

Mineral Industry Surveys

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TITANIUM IN THE THIRD QUARTER 2018

Titanium mill product shipments in the third quarter of 2018 were 9,580 metric tons (t), a slight decrease from shipments in the previous quarter, and a 6% increase from those of the third quarter 2017. Ingot production in the third quarter of 2018 decreased slightly from that of the previous quarter and was essentially unchanged from that of the third quarter 2017. Ingot and slab shipments in the third quarter of 2018 decreased by 13% from those of the preceding quarter, and decreased by 8% from shipments in the third quarter of 2017. Receipts of titanium scrap in the third quarter of 2018 totaled 19,800 t, a 6% increase compared with receipts from the previous quarter and a 5% increase compared with shipments in the third quarter of 2017 (table 1).

During the third quarter, approximately 78% 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			
	3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	1st quarter– 3d quarter
Production:							
Sponge	W	W	W	W	W	W	W
Ingot	21,900	21,600	82,100	20,100	22,300	21,900	64,300
Mill products	9,560	8,570	38,000	9,460	9,660	9,580	28,700
Exports:							
Waste and scrap	1,910	2,350	9,450	2,020	2,490	3,210	7,720
Sponge	174	548	3,090	388	70	30	488
Ingot	2,230	2,460	9,010	2,190	3,140	2,950	8,280
Other unwrought	602	780	2,730	625	756	755	2,140
Bar, rod, profiles, wire	1,490	1,280	5,540	1,190	1,480	1,380	4,050
Bloom, sheet bar, slab	923	831	3,480	797	1,000	442	2,240
Other wrought	2,510	2,410	10,900	2,830	2,640	2,790	8,260
Total	9,840	10,700	44,200	10,000	11,600	11,600	33,200
Imports:							
Waste and scrap	6,470	6,340	25,200	5,950	6,470	7,200	19,600
Sponge ²	6,500	6,800	24,100	5,070	4,790	7,110	17,000
Ingot	641	225	1,550	321	682	629	1,630
Powder	32	37	157	65	40	46	151
Other unwrought	252	233	1,120	349	196	332	877
Wrought	2,530	1,270	7,920	1,960	1,910	2,030	5,900
Castings	6	8	25	17	22	20	59
Other	170	159	710	128	159	195	482
Total	16,600	15,100	60,800	13,900	14,300	17,600	45,700
Stocks, end of period:							
Sponge, industry	14,700	13,200	13,200	10,200	10,100	14,700	14,700
Scrap	15,500	15,200	15,200	16,000	13,300	15,900	15,900
Ingot	6,050	5,120	5,120	6,770	5,780	6,040	6,040
Consumption:							
Sponge	8,920	10,100	37,400	8,850	8,560	8,920	26,300
Scrap	16,100	16,900	62,400	13,900	11,000	16,300	41,200
Ingot	17,500	16,600	67,800	16,400	17,400	17,500	51,400
Shipments:							
Ingot and slab (producer net shipments)	5,920	6,110	21,500	4,750	6,300	5,470	16,500
Mill products (net shipments):							
Forging and extrusion billet	6,730	6,200	26,000	6,560	6,530	6,730	19,800
Other	2,290	2,360	11,000	2,900	3,130	2,850	8,880
Total	9,010	8,570	37,000	9,460	9,660	9,580	28,700
Castings							
	W	W	W	W	W	W	W
Receipts, scrap:							
Home	5,600	5,720	22,100	6,010	5,280	6,060	17,300
Purchased	13,300	12,600	48,600	12,100	13,500	13,800	39,400
Total	18,900	18,300	70,700	18,100	18,700	19,800	56,700

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			
		3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	1st quarter– 3d quarter
Metal:								
Waste and scrap	8108.30.0000	1,910	2,350	9,450	2,020	2,490	3,210	7,720
Unwrought:								
Sponge	8108.20.0010	174	548	3,090	388	70	30	488
Ingot	8108.20.0030	2,230	2,460	9,010	2,190	3,140	2,950	8,280
Other unwrought	8108.20.0090	602	780	2,730	625	756	755	2,140
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	1,490	1,280	5,540	1,190	1,480	1,380	4,050
Bloom, sheet bar, slab	8108.90.6020	923	831	3,480	797	1,000	442	2,240
Other	8108.90.8000	2,510	2,410	10,900	2,830	2,640	2,790	8,260
Ferrotitanium and ferrosilicon titanium	7202.91.0000	813	578	2,420	539	603	1,000	2,150
Ores and concentrates	2614.00.0000	1,930	1,420	8,940	44,800	1,760	2,760	49,300
Pigment:								
80% or more titanium dioxide	3206.11.0000	147,000	161,000	608,000	130,000	138,000	126,000	394,000
Other titanium dioxide	3206.19.0000	5,810	5,440	22,000	5,350	4,100	3,200	12,600
Unfinished titanium dioxide ³	2823.00.0000	1,060	748	4,130	978	1,220	1,180	3,380

