

# Mineral Industry Surveys

---

**For information, contact:**

Joseph Gambogi, Titanium Commodity Specialist  
U.S. Geological Survey  
983 National Center  
Reston, VA 20192  
Telephone: (703) 648-7718, Fax: (703) 648-7975  
E-mail: [jgambogi@usgs.gov](mailto:jgambogi@usgs.gov)

Mahbood Mahdavi (Data)  
Telephone: (703) 648-7778  
Fax: (703) 648-7792  
E-mail: [mmahdavi@usgs.gov](mailto:mmahdavi@usgs.gov)

**Internet:** <http://minerals.usgs.gov/minerals>

## TITANIUM IN THE THIRD QUARTER 2007

According to the U.S. Geological Survey (USGS), titanium mill product shipments in the third quarter of 2007 were 8,330 metric tons (t), a slight increase compared with shipments in the previous quarter. Receipts of titanium scrap totaled 8,040 t, a 5% increase compared with receipts from the previous quarter. The ingot shipment data series has been revised to include only ingot producer shipments. Ingot producer shipments totaled 4,060 t, a slight decrease compared with revised shipments from

the previous quarter. Approximately 79% 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 DEMAND<sup>1</sup>

(Metric tons)

	2006			2007			
	Third quarter	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Year to date
<b>Production:</b>							
Sponge	W	W	W	W	W	W	W
Ingot	13,900	13,000	53,100	15,600 <sup>r</sup>	14,400	14,400	44,300
Mill products	8,900	9,300	36,100	9,300	9,510	9,620	28,400
<b>Exports:</b>							
Waste and scrap	2,610	2,350	10,800	4,650	1,660	1,380	7,690
Sponge	343	376	1,380	455	673	554	1,680
Ingot	463	565	2,070	713	616	530	1,860
Other unwrought	222	309	956	176	358	255	789
Bar, rod, profiles, wire	946	1,020	3,670	810	678	628	2,120
Billet	247	321	1,200	713	746	658	2,120
Bloom, sheet bar, slab	90	136	532	87	292	382	761
Other wrought	2,020	2,020	7,900	1,950	2,300	2,070	6,320
Total	6,930	7,100	28,500	9,560	7,320	6,460	23,300
<b>Imports:</b>							
Waste and scrap	3,480	3,030	12,800	3,610	2,960	2,850	9,420
Sponge <sup>2</sup>	6,290	5,770	24,400	5,270	6,830	6,210	18,300
Ingot	708	474	3,140	440	688	589	1,720
Powder	36	27	152	64	91	23	178
Other unwrought	447	218	1,520	37	48	9	94
Wrought	1,250	1,250	4,860	1,100	1,060	1,300	3,460
Castings	15	8	31	2	10	1	13
Other	102	136	470	94	107	90	291
Total	12,300	10,900	47,400	10,600	11,800	11,100	33,500
<b>Stocks, end of period:</b>							
Sponge, industry	7,960	8,240	XX	7,850	7,630	7,780	XX
Scrap	8,890	8,940	XX	10,400	10,200	11,900	XX
Ingot	4,750	4,330	XX	5,260 <sup>r</sup>	4,700	5,740	XX
<b>Consumption:</b>							
Sponge	6,420	7,220	28,400	8,270	9,410	7,800	25,500
Scrap	5,430	5,180	25,000	5,800	6,130	5,990	17,900
Ingot	12,400	10,400	45,100	11,100	13,800	12,500	37,400
<b>Shipments:</b>							
Ingot (producer net shipments) <sup>3</sup>	3,790 <sup>r</sup>	4,200 <sup>r</sup>	16,800 <sup>r</sup>	3,710 <sup>r</sup>	4,130 <sup>r</sup>	4,060	11,900
<b>Mill products (net shipments):</b>							
Forging and extrusion billet	3,140	3,220	11,800	2,970	3,320	3,110	9,400
Plate, sheet, strip	2,850	3,270	12,200	3,650	3,330	3,760	10,700
Bar, rod, fastener stock, wire	1,500	W	W	1,290	1,370	W	W
Other <sup>4</sup>	160	1,580	6,270	168	162 <sup>r</sup>	1,460	4,460
Total	7,650	8,070	30,200	8,080	8,190	8,330	24,600
Castings	W	W	431	469 <sup>r</sup>	424 <sup>r</sup>	431	1,320
<b>Receipts, scrap:</b>							
Home	2,020	1,880	13,500	3,350	2,690	3,390	9,440
Purchased	5,500	4,250	19,400	4,970	4,940	4,640	14,600
Total	7,510	6,130	32,900	8,330	7,630	8,040	24,000

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

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

<sup>2</sup>Estimated by the U.S. Geological Survey.

