

Mineral Industry Surveys

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TITANIUM IN THE FIRST QUARTER 2016

Titanium mill product shipments in the first quarter of 2016 were 10,000 metric tons (t), an increase of 8% from shipment totals in the previous quarter, and a 2% increase from those of the first quarter of 2015. Ingot production totaled 14,600 t, a decrease of 7% from that of the previous quarter and a 12% decrease from production in the first quarter of 2015. Ingot/slab shipments were unchanged from the preceding quarter shipments and decreased by 10% from shipments in the first quarter of 2015. Receipts of titanium scrap totaled 14,200 t in the first quarter of 2016, a decrease of 13% from those in the previous quarter and a decrease of 6% from receipts in the first quarter of 2015 (table 1).

In the first quarter of 2016, approximately 82% 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, industrial, medical, consumer, nonaerospace military, 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)

	2015				1st quarter– 4th quarter	2016 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
Production:						
Sponge	W	W	W	W	W	W
Ingot	16,600	13,600	15,900	15,700	61,800	14,600
Mill products	9,780	10,000	9,060	9,240	38,100	10,000
Exports:						
Waste and scrap	1,300	1,820	1,750	1,990	6,860	2,290
Sponge	510	387	360	392	1,650	152
Ingot	1,390	1,220	1,530	1,490	5,620	1,630
Other unwrought	421	452	416	447 ^r	1,740 ^r	--
Bar, rod, profiles, wire	1,700	1,780	1,480	1,290	6,250	1,560
Bloom, sheet bar, slab	551	764	591	646	2,550	698
Other wrought	2,570	2,780	2,690	2,350	10,400	2,410
Total	8,430	9,200	8,810	8,600 ^r	35,000 ^r	8,740
Imports:						
Waste and scrap	5,080	5,900	5,770	5,300	22,100	4,540
Sponge ²	4,960	6,370	4,750 ^r	4,620	20,700	3,530
Ingot	89	94	74	146	403	189
Powder	27	50	28	25	130	65
Other unwrought	444	460	235	351 ^r	1,490 ^r	360
Wrought	1,410	1,340	1,590	1,330	5,670	2,150
Castings	11	16	2	2	31	19
Other	112	137	138	122	509	153
Total	12,100	14,400	12,600	11,900 ^r	51,000 ^r	11,000
Stocks, end of period:						
Sponge, industry	25,400	26,800	26,400	25,000	25,000	28,900
Scrap	17,500	19,500	19,900	20,700	20,700	20,000
Ingot	6,590	8,240	9,780	9,610	9,610	14,700
Consumption:						
Sponge	8,350	6,930	7,540	8,390	31,200	8,490
Scrap	13,100	12,400	13,400	13,300	52,200	12,200
Ingot	15,300	13,000	15,000	14,000	57,200	12,000
Shipments:						
Ingot and slab (producer net shipments)	5,030	4,190	4,950	4,540	18,700	4,550
Mill products (net shipments):						
Forging and extrusion billet	6,590	6,200	5,730	5,570	24,100	6,890
Other	3,180	3,740	3,320	3,660	13,900	3,100
Total	9,770	9,940	9,050	9,230	38,000	9,990
Castings	W	W	W	W	W	W
Receipts, scrap:						
Home	5,510	5,130	5,240	5,080	21,000	5,330
Purchased	9,600	11,800	11,100	11,200	43,800	8,840
Total	15,100	16,900	16,400	16,300	64,700	14,200

^rRevised. W Withheld to avoid disclosing company proprietary data. -- Zero.

