



Mineral Industry Surveys

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TITANIUM IN THE FOURTH QUARTER 2011

Titanium mill product shipments in the fourth quarter of 2011 were 9,720 metric tons (t), a 13% decrease compared with shipments in the previous quarter. Ingot production increased by 10%, and ingot shipments decreased by 14%. Receipts of titanium scrap totaled 11,400 t, unchanged compared with receipts from the previous quarter.

In the fourth quarter, approximately 67% of mill products and castings was produced for commercial and military aerospace

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

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

(Metric tons)

	2010		2011				
	4th quarter	1st quarter– 4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter– 4th quarter
Production:							
Sponge	W	W	W	W	W	W	W
Ingot	15,100	56,400	14,500	13,800	15,200	16,800	60,300
Mill products	9,580	36,300	9,660	9,860	11,300	9,720	40,500
Exports:							
Waste and scrap	1,460	3,480	1,240	1,230	1,310	1,380	5,150
Sponge	55	293	45	60	36	116	256
Ingot	51	467	36	29	29	157	252
Other unwrought	516	2,570	59	82	182	599	923
Bar, rod, profiles, wire	799	2,830	893	1,000	861	1,300	4,060
Billet	741	2,240	781	889	938	892	3,500
Bloom, sheet bar, slab	472	1,240	279	326	390	562	1,560
Other wrought	2,380	8,450	2,960	3,980	4,490	4,160	15,600
Total	6,470	21,600	6,290	7,590	8,240	9,170	31,300
Imports:							
Waste and scrap	2,820	10,700	2,670	3,960	3,430	3,880	13,900
Sponge ²	6,420	20,500	7,160	7,910	8,730	9,960	33,800
Ingot	117	237	105	196	115	239	654
Powder	36	119	6	23	21	2	52
Other unwrought	13	88	43	55	23	86	208
Wrought	1,930	8,430 ^r	1,560	1,810	1,460	1,370	6,190
Castings	1.00	4	(³)	35	12	3	51
Other	72	276	165	158	151	101	574
Total	11,400	40,300	11,700	14,100	13,900	15,600	55,400
Stocks, end of period:							
Sponge, industry	10,500	10,500	7,000	8,490	5,000	10,800	10,800
Scrap	7,900	7,900	8,500	10,400	11,300	12,900	12,900
Ingot	2,920	2,920	3,380	3,470	3,000	3,850	3,850
Consumption:							
Sponge	9,870	34,900	12,600	12,000	12,100	11,700	48,400
Scrap	5,830	29,200	6,750	6,940	9,320	7,850	30,900
Ingot	10,600	40,900	12,200	12,500	15,800	15,400	55,900
Shipments:							
Ingot and slab (producer net shipments)	3,210	13,700	2,950	4,300	4,390	3,770	15,400
Mill products (net shipments):							
Forging and extrusion billet	4,780	19,700	4,810	3,280	4,580	4,110	16,800
Other	4,870	18,500	5,530	11,100	6,550 ^r	5,620	28,700
Total	9,650	38,300	10,300	14,300	11,100	9,720	45,500
Castings	W	W	W	W	W	W	W
Receipts, scrap:							
Home	2,530	9,770	W	2,990	4,140	5,200	12,300 ⁴
Purchased	5,660	23,400	W	7,770	7,290	6,170	21,200 ⁴
Total	8,190	33,200	6,600	10,800	11,400	11,400	40,200

^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.

³Less than ½ unit.

⁴Data for second, third, and fourth quarter.

TABLE 2
U.S. EXPORTS OF TITANIUM PRODUCTS¹

(Metric tons)