<sup>3</sup>Data series revised to include only ingot producers.

<sup>4</sup>Data for pipe and tube and other have been combined to avoid disclosing company proprietary data.

TABLE 2  
U.S. EXPORTS OF TITANIUM PRODUCTS<sup>1</sup>

(Metric tons)

	2006			2007			
	Third quarter	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Year to date
<b>Metal:</b>							
Waste and scrap	2,610	2,350	10,800	4,650	1,660	1,380	7,690
<b>Unwrought:</b>							
Sponge	343	376	1,380	455	673	554	1,680
Ingot	463	565	2,070	713	616	530	1,860
Other unwrought	222	309	956	176	358	255	789
<b>Wrought:</b>							
Bar, rod, profiles, wire	946	1,020	3,670	810	678	628	2,120
Billet	247	321	1,200	713	746	658	2,120
Bloom, sheet bar, slab	90	136	532	87	292	382	761
Other	2,020	2,020	7,900	1,950	2,300	2,070	6,320
Ferrotitanium and ferrosilicon titanium	479	819	2,320	517	675	433	1,630
Ores and concentrates	8,640	7,420	32,800	1,520	4,630	2,720	8,870
<b>Pigment:</b>							
80% or more titanium dioxide	151,000	134,000	513,000	120,000	139,000	145,000	404,000
Other titanium dioxide	15,200	18,600	57,100	22,400	30,700	32,300	85,400
Unfinished titanium dioxide <sup>2</sup>	2,500	1,580	10,800	2,490	2,420	1,350	6,260

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

<sup>2</sup>Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF TITANIUM METAL<sup>1</sup>

(Metric tons)

	2006			2007			
	Third quarter	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Year to date
<b>Waste and scrap:</b>							
Belgium	33	11	250	18	12	33	63
Canada	137	147	664	168	253	228	649
China	176	150	596	172	50	50	272
France	320	355	1,350	412	392	481	1,290
Germany	697	421	2,070	452	369	286	1,110
Israel	52	112	325	50	40	66	156
Japan	626	541	2,320	584	567	595	1,750
Taiwan	265	147	657	429	130	127	686
United Kingdom	443	567	2,160	779	700	629	2,110
Other	730	578	2,420	547	447	355	1,350
<b>Total</b>	<b>3,480</b>	<b>3,030</b>	<b>12,800</b>	<b>3,610</b>	<b>2,960</b>	<b>2,850</b>	<b>9,420</b>
<b>Unwrought:</b>							
<b>Sponge:</b>							
China	96	219	579	205	907	655	1,770
Japan	2,100	2,040	8,070	1,880	1,970	2,140	5,990
Kazakhstan <sup>c</sup>	3,000	3,050	12,500	2,550	3,690	3,050	9,290
Russia	605	87	1,570	277	262	124	663
Ukraine	492	317	1,650	326	5	116	447
Other <sup>2</sup>	-- <sup>r</sup>	63 <sup>r</sup>	111 <sup>r</sup>	30 <sup>r</sup>	--	120	150
<b>Total</b>	<b>6,290</b>	<b>5,770</b>	<b>24,400</b>	<b>5,270</b>	<b>6,830</b>	<b>6,210</b>	<b>18,300</b>
<b>Ingot:</b>							
Germany	74	193	555	169	185	280	634
Russia	607	235	2,430	271	441	309	1,020
Other	27	46	159	--	62	--	62
<b>Total</b>	<b>708</b>	<b>474</b>	<b>3,140</b>	<b>440</b>	<b>688</b>	<b>589</b>	<b>1,720</b>
Powder	36	27	152	64	91	23	178
Other	447	218	1,520	37	48	9	94
<b>Wrought:</b>							
Bar, rod, profiles, wire	347	329	1,270	354	298	389	1,040
Billet	110	135	494	77	185	197	459
Bloom, sheet bar, slab	431	345	1,580	29	4	8	41
Plate, sheet, strip, foil	284	390	1,190	531	486	642	1,660
Tube and pipe	25	33	128	34	23	26	83
Other	54	21	194	79	59	39	177
<b>Total</b>	<b>1,250</b>	<b>1,250</b>	<b>4,860</b>	<b>1,100</b>	<b>1,060</b>	<b>1,300</b>	<b>3,460</b>
<b>Other articles of titanium:</b>							
Castings	15	8	31	2	10	1	13
Other	102	136	470	94	107	90	291
<b>Ferrotitanium and ferrosilicon titanium</b>	<b>1,750</b>	<b>1,500</b>	<b>7,080</b>	<b>1,670</b>	<b>3,060</b>	<b>2,270</b>	<b>7,010</b>