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			
		3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	1st quarter– 3d quarter
Waste and scrap:								
	8108.30.0000							
Brazil		49	28	130	12	27	--	39
Canada		346	419	1,510	329	420	388	1,140
China		128	62	459	86	85	195	366
Czechia		91	70	231	146	76	83	305
France		629	912	2,940	796	791	1,180	2,760
Germany		1,200	859	4,020	731	939	1,020	2,690
India		27	18	71	28	45	43	116
Israel		66	72	274	106	98	89	293
Italy		525	584	1,860	358	647	555	1,560
Japan		978	730	3,550	991	771	887	2,650
Korea, Republic of		308	346	1,160	173	313	461	947
Mexico		286	229	812	238	196	386	820
Singapore		194	197	654	142	214	138	494
Spain		130	147	666	177	71	141	389
Sweden		--	--	63	68	--	--	68
Taiwan		59	58	222	45	23	28	96
United Kingdom		1,200	1,380	5,730	1,270	1,580	1,420	4,280
Other		250	231	892	252	173	183	608
Total		6,470	6,340	25,200	5,950	6,470	7,200	19,600
Unwrought:								
Sponge:								
	8108.20.0010							
Japan		5,400	5,450	19,400	4,610	4,410	6,870	15,900
Kazakhstan ^e		660	615	2,510	405	375	225	1,010
Russia		14	27	136	--	--	--	--
Ukraine		428	595	1,970	52	--	--	52
Other		(3)	109	126	4	(3)	17	21
Total		6,500	6,800	24,100	5,070	4,790	7,110	17,000
Ingot:								
	8108.20.0030							
Russia		612	225	1,490	314	682	629	1,630
Other		29	(3)	62	7	--	(3)	7
Total		641	225	1,550	321	682	629	1,630
Powder	8108.20.0015	32	37	157	65	40	46	152
Other	8108.20.0095	252	233	1,120	349	196	332	878
Wrought:								
Bar, rod, profiles, wire	8108.90.6031	495	426	2,010	507	515	618	1,640
Bloom, sheet bar, slab	8108.90.6020	332	211	1,100	311	70	80	461
Plate, sheet, strip, foil	8108.90.6045	1,340	482	3,780	902	1,010	950	2,860
Tube and pipe	8108.90.6060	108	61	343	127	207	205	540
Other	8108.90.6075	249	87	690	113	110	172	395
Total		2,530	1,270	7,920	1,960	1,910	2,030	5,900
Other articles of titanium:								
Castings	8108.90.3030	6	8	25	17	22	20	59
Other	8108.90.3060	170	159	710	128	159	195	482
Ferrotitanium and ferrosilicon titanium	7202.91.0000	710	761	2,550	846	834	552	2,230