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)

	2015				1st quarter– 4th quarter	2016 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
Metal:						
Waste and scrap	1,300	1,820	1,750	1,990	6,860	2,290
Unwrought:						
Sponge	510	387	360	392	1,650	152
Ingot	1,390	1,220	1,530	1,490	5,620	1,630
Other unwrought	441	452	416	445 ^r	1,740 ^r	426
Wrought:						
Bar, rod, profiles, wire	1,700	1,780	1,480	1,290	6,250	1,560
Bloom, sheet bar, slab	551	764	591	646	2,550	698
Other	2,570	2,780	2,690	2,350	10,400	2,410
Ferrotitanium and ferrosilicon titanium	384	753	591	409	2,140	433
Ores and concentrates	592	571	564	312	2,040	715
Pigment:						
80% or more titanium dioxide	148,000	172,000	153,000	151,000	624,000	165,000
Other titanium dioxide	5,400	4,880	5,170	4,710	20,200	3,930
Unfinished titanium dioxide ²	1,490	772	721	682	3,660	538

^rRevised. -- Zero.

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

²Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM METAL¹

(Metric tons)

	2015				1st quarter– 4th quarter	2016 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
Waste and scrap:						
Brazil	--	20	58	--	78	--
Canada	242	342	287	293	1,160	286
China	105	279	180	71	635	40
Czech Republic	27	54	60	--	141	--
France	625	564	707	656	2,550	526
Germany	784	846	854	911	3,400	870
India	7	20	16	--	43	--
Israel	174	132	131	160	596	128
Italy	294	250	348	235	1,130	342
Japan	679	799	913	909	3,300	739
Korea, Republic of	501	493	459	412	1,870	306
Mexico	156	186	250	181	773	96
Singapore	69	151	55	--	275	--
Spain	53	264	111	--	428	--
Sweden	36	83	50	--	169	--
Taiwan	261	114	59	120	554	53
United Kingdom	962	1,160	1,120	920	4,170	826
Other	100	139	111	435	785	332
Total	5,080	5,900	5,770	5,300	22,100	4,540
Unwrought:						
Sponge:						
China	511	361	--	18	890	--
Japan	2,980	5,110	3,890	3,500	15,500	3,390
Kazakhstan ^e	450	720	570	855	2,600	45
Russia	100	63	125	95	383	--
Ukraine	882	110	162	154	1,310	10
Other	30	--	--	--	30	78
Total	4,960	6,370	4,750	4,620	20,700	3,530
Ingot:						
Japan	11	11	11	6	39	13
Russia	78	58	54	135	325	176
Other	--	25	9	5	40	--
Total	89	94	74	146	403	189
Powder	27	50	28	25	130	65
Other	444	460	235	351	1,490	360
Wrought:						
Bar, rod, profiles, wire	316	372	370	428	1,490	435
Billet	(2)	(2)	(2)	(2)	(2)	(2)
Bloom, sheet bar, slab	234	187	191	142	753	133
Plate, sheet, strip, foil	648	508	777	526	2,460	1,190
Tube and pipe	59	76	70	82	287	162
Other	149	199	179	154	681	239
Total	1,410	1,340	1,590	1,330	5,670	2,150
Other articles of titanium:						
Castings	11	16	2	2	31	19
Other	112	137	138	122	509	153
Ferrotitanium and ferrosilicon titanium	364	217	521	630	1,730	979

^eEstimated. ^fRevised. -- Zero.

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

²Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM CONCENTRATES¹

(Metric tons)

	2015				1st quarter– 4th quarter	2016 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
Ilmenite:						
Australia	123,000	43,900	102,000	58,100	327,000	29,100
Mozambique	48,000	65,000	68,100	36,000	217,000	75,300
Other	10,000	--	20,300 ^r	9,970 ^r	40,200 ^r	20,100
Total	181,000	109,000	191,000 ^r	104,000 ^r	585,000 ^r	124,000
Titanium slag:						
Australia	34,400	10,500	--	11,400	56,400	--
Canada	10,000	50,000	--	41,800	102,000	--
South Africa	30,000	86,700	28,000	96,200	241,000	93,300
Total	74,500	147,000	28,000	149,000	399,000	93,300
Rutile:						
Australia	7,270	17,700	20,600	22,400	68,000	7,630
Kenya	10,000	--	--	11,000	21,000	10,000
Sierra Leone	29	10,400	10,100	14,600	35,200	98
South Africa	63,900	14,300	48,500	40,200	167,000	30,100
Other	465	102	47	100	714	8,510
Total	81,600	42,500	79,300	88,400	292,000	56,400
Synthetic rutile:						
Australia	18,000	28,000	18,000	34,800	98,800	18,000
Other	225	1,390	566	677	2,850	970
Total	18,200	29,400	18,600	35,500	102,000	19,000
Titaniferous iron ore, Canada	71	--	15,400	49,300	64,700	--