<sup>1</sup>Revised. <sup>c</sup>Estimated. -- Zero.

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

<sup>2</sup>All 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 CONCENTRATES<sup>1</sup>

(Metric tons)

	2007						
	Third quarter	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Year to date
<b>Ilmenite:</b>							
Australia	50,100	68,200	127,000	72,700	39,000	91,700	203,000
Sierra Leone	--	--	--	--	--	12,000	12,000
South Africa	--	--	--	--	--	5,990	5,990
Ukraine	20,100	20,000	60,100	--	--	--	--
Total	70,200	88,300	187,000	72,700	39,000	110,000	221,000
<b>Titanium slag:</b>							
Canada	56,100	69,500	159,000	31,200	34,300	48,100	114,000
South Africa	120,000	155,000	512,000	57,500	162,000	99,400	319,000
Other <sup>2</sup>	--	1	22,000	11,000	54,700	15,000	80,700
Total	176,000	224,000	693,000	99,700	251,000	162,000	513,000
<b>Rutile:</b>							
Australia	16,700	32,400	60,100	66,400	5,420	31,700	104,000
Canada <sup>2</sup>	7	5,710	41,300	18,000	16,300	3	34,300
Sierra Leone	7,500	--	7,500	8,000	--	13,000	21,000
South Africa	31,500	44,600	136,000	59,000	41,200	38,500	139,000
Other <sup>2</sup>	5,150	129	6,010	384	421	653	1,460
Total	60,800	82,900	251,000	152,000	63,300	83,900	299,000
<b>Synthetic rutile:</b>							
Australia	17,200	6,010	73,000	650	45,000	19,000	64,700
Malaysia	--	4,500	9,060	5,090	18	--	5,110
South Africa	12,100	--	22,100	7,960	--	5,000	13,000
Other <sup>2</sup>	1	--	175	2	17	--	19
Total	29,300	10,500	104,000	13,700	45,000	24,000	82,800
Titaniferous iron ore, Canada <sup>2</sup>	38,100	--	49,800	--	--	72	72

-- Zero.

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

<sup>2</sup>All 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 PIGMENT<sup>1</sup>

(Metric tons)