^eEstimated. -- 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			
		3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	1st quarter– 3d quarter
Ilmenite:	2614.00.6020							
Australia		95,800	30,000	229,000	53,600	62,800	77,300	194,000
Madagascar		64,000	11,000	198,000	53,000	39,000	74,000	166,000
Mozambique		43,200	57,000	191,000	34,700	49,000	25,000	109,000
Senegal		35,100	--	65,100	--	40,500	--	40,500
Ukraine		16,500	25,200	65,900	20,100	14,900	--	35,100
Other		--	--	11,900	2	15,300 ^r	--	15,300
Total		255,000	123,000	760,000	161,000	222,000 ^r	176,000	559,000
Titanium slag:	2620.99.5000							
Australia		--	--	1,500	--	--	--	--
Canada		22,500	32,200	106,000	27,700	36,900	29,200	93,800
Norway		13,200	19,500	32,700	--	10,000	10,500	20,500
South Africa		58,000	99,100	339,000	88,800	99,700	74,900	263,000
Total		93,600	151,000	479,000	117,000	147,000	115,000	378,000
Rutile:	2614.00.6040							
Australia		5,200	20,100	84,200	23,200	10,400	8,120	41,700
Kenya		9,040	4,500	30,500	--	--	--	--
Sierra Leone		10,100	40	10,200	40	--	--	40
South Africa		49,500	34,700	140,000	51,900	20,700	34,300	107,000
Ukraine		40	10,200	20,200	98	152	156	406
Other		3,500	6	3,530	40	20	5,030	5,090
Total		77,300	69,500	289,000	75,200	31,300	47,600	154,000
Synthetic rutile:	2614.00.3000							
Australia		12,000	--	33,600	9,010	--	--	9,010
Kenya		--	--	10,000	--	--	--	--
Other		498	120	1,500	--	--	53	53
Total		12,500	120	45,100	9,010	--	53	9,060
Titaniferous iron ore, Canada ³		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			
		3d quarter	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	1st quarter– 3d quarter
80% or more titanium dioxide:	3206.11.0000							
Australia		143	106	557	85	241	259	585
Belgium		2,190	2,150	8,930	1,840	2,920	4,340	9,100
Canada		20,100	21,200	85,600	20,200	21,500	22,800	64,500
China		8,190	7,990	36,600	9,380	14,600	14,200	38,100
Czechia		657	1,400	3,440	1,260	1,740	1,290	4,290
Finland		86	146	1,840	119	243	234	596
Germany		4,300	4,650	17,400	3,690	5,200	4,190	13,100
India		242	389	1,310	576	384	182	1,140
Italy		665	525	2,540	332	390	339	1,060
Japan		1,510	1,600	6,600	1,400	1,590	1,560	4,550
Mexico		2,410	2,450	11,400	3,930	2,130	1,300	7,350
Norway		391	391	1,890	384	920	1,040	2,340
Spain		1,720	826	5,880	1,580	2,760	1,380	5,710
Ukraine		566	696	3,230	496	836	1,100	2,440
Other		816	873	3,900	883	2,020	2,010	4,910
Total		44,000	45,400	191,000	46,100	57,400	56,200	160,000
Other titanium dioxide:	3206.19.0000							
Canada		3,060	2,540	10,800	2,740	3,070	2,450	8,260
China		391	297	1,380	508	969	1,060	2,540
Columbia		85	147	317	17	136	80	233
France		30	138	216	189	389	188	766
Germany		72	79	291	126	92	47	265
India		57	22	258	58	53	82	194
Italy		139	143	807	155	132	418	705
Japan		29	20	151	49	52	70	171
Other		64	53	418	171	101	133	405
Total		3,920	3,440	14,700	4,010	5,000	4,530	13,500
Unfinished titanium dioxide: ³	2823.00.0000							
Canada		122	177	435	42	217	18	277
China		3,690	3,830	14,400	5,500	6,560	5,270	17,300
Czechia		669	168	2,570	36	109	72	217
Finland		259	56	1,530	36	151	73	260
France		347	828	3,870	726	292	224	1,240
Germany		1,660	1,640	6,460	878	1,020	1,690	3,590
India		276	562	2,210	733	1,340	604	2,680
Israel		102	20	442	(4)	1	2	3
Japan		26	135	322	186	215	161	562
Korea, Republic of		70	40	360	109	151	12	272
Other		118	189	787 ^r	78	211	1,140	1,430
Total		7,340	7,650	33,300 ^r	8,330	10,300	9,260	27,900
Grand total		55,200	56,400	239,000	58,500	72,600	70,000	201,000

^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	3d quarter
Concentrate:								
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	100-110	160-180	160-185	160-185	NA	NA	NA
Ilmenite, CIF, China ¹	do.	NA	NA	NA	NA	185-200	190-200	NA
Titanium slag, import ²	do.	659-702	646-728	583-694	601-728	650-789	638-776	644-791
Rutile, natural:¹								
Bagged, f.o.b. Australian ports	do.	750-800	770-890	770-850	770-850	950-1,200	1000-1,250	NA
Bulk, f.o.b. Australian ports	do.	700-750	710-770	710-770	710-770	800-900	800-900	NA
Metal:								
Sponge metal, Japan, import ²	dollars per kilogram	10.50	10.50	10.90	11.30	10.90	10.70 ^r	10.50
Titanium mill products	producer price index ³	164	167	167	170	174	173 ^r	178
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	0.80-0.90
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	2.90-3.10
Pigment:								
Titanium dioxide pigment, import ²	dollars per metric ton	2,455	2,601	2,705	2,782	2,585	2,758	2,752
Titanium dioxide pigment	producer price index ³	167	203	198	205	216	214	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.