

Mineral Industry Surveys

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TITANIUM IN THE FOURTH QUARTER 2008

According to the U.S. Geological Survey (USGS), titanium mill product shipments in the fourth quarter of 2008 were 8,730 metric tons (t), a 6% decrease compared with shipments in the previous quarter. Receipts of titanium scrap totaled 7,180 t, a 5% decrease compared with receipts from the previous quarter. Ingot production decreased 12% compared with production in the previous quarter.

Approximately 75% of mill products and castings were used in commercial and military aerospace applications. Other applications for titanium mill products and castings included, in descending order, industrial, nonaerospace military, medical, and consumer uses. 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)

	2007		2008				
	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Fourth quarter	Year to date
Production:							
Sponge	W	W	W	W	W	W	W
Ingot	14,900	59,200	14,500	15,800	15,100	13,300	58,600
Mill products	9,770	38,200	9,490	10,100	10,800	9,410	39,700
Exports:							
Waste and scrap	1,820	9,510	1,590	1,730	3,480	1,390	8,180
Sponge	319	2,000	403	513	1,040	417	2,370
Ingot	412	2,270	260	311	84	70	725
Other unwrought	214	1,000	493	494	765	960	2,710
Bar, rod, profiles, wire	723	2,840	886	804	783	824	3,300
Billet	609	2,730	716	769	810	904	3,200
Bloom, sheet bar, slab	520	1,280	421	713	522	322	1,980
Other wrought	2,350	8,670	2,460	2,540	2,790	2,760	10,500
Total	6,960	23,300	7,220	7,870	10,300	7,650	33,000
Imports:							
Waste and scrap	2,800	12,200	2,540	2,730	3,140	2,040	10,400
Sponge ²	6,970	25,900	6,320	6,130	6,210	5,220	23,900
Ingot	549	2,270	326	220	317	482	1,340
Powder	68	246	17	52	40	25	134
Other unwrought	7	101	23	21	10	5	59
Wrought	1,510	4,970	2,010	1,720	2,520	1,760	8,010
Castings	10	23	1	6	2	2	11
Other	59	350	81	65	69	111	326
Total	12,000	46,100	11,300	10,900	12,300	9,650	44,100
Stocks, end of period:							
Sponge, industry	7,820	XX	10,400	11,300	11,900	14,200	XX
Scrap	12,600	XX	W	W	W	W	XX
Ingot	5,150	XX	5,000	4,920	4,460	3,590	XX
Consumption:							
Sponge	8,180	33,700	8,590	W	8,730	6,860	W
Scrap	5,870	23,800	5,580	5,540	6,030	6,090	23,200
Ingot	12,900	50,300	12,300	12,700	12,300	10,400	47,700
Shipments:							
Ingot (producer net shipments) ³	4,130	11,900	4,070	4,580	4,060	4,460	17,200
Mill products (net shipments):							
Forging and extrusion billet	3,030	12,400	3,260	3,230	3,020	2,780	12,300
Plate, sheet, strip	3,910	14,700	3,370	3,940	4,320	3,960	15,600
Other	1,590	6,040	1,620	1,330 ^r	1,990	1,990	6,940
Total	8,530	33,200	8,250	8,500 ^r	9,330	8,730	34,800
Castings	434	1,760	W	W	W	W	W
Receipts, scrap:							
Home	2,890	12,300	3,770	W	W	W	W
Purchased	4,200	18,800	5,040	W	W	W	W
Total	7,090	31,100	8,800	8,380	7,530	7,180	31,900

^rRevised. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

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

²Estimated by the U.S. Geological Survey.

³Data series revised to include only ingot producers.

TABLE 2
U.S. EXPORTS OF TITANIUM PRODUCTS¹

(Metric tons)

	2007		2008				
	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Fourth quarter	Year to date
Metal:							
Waste and scrap	1,820	9,510	1,590	1,730	3,480	1,390	8,180
Unwrought:							
Sponge	319	2,000	403	513	1,040	417	2,370
Ingot	412	2,270	260	311	84	70	725
Other unwrought	214	1,000	493	494	765	960	2,710
Wrought:							
Bar, rod, profiles, wire	723	2,840	886	804	783	824	3,300
Billet	609	2,730	716	769	810	904	3,200
Bloom, sheet bar, slab	520	1,280	421	713	522	322	1,980
Other	2,350	8,670	2,460	2,540	2,790	2,760	10,500
Ferrotitanium and ferrosilicon titanium	500	2,120	421	510	306	382	1,620
Ores and concentrates	863	9,730	3,320	5,500	2,220	3,870	14,900
Pigment:							
80% or more titanium dioxide	160,000	564,000	152,000	184,000	192,000	140,000	668,000
Other titanium dioxide	25,800	111,000	22,200	19,700	11,400	6,880	60,200
Unfinished titanium dioxide ²	946	7,200	946	1,620	1,500	969	5,040

