TITANIUM MINERAL CONCENTRATES[1]

(Data in thousand metric tons of contained TiO_2, unless otherwise noted)

Domestic Production and Use: Two firms produced ilmenite and rutile concentrates from heavy-mineral sands operations in Florida and Virginia. The value of titanium mineral concentrates consumed in the United States in 2001 was about $470 million. The major coproduct of mining from ilmenite and rutile deposits was zircon. About 95% of titanium mineral concentrates was consumed by TiO_2 pigment producers. The remainder was used in welding rod coatings and for manufacturing metal, carbides, and chemicals.

Salient Statistics—United States:	1997	1998	1999	2000	2001e
Production[2] (ilmenite and rutile, rounded)	400	400	300	300	300
Imports for consumption:					
Ilmenite and slag	651	732	776	647	686
Rutile, natural and synthetic	311	365	324	413	300
Exports,[e] all forms	15	38	6	12	6
Consumption, reported:					
Ilmenite and slag	1,060	[3] 980	[3]963	[3]919	[3]835
Rutile, natural and synthetic	383	392	413	497	445
Price, dollars per metric ton:					
Ilmenite, bulk, 54% TiO_2, f.o.b. Australian ports	83	77	98	94	93
Rutile, yearend, bulk, f.o.b. Australian ports	530	500	473	485	480
Slag:[e]					
80% TiO_2, f.o.b. Sorel, Quebec	294	338	390	547	510
85% TiO_2, f.o.b. Richards Bay, South Africa	390	385	406	425	434
Stocks, mine, consumer, yearend:					
Ilmenite	234	270	343	262	260
Rutile	80	111	96	101	100
Employment, mine and mill, number[e]	480	490	450	470	470
Net import reliance[4] as a percentage of consumption	68	76	75	79	72

Recycling: None.

Import Sources (1997-2000): South Africa, 47%; Australia, 35%; Canada, 10%; Ukraine, 4%; and other, 4%.

Tariff: Item	Number	Normal Trade Relations 12/31/01
Synthetic rutile	2614.00.3000	Free.
Ilmenite and ilmenite sand	2614.00.6020	Free.
Rutile concentrate	2614.00.6040	Free.
Titanium slag	2620.90.5000	Free.

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

Government Stockpile: None.

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TITANIUM MINERAL CONCENTRATES

Events, Trends, and Issues: Owing to a slowing world economy, global consumption of titanium concentrates was estimated to have decreased moderately in 2001 when compared with that of 2000. Decreased demand for titanium dioxide pigment resulted in an estimated 10% decrease in domestic consumption of titanium mineral concentrates compared with that of 2000. The United States continued its reliance on imported mineral concentrates primarily from Australia, Canada, and South Africa. In 2001, imports of titanium concentrates decreased an estimated 7% compared with those of 2000.

Several companies were increasing production capacity in 2001. In the United States, capacity at the Old Hickory operation near Stony Creek, VA, was increasing to 225,000 tons per year of ilmenite (a 50% increase). In Australia, the first commercial mining of the Murray Basin began at the Wemen deposit. At full production, the Wemen operation is expected to produce 60,000 tons per year of titanium mineral concentrates. In South Africa, KwaZulu-Natal province, mining began at the Hillendale deposit where capacity is expected to ultimately reach 115,000 tons per year of titanium mineral concentrates. Worldwide exploration and development efforts continued in Australia, Canada, The Gambia, India, Kenya, Mozambique, South Africa, and the United States.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[5]	Reserve base[5]
	2000	2001[e]		
Ilmenite:				
United States[2]	[6]300	[6]300	13,000	59,000
Australia	1,230	1,190	[7]110,000	[7]130,000
Canada[8]	760	720	31,000	36,000
India	205	200	30,000	38,000
Norway[8]	275	270	40,000	40,000
South Africa[8]	935	1,000	63,000	63,000
Ukraine	242	240	5,900	13,000
Other countries	331	320	49,000	84,000
World total (may be rounded)	4,300	4,200	340,000	470,000
Rutile:				
United States	([9])	([9])	750	1,800
Australia	225	220	[7]21,000	[7]32,000
India	16	15	6,600	7,700
South Africa	94	90	8,300	8,300
Ukraine	56	55	2,500	2,500
Other countries	4	4	8,000	17,000
World total (rounded)	390	380	47,000	69,000
World total (ilmenite and rutile, rounded)	4,700	4,600	380,000	540,000

World Resources: Ilmenite supplies about 90% of the world's demand for titanium minerals. World ilmenite resources total about 1 billion tons of titanium dioxide. Identified world resources of rutile (including anatase) total about 230 million tons of contained TiO_2.

Substitutes: Ilmenite, leucoxene, rutile, slag, and synthetic rutile compete as feedstock sources for producing TiO_2 pigment, titanium metal, and welding rod coatings. In the future, commercial processes may be developed to use anatase and perovskite.

[e]Estimated.

[1]See also Titanium and Titanium Dioxide.

[2]Production rounded to one significant digit to avoid revealing company proprietary data.

[3]Excludes ilmenite used to produce synthetic rutile.

[4]Defined as imports - exports + adjustments for Government and industry stock changes.

[5]See Appendix C for definitions.

[6]Includes rutile to avoid revealing company proprietary data.

[7]Derived from data published by the Australian Geological Survey Organisation.

[8]Mine production is primarily used to produce titaniferous slag. Reserves and reserve base are ilmenite.

[9]Included with ilmenite to avoid revealing company proprietary data.