



Mineral Industry Surveys

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TITANIUM IN THE FOURTH QUARTER 2017

Titanium mill product shipments in the fourth quarter of 2017 were 8,570 metric tons (t), a decrease of 5% from shipments in the previous quarter, and a decrease of 7% from fourth quarter 2016 shipments. Ingot production in the fourth quarter of 2017 decreased slightly from that of the previous quarter and increased 52% from that of the fourth quarter 2016. Ingot/slab shipments in the fourth quarter of 2017 increased by 3% from those of the preceding quarter, and by 9% from shipments in the fourth quarter of 2016. Receipts of titanium scrap in the fourth quarter of 2017 totaled 18,300 t, a decrease of 3% compared with receipts from the previous quarter and a 19% increase from shipments in the fourth quarter of 2016 (table 1).

Titanium mill product shipments in 2017 totaled 37,000 t, slightly less than the 2016 shipment total. Ingot production increased by 24%, and ingot shipments were almost unchanged over the same period. Receipts of titanium scrap totaled 70,700 t in 2017, an increase of 12% from those of 2016 (table 1).

During 2017, 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)

	2016		2017				
	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	14,200	66,200	16,300	22,300	21,900	21,600	82,100
Mill products	9,890	38,200	9,820	10,000	9,560	8,570	38,000
Exports:							
Waste and scrap	2,390	9,720	3,150	2,060	1,910	2,350	9,480
Sponge	257	698	1,110	1,260	174	548	3,090
Ingot	2,360	7,720	2,200	2,110	2,230	2,460	9,000
Other unwrought	449	1,740	584	742	602	780	2,710
Bar, rod, profiles, wire	1,410	5,730	1,390	1,380	1,510	1,280	5,560
Bloom, sheet bar, slab	836	3,090	930	797	926	828	3,480
Other wrought	2,730	10,100	3,130	2,860	2,520	2,380	10,900
Total	10,400	38,800	12,500	11,200	9,880	10,600	44,200
Imports:							
Waste and scrap	5,330	18,500	5,470	7,120	6,480	6,410	25,500
Sponge ²	4,410	16,200	6,130	4,670	6,520	7,020	24,300
Ingot	196	690	184	501	641 ^r	225	1,550
Powder	30	161	36	52	32	37	157
Other unwrought	204	1,230	282	272	252	233	1,040
Wrought	1,150	6,380	1,960	2,180	2,520	1,320	7,970
Castings	2	31	3	7	6	8	25
Other	221	777	176	245	177	161	758
Total	11,500	44,000	14,200	15,000	16,600 ^r	15,400	61,300
Stocks, end of period:							
Sponge, industry	25,100	25,100	22,000	15,500	14,700	13,200	13,200
Scrap	16,500	16,500	16,900	13,500	15,500	15,200	15,200
Ingot	9,480	9,480	7,100	5,620	6,050	5,120	5,120
Consumption:							
Sponge	9,060	34,100	9,310	9,170	8,920	10,100	37,400
Scrap	14,100	55,000	13,800	15,600	16,100	16,900	62,400
Ingot	13,400	56,200	14,600	19,100	17,500	16,600	67,800
Shipments:							
Ingot and slab (producer net shipments)	5,610	21,600	4,690	4,800	5,920	6,110	21,500
Mill products (net shipments):							
Forging and extrusion billet	6,090	25,200	6,680	6,370	6,730	6,200	26,000
Other	3,160	12,800	3,140	3,250	2,290	2,360	11,000
Total	9,250	38,000	9,820	9,610	9,010	8,570	37,000
Castings	W	W	W	W	W	W	W
Receipts, scrap:							
Home	5,710	21,800	5,380	5,430	5,600	5,720	22,100
Purchased	9,660	41,100	10,200	12,500	13,300	12,600	48,600
Total	15,400	62,900	15,600	17,900	18,900	18,300	70,700