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)

	2007		2008				
	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Fourth quarter	Year to date
Waste and scrap:							
Canada	259	908	194	245	187	101	728
China	3	275	11	122	41	26	199
France	381	1,670	310	393	557	302	1,560
Germany	325	1,430	255	278	378	395	1,310
Israel	76	231	131	94	84	55	363
Japan	461	2,210	524	405	718	312	1,960
Mexico	47	245 ^r	70	66	30	66	233
Russia	120	472	78	58	18	5	158
Taiwan	267	953	111	180	100	50	441
United Kingdom	589	2,700	568	725	847	523	2,660
Other	276 ^r	1,140 ^r	285 ^r	165 ^r	180 ^r	203	833
Total	2,800	12,200	2,540	2,730	3,140	2,040	10,400
Unwrought:							
Sponge:							
China	455	2,220	377	701	183	247	1,510
Japan	2,260	8,250	1,950	1,910	2,120	1,880	7,860
Kazakhstan ^c	3,840	13,800	3,650	2,760	3,240	2,360	12,000
Other ²	417 ^r	1,680 ^r	348 ^r	758 ^r	664 ^r	738	2,510
Total	6,970	25,900	6,320	6,130	6,210	5,220	23,900
Ingot:							
Germany	250	884	164	80	218	309	771
Russia	282	1,300	129	97	82	158	466
Other	17	78	32	43	17	14	106
Total	549	2,270	326	220	317	482	1,340
Powder							
Other	68	246	17	52	40	25	134
Total	7	101	23	21	10	5	59
Wrought:							
Bar, rod, profiles, wire	366	1,410	552	220	371	394	1,540
Billet	295	754	464	229	401	436	1,530
Bloom, sheet bar, slab	4	45	31	266	839	36	1,170
Plate, sheet, strip, foil	791	2,450	817	675	717	793	3,000
Tube and pipe	26	109	28	66	55	40	189
Other	30	207	116	261	140	63	580
Total	1,510	4,970	2,010	1,720	2,520	1,760	8,010
Other articles of titanium:							
Castings	10	23	1	6	2	2	11
Other	59	350	81	65	69	111	326
Ferrotitanium and ferrosilicon titanium	610	7,620	1,170	722	467	469	2,830

^cEstimated. ^rRevised.

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 4
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM CONCENTRATES¹

(Metric tons)

	2007		2008				
	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Fourth quarter	Year to date
Ilmenite:							
Australia	24,700	228,000	43,300	63,300	70,500	41,200	218,000
Mozambique	--	--	50,500	203	32,600	15,400	98,600
Sierra Leone	--	12,000	--	--	--	8,530	8,530
South Africa	--	5,990	--	21,000	--	66,500	87,500
Ukraine	--	--	20,400	--	--	--	20,500
Total	24,700	246,000	114,000	84,500	103,000	132,000	433,000
Titanium slag:							
Canada	79,800	193,000	6,010	40,000	13,600	46,700	106,000
South Africa	156,000	475,000	109,000	121,000	57,000	68,100	355,000
Other ²	4	80,700	--	--	--	--	--
Total	236,000	749,000	115,000	161,000	70,600	115,000	461,000
Rutile:							
Australia	41,400	145,000	29,700	49,600	35,200	21,800	136,000
Canada ²	8	34,300	11,600	20,000	8,010	92	39,700
Sierra Leone	6,000	27,000	--	--	--	10,900	10,900
South Africa	31,700	170,000	47,000	39,400	62,000	28,000	176,000
Other ²	704	2,160	187	405	894	545	2,030
Total	79,800	379,000	88,500	109,000	106,000	61,300	365,000
Synthetic rutile:							
Australia	--	64,700	11,400	52,900	15,000	32,100	111,000
Malaysia	--	5,110 ^r	548	236	942	1,370	3,090
South Africa	2,000	15,000	--	3,000	2,340	--	5,340
Other ²	--	19	40	120	353	1,800	2,310
Total	2,000	84,800	12,000	56,200	18,700	35,300	122,000
Titaniferous iron ore, Canada ²	--	72	--	51,800	35,200	52,800	140,000

^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.

