	do.	770-850	950-1,200	1,000-1,250	1,050-1,300	1,045-1,350
Bulk, f.o.b. Australian ports	do.	710-770	800-900	800-900	1,000-1,050	1,000-1,050
Metal:						
Sponge metal, Japan, import ²	dollars per kilogram	11.30	10.90	10.70	10.50	10.55
Titanium mill products	producer price index ³	170	174	173	178	171
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	0.55-0.65	0.65-0.70	0.70-0.75	0.80-0.90	0.80-0.90
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	2.10-2.20	2.20-2.50	2.30-2.70	2.90-3.10	2.90-3.10
Pigment:						
Titanium dioxide pigment, import ²	dollars per metric ton	2,782	2,585	2,758	2,752	2,847
Titanium dioxide pigment	producer price index ³	205	216	214	214	205

^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.