	2010		2011				1st quarter– 4th quarter
	4th quarter	1st quarter– 4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	
Metal:							
Waste and scrap	1,460	3,480	1,240	1,230	1,310	1,380	5,150
Unwrought:							
Sponge	55	293	45	60	36	116	256
Ingot	51	467	36	29	29	157	252
Other unwrought	516	2,570	59	82	182	599	923
Wrought:							
Bar, rod, profiles, wire	799	2,830	893	1,000	861	1,300	4,060
Billet	741	2,240	781	889	938	892	3,500
Bloom, sheet bar, slab	472	1,240	279	326	390	562	1,560
Other	2,380	8,450	2,960	3,980	4,490	4,160	15,600
Ferrotitanium and ferrosilicon titanium	695	2,570	665	987	895	664	3,210
Ores and concentrates	4,670	18,900	7,380	7,760	8,540	2,900	26,600
Pigment:							
80% or more titanium dioxide	190,000	717,000	177,000	181,000	204,000	179,000	741,000
Other titanium dioxide	9,190	36,700	9,880	11,600	10,400	8,110	40,000
Unfinished titanium dioxide ²	1,260	4,160	2,230	1,640	1,830	1,460	7,160

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)

	2010		2011				
	4th quarter	1st quarter– 4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter– 4th quarter
Waste and scrap:							
Canada	184	682	188	178	132	240	738
France	363	1,480	349	525	447	469	1,790
Germany	461	2,050	290	655	492	498	1,930
Israel	82	256	106	143	173	101	523
Italy	76	398	63	107	83	77	329
Japan	593	1,550	590	612	418	642	2,260
Korea, Republic of	100	416	84	106	280	185	655
Mexico	60	151	67	125	82	96	369
Russia	25	243	46	45	14	53	158
Spain	34	134	47	96	38	38	220
Taiwan	194	692	165	390	114	144	813
United Kingdom	467	1,720	436	623	840	918	2,820
Other	179	943	235	353	312	424	1,320
Total	2,820	10,700	2,670	3,960	3,430	3,880	13,900
Unwrought:							
Sponge:							
China	555	868	1,220	886	1,550	2,210	5,860
Japan	3,240	9,790	4,150	3,610	3,690	4,620	16,100
Kazakhstan ^c	2,060	8,550	1,230	2,730	2,660	2,000	8,610
Russia	422	918	150	399	350	363	1,260
Other ²	146	331	409	279	491	775	1,960
Total	6,420	20,500	7,160	7,910	8,730	9,960	33,800
Ingot:							
Germany	80	156	99	99	48	98	344
Russia	12	12	3	91	67	141	302
Other	25 ^r	69 ^r	2	7 ^r	--	--	9
Total	117	237	105	196	115	239	654
Powder	36	119	6	23	21	2	52
Other	13	88	43	55	23	86	208
Wrought:							
Bar, rod, profiles, wire	597	2,530	371	519	438	385	1,710
Billet	435 ^r	2,010 ^r	183	260	257	187	885
Bloom, sheet bar, slab	7	101 ^r	5	10	4	11	30
Plate, sheet, strip, foil	762	3,320	852	876	588	591	2,910
Tube and pipe	88	326 ^r	88 ^r	102 ^r	127 ^r	124 ^r	440
Other	37	149	62	41	47	67	218
Total	1,930	8,430 ^r	1,560	1,810	1,460	1,370	6,190
Other articles of titanium:							
Castings	1	4	(3)	35	12	3	51
Other	72	276	165	158	151	101	574
Ferrotitanium and ferrosilicon titanium	363	2,740	475	635	544	419	2,070

^cEstimated. ^rRevised. -- Zero.

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

²All or part of these data have been referred to the U.S. Census Bureau for verification.

³Less than ½ unit.

Source: U.S. Census Bureau.

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

(Metric tons)

	2010		2011				1st quarter– 4th quarter
	4th quarter	1st quarter– 4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	
Ilmenite:							
Australia	44,000	98,200	53,400	57,200	77,500	55,600	244,000
Mozambique	38,000	199,000	32,100	26,100	25,000	31,000	114,000
Ukraine	17,600	57,500	--	10,000	--	--	10,000
Other ²	11,000	22,300	--	9,340	--	--	9,340
Total	111,000	377,000	85,500	103,000	103,000	86,600	377,000
Titanium slag:							
Canada	46,600	150,000	21,600	55,800	32,200	81,100	191,000
South Africa	88,400	325,000	68,900	80,900	79,000	93,900	323,000
Total	135,000	475,000	90,500	137,000	111,000	175,000	513,000
Rutile:							
Australia	26,600	83,500	35,300	20,000	34,300	16,100	106,000
Sierra Leone	10,000	29,800	--	--	19	10,100	10,100
South Africa	28,900	96,500	23,200	47,900	22,900	39,000	133,000
Other ²	500	19,100	67	9,020	594	3,780	13,500
Total	66,000	229,000	58,500	76,900	57,800	69,000	262,000
Synthetic rutile:							
Australia	54,000	109,000	18,500	50,500	26,800	16,000	112,000
Other ²	36	13,600	92	704	1,260	4,900	6,960
Total	54,100	122,000	18,600	51,200	28,100	20,900	119,000
Titaniferous iron ore, Canada ²	46,900	83,100	--	42	21	33	96