	2006			2007			
	Third quarter	Fourth quarter	Year to date	First quarter	Second quarter	Third quarter	Year to date
<b>80% or more titanium dioxide:</b>							
Australia	1,710	892	7,730	1,340	704	109	2,150
Belgium	1,810	2,080	9,060	1,160	1,160	1,040	3,360
Canada	18,100	15,000	76,200	17,900	21,900	22,400	62,200
China	4,950	6,610	26,900	3,980	4,590	2,410	11,000
Finland	3,710	4,270	15,100	3,280	2,680	2,630	8,590
France	675	922	2,770	824	914	743	2,480
Germany	2,340	2,500	17,700	2,310	1,210	1,320	4,840
Italy	534	1,740	6,880	1,240	1,550	1,310	4,090
Japan	1,050	896	4,240	832	980	1,050	2,870
Korea, Republic of	154	698	1,040	257	1,010	965	2,230
Mexico	880	1,090	3,650	1,300	868	612	2,780
Netherlands	893	1,400	5,110	863	1,010	1,270	3,150
Norway	1,010	444	3,570	676	428	1,020	2,130
Singapore	526	435	1,830	600	653	381	1,630
Slovenia	778	398	1,920	314	477	343	1,130
Spain	3,900	3,580	12,200	3,290	2,920	2,070	8,270
United Kingdom	765	1,140	6,420	792	1,850	974	3,620
Other	1,400	910	4,100	895	1,290	1,630	3,810
Total	45,200	45,000	206,000	41,900	46,200	42,200	130,000
<b>Other titanium dioxide:</b>							
Canada	541	511	1,870	579	479	563	1,620
China	309	329	1,270	227	163	223	613
Germany	185	247	862	175	151	210	536
Other	501	399	1,420	342	732	759	1,830
Total	1,540	1,490	5,420	1,320	1,530	1,760	4,600
<b>Unfinished titanium dioxide:<sup>2</sup></b>							
China	4,950	4,620	17,800	4,620	4,580	2,780	12,000
Czech Republic	1,000	675	3,610	794	836	566	2,200
France	3,000	2,940	13,300	1,580	1,170	1,040	3,790
Germany	1,000	1,350	6,110	1,700	1,270	1,410	4,380
Japan	295	406	1,150	745	1,120	1,570	3,430
Korea, Republic of	1,330	1,110	6,360	1,410	1,350	1,340	4,090
United Kingdom	712	912	2,460	2,300	614	2,290	5,210
Other	3,030	1,720	25,500	1,670	665	309	2,640
Total	15,300	13,700	76,200	14,800	11,600	11,300	37,700
Grand total	62,100	60,200	288,000	58,000	59,400	55,300	173,000

-- Zero.

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

<sup>2</sup>Unmixed and not surface treated.

Source: U.S. Census Bureau.

TABLE 6  
PRICES FOR TITANIUM MATERIALS

(End of period)

		2006		2007		
		Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter
<b>Concentrate:</b>						
Ilmenite, f.ob. Australian ports <sup>1</sup>	dollars per metric ton	\$75- \$85	\$75- \$85	\$75- \$85	\$75- \$85	\$75- \$85
Titanium slag, import <sup>2</sup>	do.	406- 595	402- 454	381- 508	353- 572	417- 430
<b>Rutile, natural:</b> <sup>1</sup>						
Bagged, f.o.b. Australian ports	do.	570- 700	570- 700	570- 700	590- 700	600- 700
Bulk, f.o.b. Australian ports	do.	450- 480	450- 500	450- 500	450- 500	450- 500
<b>Metal:</b>						
Sponge metal, import <sup>2</sup>	dollars per pound	5.00-12.81	5.87-12.84	7.66- 9.65	7.62- 9.12	7.23- 8.25
Titanium mill products	producer price index <sup>3</sup>	343	300	310	299 <sup>r</sup>	288
Titanium scrap, turnings, unprocessed (Ti-6Al-4V) <sup>4</sup>	dollars per pound	4.65- 4.75	4.00- 4.40	3.60- 3.80	2.33- 2.45	1.91- 1.99
Ferrotitanium, 70% (max. 4.5% Al) per pound Ti <sup>4</sup>	do.	7.25- 7.32	6.79- 7.00	6.25- 6.35	5.16- 5.23	3.99- 4.15
<b>Pigment:</b>						
Titanium dioxide pigment, import <sup>2</sup>	dollars per metric ton	2,030	2,030	2,080	1,980	1,990
Titanium dioxide pigment,	producer price index <sup>3</sup>	169	165	165 <sup>r</sup>	163 <sup>r</sup>	163

<sup>r</sup>Revised.

<sup>1</sup>Source: Industrial Minerals (London).

<sup>2</sup>Unit value based on landed-duty-paid U.S. imports for consumption.

<sup>3</sup>1982=100. Source: U.S. Department of Labor, Bureau of Labor Statistics.

<sup>4</sup>Source: Platts Metals Week.