^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	2016		2017				
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
Metal:								
Waste and scrap	8108.30.0000	2,390	9,720	3,150	2,060	1,910	2,350	9,480
Unwrought:								
Sponge	8108.20.0010	257	698	1,110	1,260	174	548	3,090
Ingot	8108.20.0030	2,360	7,720	2,200	2,110	2,230	2,460	9,000
Other unwrought	8108.20.0090, 8108.20.0095	449	1,740	584	742	602	780	2,710
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	1,410	5,730	1,390	1,380	1,510	1,280	5,560
Bloom, sheet bar, slab	8108.90.6020	836	3,090	930	797	926	828	3,480
Other	8108.90.8000	2,730	10,100	3,130	2,860	2,520	2,380	10,900
Ferrotitanium and ferrosilicon titanium	7202.91.0000	777	2,020	398	630	813	578	2,420
Ores and concentrates	2614.00.0000	2,110	7,330	2,850	2,740	1,930	1,420	8,940
Pigment:								
80% or more titanium dioxide	3206.11.0000	150,000	633,000	156,000	144,000	148,000	161,000	608,000
Other titanium dioxide	3206.19.0000	4,100	14,400	5,330	5,450	5,790	5,420	22,000
Unfinished titanium dioxide ³	2823.00.0000	1,190	3,050	1,110	1,250	1,060	748	4,160

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	2016		2017				
		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		20	68	53	--	49	28	130
Canada		380	1,260	332	415	346	419	1,510
China		97	300	131	138	128	62	459
Czechia		(3)	75	53	17	91	70	231
France		738	2,250	681	715	629	912	2,940
Germany		718	2,690	800	1,160	1,200	859	4,020
India		16	46	9	17	27	18	71
Israel		67	352	82	56	66	72	276
Italy		473	1,110	254	500	525	584	1,860
Japan		600	2,430	657	1,180	978	730	3,550
Korea, Republic of		353	1,290	178	323	308	346	1,160
Mexico		186	634	138	159	286	229	812
Singapore		95	366	131	132	194	197	654
Spain		141	349	241	148	130	147	666
Sweden		--	117	--	63	--	--	63
Taiwan		11	132	64	41	59	58	222
United Kingdom		1,270	4,480	1,520	1,630	1,220	1,380	5,750
Other		163	542	146	420	250	301	1,120
Total		5,330	18,500	5,470	7,120	6,480	6,410	25,500
Unwrought:								
Sponge:								
	8108.20.0010							
China		--	49	--	16	(3)	215	231
Japan		4,370	15,800	4,670	3,840	5,420	5,240	19,200
Kazakhstan ^c		--	50	900	330	660	615	2,510
Russia		37	202	54	41	14	27	136
Ukraine		--	44	502	440	428	525	1,900
Other		(3)	5	--	--	(3)	109	109
Total		4,410	16,200	6,130	4,670	6,520	6,730	24,000
Ingot:								
	8108.20.0030							
Japan		4	41	--	--	--	(3)	(3)
Russia		164	620	168	484	612	225	1,490
Other		28	28	16	17	29	(3)	62
Total		196	689	184	501	641	225	1,550
Powder	8108.20.0015	30	161	36	52	32	37	157
Other	8108.20.0095	204	1,230	282	272	252	233	1,040
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	284	1,600	508	570	489	425	1,990
Bloom, sheet bar, slab	8108.90.6020	20	203	284	266	332	266	1,150
Plate, sheet, strip, foil	8108.90.6045	558	3,390	899	1,020	1,340	482	3,740
Tube and pipe	8108.90.6060	43	389	94	79	108	61	341
Other	8108.90.6075	240	800	170	245	249	88	752
Total		1,150	6,380	1,960	2,180	2,520	1,320	7,970
Other articles of titanium:								
Castings	8108.90.3030	3	31	3	7	6	8	25
Other	8108.90.3060	220	776	176	245	177	161	758
Ferrotitanium and ferrosilicon titanium	7202.91.0000	763	3,140	553	744	710	761	2,770