-- Zero.

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

²All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

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

(Metric tons)

	2010		2011				1st quarter– 4th quarter
	4th quarter	1st quarter– 4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	
80% or more titanium dioxide:							
Canada	19,000	83,400	20,700	20,600	21,100	16,600	79,000
China	2,340	8,120	2,460	3,880	1,270	2,670	10,300
Finland	1,810	7,970	1,790	1,750	1,470	1,790	6,790
France	598	4,200	1,440	1,000	1,140	1,320	4,910
Germany	1,180	5,720	852	1,710	2,160	1,730	6,450
Italy	566	2,890	970	710	933	850	3,460
Japan	1,140	4,350	793	1,200	1,190	997	4,180
Netherlands	1,270	4,730	1,010	297	303	190	1,800
Ukraine	2,600	9,890	3,300	3,580	2,540	2,270	11,700
Other	4,260	13,700	2,580	3,360	3,230	2,700	11,900
Total	34,700	145,000	35,900	38,100	35,400	31,100	140,000
Other titanium dioxide:							
Canada	1,530	7,230	1,850	2,400	2,390	2,170	8,820
China	645	1,550	253	167	309	378	1,110
Germany	99	1,440	262	216	155	33	666
Japan	238	836	175	198	126	52	552
Other	289	1,060	263	290	235	241	1,030
Total	2,800	12,100	2,800	3,280	3,210	2,880	12,200
Unfinished titanium dioxide:²							
China	5,430	22,400	5,170	6,330	7,000	5,710	24,200
Czech Republic	559	2,400	689	625	627	516	2,460
Finland	745	2,960	553	842	732	789	2,910
France	1,490	4,910	1,170	1,150	1,840	1,560	5,720
Germany	1,310	4,920	1,320	1,090	1,090	770	4,270
Italy	608	2,220	970	1,010	875	268	3,120
Korea, Republic of	1,050	4,450	927	858	406	436	2,630
Other	510	2,930	749	679	327	671	2,430
Total	11,700	47,200	11,500	12,600	12,900	10,700	47,700
Grand total	49,200	204,000	50,200	53,900	51,500	44,700	200,000

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)

		2010	2011			
			1st quarter	2nd quarter	3rd quarter	4th quarter
Concentrate:						
Ilmenite, f.o.b. Australian ports ¹	dollars per metric ton	65–85	65–85	130–150	140–250	140–250
Titanium slag, import ²	do.	367–433	480–495	449–498	320–475	468–494
Rutile, natural:¹						
Bagged, f.o.b. Australian ports	do.	760–805	775–820	950–1,180	1,348–1,600	1,348–1,600
Bulk, f.o.b. Australian ports	do.	530–550	625–700	750–875	1,000–1,120	1,300–1,400
Metal:						
Sponge metal, Japan, import ²	dollars per pound	6.24	5.81	5.84	5.68	5.74
Titanium mill products	producer price index ³	203	206	200	209 ^r	208
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	2.00–2.10	2.50–2.65	2.75–2.85	2.60–2.65	2.00–2.20
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	3.18–3.25	3.85–3.95	4.30–4.45	4.10–4.20	3.45–3.55
Pigment:						
Titanium dioxide pigment, import ²	dollars per metric ton	2,448	2,647	2,856	3,133	3,530
Titanium dioxide pigment	producer price index ³	194	213	221	251 ^r	271

^rRevised. 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.