^rRevised. -- Zero.

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

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM PIGMENT¹

(Metric tons)

	2015				1st quarter– 4th quarter	2016 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
80% or more titanium dioxide:						
Australia	333	1,570	277	5,340	7,520	408
Canada	16,000	17,600	16,700	10,300	60,600	14,700
China	9,670	10,800	9,200	5,540	35,200	6,870
Finland	1,520	1,900	1,640	1,020	6,080	1,630
Germany	2,940	4,710	3,370	2,060	13,100	3,520
Japan	1,560	1,410	1,240	1,130	5,340	1,420
Mexico	684	2,300	2,370	1,070	6,420	938
Norway	988	1,830	799	1,360	4,970	1,030
Spain	2,240	3,260	1,640	1,640	8,780	2,160
Ukraine	1,020	536	709	636	2,900	--
Other	3,400	6,940	4,440	3,060	17,800	3,580
Total	40,300	52,900	42,400	33,200	169,000	36,200
Other titanium dioxide:						
Canada	1,850	3,060	2,500	2,110	9,530	2,590
China	284	340	344	156	1,130	231
Germany	678	169	39	14	899	41
India	71	40	83	--	194	--
Italy	152	199	345	241	937	108
Other	227	224	256	354	1,060	315
Total	3,260	4,040	3,570	2,880	13,700	3,280
Unfinished titanium dioxide:²						
China	2,640	5,120	4,470	3,750	16,000	5,670
Czech Republic	817	574	554	604	2,550	611
Finland	713	855	947	500	3,020	996
France	1,670	873	1,260	910	4,710	1,370
Germany	897	1,180	1,110	738	3,930	1,680
India	274	416	154	--	690	--
Italy	721	235	1,030	663	2,640	1,110
Japan	66	141	161	--	368	--
Korea, Republic of	571	220	1,620	250	2,660	309
Other	225	160	399	1,230	2,010	627
Total	8,580	9,780	11,700	8,640	38,700	12,400
Grand total	52,200	66,700	57,600	44,700	221,000	51,900

-- Zero.

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

²Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 6
PRICES FOR TITANIUM MATERIALS

(End of period)

		2015				2016
		1st quarter	2d quarter	3d quarter	4th quarter	1st quarter
Concentrate:						
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	140-160	100-120	100-120	100-120	100-120
Titanium slag, import ²	do.	793-833	688-788	742-782	630-752	634-700
Rutile, natural:¹						
Bagged, f.o.b. Australian ports	do.	890-990	800-840	800-840	800-840	800-840
Bulk, f.o.b. Australian ports	do.	810-940	790-890	790-890	790-890	790-890
Metal:						
Sponge metal, Japan, import ²	dollars per pound	5.64	5.50	5.75	5.36	4.78
Titanium mill products	producer price index ³	166	170 ^f	169 ^f	171 ^f	172
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	1.20-1.30	1.20-1.25	1.00-1.05	0.75-0.80	0.75-0.80
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	2.70-2.90	2.60-2.80	2.10-2.20	1.90-2.10	1.90-2.10
Pigment:						
Titanium dioxide pigment, import ²	dollars per metric ton	2,705	2,502	2,511	2,331	2,319
Titanium dioxide pigment	producer price index ³	202	184	215	176 ^f	168

^fRevised. 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.