Source: U.S. Census Bureau.

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

(Metric tons)

	2007		2008				
	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Fourth quarter	Year to date
80% or more titanium dioxide:							
Belgium	1,560	4,920	1,250	1,060	277	229	2,820
Canada	18,800	81,100	20,900	20,100	19,800	13,400	74,300
China	1,910	12,900	1,480	1,540	944	2,630	6,590
Finland	3,380	12,000	2,560	2,550	2,310	1,850	9,260
Germany	1,120	5,960	1,510	1,270	1,050	914	4,730
Italy	1,990	6,080	1,230	1,850	1,430	1,700	6,210
Japan	570	3,440	888	1,020	686	347	2,940
Mexico	542	3,320	1,130	1,350	561	247	3,290
Netherlands	648	3,790	591	950	644	1,020	3,200
Spain	2,260	10,500	1,620	1,760	830	855	5,070
Ukraine	1,140	4,060	2,250	1,100	531	578	4,450
United Kingdom	353	3,970	431	180	191	308	1,110
Other	2,390	15,000	3,550	3,000	2,570	2,080	11,200
Total	36,700	167,000	39,400	37,800	31,800	26,200	135,000
Other titanium dioxide:							
Canada	723	2,340	1,040	1,490	1,890	1,510	5,930
China	213	825 ^r	203	279	315	275	1,070
Finland	51	184	53	71	73	35	231
France	61	275	179	179	85	72	515
Germany	152	688	242	208	92	74	615
Japan	348	698 ^r	193	214	224	87	719
Korea, Republic of	266	920	30	218	276 ^r	107	630
Other	148	631	171	223	211	235	840
Total	1,960	6,570	2,110	2,880	3,160	2,400	10,500
Unfinished titanium dioxide:²							
China	2,640	14,600	2,460	3,520	1,920	1,730	9,620
Czech Republic	535	2,730	689	562	573	460	2,290
France	322	4,110	587	737	706	767	2,800
Germany	1,870	6,250	1,240	1,290	1,070	915	4,510
Japan	1,390	4,820	1,770	1,720	1,220	996	5,710
Korea, Republic of	848	4,940	878	706	550	747	2,880
United Kingdom	1,880	7,080	1,920	1,190	991	1,190	5,290
Other	164	2,810 ^r	688	923	1,140	1,240	3,990
Total	9,640	47,300	10,200	10,600	8,170	8,050	37,100
Grand total	48,300	221,000	51,700	51,300	43,100	36,600	183,000

^rRevised.

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)

		2007	2008			
		Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter
Concentrate:						
Ilmenite, f.ob. Australian ports ¹	dollars per metric ton	\$75- \$85	\$80- \$130	\$84- \$137	\$84- \$137	\$84- \$137
Titanium slag, import ²	do.	418- 457	433- 576	409- 555	393- 555	393- 407
Rutile, natural:¹						
Bagged, f.o.b. Australian ports	do.	650- 700	700- 750	700- 750	675- 725	675- 725
Bulk, f.o.b. Australian ports	do.	475- 500	490- 520	490- 520	500- 550	500- 550
Metal:						
Sponge metal, import ²	dollars per pound	6.33- 7.06	5.69- 8.30	5.96- 8.29	6.37- 8.13	6.16- 8.02
Titanium mill products	producer price index ³	277	259	247	242 ^r	233
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) ⁴	dollars per pound	2.00- 2.05	2.10- 2.15	2.10- 2.15	1.85- 1.95	0.45 -0.55
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti ⁴	do.	3.80- 3.85	3.75- 3.85	3.70- 3.80	3.45- 3.55	2.95 -3.05
Pigment:						
Titanium dioxide pigment, import ²	dollars per metric ton	2,010	2,050	2,120	2,170	2,190
Titanium dioxide pigment	producer price index ³	160	165	166	172 ^r	170

^rRevised. do. Ditto.

¹Source: Industrial Minerals (London).

²Unit value based on landed-duty-paid U.S. imports for consumption.

³1982=100. Source: U.S. Department of Labor, Bureau of Labor Statistics.

⁴Source: Platts Metals Week.