^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	2016		2017				
		4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
Ilmenite:	2614.00.6020							
Australia		46,100	207,000	49,600	53,800	95,800	30,000	229,000
Madagascar		11,600	92,100	72,600	50,000	64,000	11,000	198,000
Mozambique		72,000	186,000	25,300	65,000	43,200	57,000	191,000
Senegal		27,300	72,000	30,000	--	35,100	--	65,100
Ukraine		--	35,400	--	24,200 ^r	28,300 ^r	25,200	77,700
Total		157,000	592,000	178,000	193,000 ^r	266,000 ^r	123,000	760,000
Titanium slag:	2620.99.5000							
Australia		--	--	1,500	--	--	--	1,500
Canada		62,600	122,000	22,500	28,900	22,500	32,200	106,000
Norway		--	11,000	--	--	13,200	19,500	32,700
South Africa		72,100	269,000	85,000	96,600	58,000	99,100	339,000
Total		135,000	402,000	109,000 ^r	126,000	93,600	151,000	479,000
Rutile:	2614.00.6040							
Australia		14,200	62,700	13,600	45,300	5,200	20,100	84,200
Kenya		12,900	22,900	17,000	--	9,040	4,500	30,500
Sierra Leone		14,000	27,700	19	60	10,100	40	10,200
South Africa		33,700	135,000	24,500	31,700	49,500	34,700	140,000
Other		45	18,800	9,890	277	3,540	10,200	23,900
Total		74,900	267,000	65,000	77,300	77,300	69,500	289,000
Synthetic rutile:	2614.00.3000							
Australia		5,890	68,900	12,000	9,560	12,000	--	33,600
Other		1,150	13,700	145	10,700	617	120	11,600
Total		7,040	82,700	12,100	20,300	12,600	120	45,200
Titaniferous iron ore, Canada ³		--	15,200	--	34	11,800	103	11,900

^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	2016		2017				
		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		371	1,180	273	35	143	106	557
Belgium		2,060	5,100	2,480	2,110	2,190	2,150	8,930
Canada		17,300	66,900	20,700	23,600	20,100	21,200	85,500
China		9,410	42,700	10,300	9,900	8,190	7,990	36,400
Finland		2,080	8,290	1,400	206	86	146	1,840
Germany		5,130	15,000	4,110	4,330	4,300	4,650	17,400
Japan		1,510	6,500	1,470	2,010	1,510	1,600	6,590
Mexico		5,870	14,400	4,100	2,420	2,410	2,450	11,400
Norway		1,080	3,390	295	817	391	391	1,890
Spain		1,890	7,470	1,320	2,010	1,720	826	5,880
Ukraine		487	3,150	624	1,340	566	696	3,230
Other		2,690	11,000	3,010	2,620	2,380	3,190	11,200
Total		49,900	185,000	50,100	51,400	44,000	45,400	191,000
Other titanium dioxide:	3206.19.0000							
Canada		2,090	9,220	2,460	2,780	3,060	2,540	10,800
China		636	1,830	199	494	391	297	1,380
Germany		36	190	69	71	72	79	291
India		90	318	111	68	57	22	258
Italy		131	460	300	225	139	143	807
Japan		69	280	70	46	29	20	165
Other		160	516	243	191	179	338	951
Total		3,210	12,800	3,450	3,880	3,920	3,440	14,700
Unfinished titanium dioxide: ³	2823.00.0000							
China		5,360	24,400	3,040	3,790	3,690	3,830	14,400
Czechia		733	2,870	768	960	669	168	2,570
Finland		125	2,860	820	392	259	56	1,530
France		1,720	6,060	1,810	886	347	828	3,870
Germany		346	5,300	1,240	1,920	1,660	1,640	6,460
India		178	2,090	295	1,080	276	562	2,210
Italy		62	2,220	--	--	--	--	--
Japan		75	369	71	90	26	135	322
Korea, Republic of		212	868	129	121	70	40	360
Other		440	1,690	638	389	342	386	1,760
Total		9,260	48,800	8,800	9,630	7,340	7,650	33,400
Grand total		62,400	247,000	62,300	64,900	55,200	56,400	239,000

-- 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)

		2016	2017			
			1st quarter	2d quarter	3d quarter	4th quarter
Concentrate:						
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	100–110	100–110	160–180	160–185	160–185
Titanium slag, import ²	do.	674–676	619–700	622–686	626–693	590–689
Rutile, natural:¹						
Bagged, f.o.b. Australian ports	do.	770–850	750–800	770–890	770–850	770–850
Bulk, f.o.b. Australian ports	do.	710–770	700–750	710–770	710–770	710–770
Metal:						
Sponge metal, Japan, import ²	dollars per kilogram	11.10	10.50	10.50	10.90	11.30
Titanium mill products	producer price index ³	163	164	167	167 ^r	175
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	0.40–0.50	0.40–0.55	0.50–0.60	0.55–0.65	0.55–0.65
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	1.70–1.80	1.70–1.80	1.80–1.95	2.10–2.20	2.10–2.20
Pigment:						
Titanium dioxide pigment, import ²	dollars per metric ton	2,272 ^r	2,456 ^r	2,601 ^r	2,705 ^r	2,627
Titanium dioxide pigment	producer price index ³	175	167	203	198 ^r	203

¹Revised. do. Ditto.

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.