

TITANIUM MINERAL CONCENTRATES¹

(Data in thousand metric tons of contained TiO₂ unless otherwise noted)

Domestic Production and Use: Two firms produced ilmenite and rutile concentrates from surface-mining operations in Florida and Virginia. The value of titanium mineral concentrates consumed in the United States in 2007 was about \$530 million. Zircon was a coproduct of mining from ilmenite and rutile deposits. About 94% of titanium mineral concentrates was consumed by domestic titanium dioxide (TiO₂) pigment producers. The remaining 6% was used in welding rod coatings and for manufacturing carbides, chemicals, and metal.

Salient Statistics—United States:	2003	2004	2005	2006	2007^e
Production ² (rounded)	300	300	300	300	300
Imports for consumption	966	872	1,000	1,030	1,200
Exports, ^e all forms	7	6	14	21	7
Consumption, reported ³	1,412	1,494	^e 1390	^e 1,420	^e 1,450
Price, dollars per metric ton, yearend:					
Ilmenite, bulk, minimum 54% TiO ₂ , f.o.b. Australia	90	81	80	80	80
Rutile, bulk, minimum 95% TiO ₂ , f.o.b. Australia	430	455	470	475	488
Slag, 80%-95% TiO ₂ ⁴	385-444	347-466	390-555	402-454	402-571
Stocks, mine, consumer, yearend	274	369	NA	NA	NA
Employment, mine and mill, number ^e	344	300	286	246	229
Net import reliance ⁵ as a percentage of reported consumption	68	58	71	71	82

Recycling: None.

Import Sources (2003-06): South Africa, 51%; Australia, 29%; Canada, 12%; Ukraine, 4%; and other, 4%.

Tariff: Item	Number	Normal Trade Relations
		<u>12-31-07</u>
Synthetic rutile	2614.00.3000	Free.
Ilmenite and ilmenite sand	2614.00.6020	Free.
Rutile concentrate	2614.00.6040	Free.
Titanium slag	2620.99.5000	Free.

Depletion Allowance: Ilmenite and rutile; 22% (Domestic), 14% (Foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Domestic consumption of titanium mineral concentrates was estimated to have increased moderately. Although cost-cutting measures ended mining in Green Cove Springs, FL, and Lutaton, GA, reprocessing of tailings continued in Green Cove Springs, FL.

Global production of titanium mineral concentrates was estimated to have increased 3% compared with that of 2006. Increased production and consumption of titanium dioxide pigment in China helped to stimulate the development of titanium mineral projects. In 2007, new mine production began in Australia (Goondicum, Murray Basin, and Tiwi Islands), Mozambique (Moma), and The Gambia (Sanyang). Projects that were nearing completion included those in Australia (Keysbrook), Russia (Kuranakh), and South Africa (Tormin). Projects also were being developed in Australia (Coburn Sands, Donald, Eucla Basin, and Murray Basin), Canada (Athabasca Oil Sands), Chile (White Mountain), India (Tamil Nadu), Kenya (Kwale), Madagascar (Fort Dauphin), Mozambique (Corridor Sands), Senegal (Grande Côte), and South Africa (Xolobeni). In Vietnam, new government policies were being implemented to control illegal mining and promote the development of upgraded products.

World Mine Production, Reserves, and Reserve Base: Reserve estimates for Brazil and Vietnam were revised based on information derived from government and industry reports.

	Mine production		Reserves ⁶	Reserve base ⁶
	2006	2007 ^e		
Ilmenite:				
United States ²	7300	7300	6,000	59,000
Australia	1,330	1,340	130,000	160,000
Brazil	130	130	43,000	84,000
Canada ⁸	791	816	31,000	36,000
China	500	500	200,000	350,000
India	313	340	85,000	210,000
Mozambique	—	100	16,000	21,000
Norway ⁸	380	380	37,000	60,000
South Africa ⁸	1,050	1,060	63,000	220,000
Ukraine	273	280	5,900	13,000
Vietnam	230	200	1,600	14,000
Other countries	108	109	66,000	150,000
World total (ilmenite, rounded)	5,400	5,600	680,000	1,400,000
Rutile:				
United States	(⁹)	(⁹)	400	1,800
Australia	207	209	19,000	31,000
Brazil	3	3	1,200	2,500
India	18	18	7,400	20,000
Mozambique	—	3	480	570
Sierra Leone	13	80	2,500	3,600
South Africa	117	121	8,300	24,000
Ukraine	57	57	2,500	2,500
Other countries	—	—	400	1,000
World total (rutile, rounded)	⁹ 415	⁹ 491	42,000	87,000
World total (ilmenite and rutile, rounded)	5,800	6,100	730,000	1,500,000

World Resources: Ilmenite supplies about 92% of the world's demand for titanium minerals. World resources of anatase, ilmenite, and rutile total more than 2 billion tons.

Substitutes: Ilmenite, leucosene, rutile, slag, and synthetic rutile compete as feedstock sources for producing TiO₂ pigment, titanium metal, and welding-rod coatings.

^eEstimated. NA Not available. — Zero.

¹See also Titanium and Titanium Dioxide.

²Rounded to nearest 0.1 million tons to avoid disclosing company proprietary data.

³Excludes ilmenite used to produce synthetic rutile.

⁴Landed duty-paid value based on U.S. imports for consumption.

⁵Defined as imports – exports + adjustments for Government and industry stock changes.

⁶See Appendix C for definitions.

⁷Includes rutile.

⁸Mine production is primarily used to produce titaniferous slag.

⁹U.S. rutile production is included with ilmenite to avoid disclosing company proprietary data.