

ILMENITE¹(Data in thousand metric tons of contained TiO₂, unless otherwise noted)

Domestic Production and Use: Two firms produced ilmenite concentrate from heavy-mineral sands operations in Florida, and one firm produced ilmenite in California as a byproduct of sand and gravel production. Based on average prices, the value of U.S. ilmenite consumption in 1996 was about \$275 million. Major coproducts of ilmenite from heavy-mineral sands deposits are rutile and zircon. About 99% of the ilmenite and titanium slag was consumed by five titanium pigment producers. The remainder was used in welding rod coatings and for manufacturing alloys, carbides, and chemicals.

Salient Statistics—United States:	1992	1993	1994	1995	1996^e
Production	W	W	W	W	W
Imports for consumption ²	615	564	584	586	590
Exports ^e	16	7	9	15	7
Consumption: ² Reported	882	889	W	W	W
Apparent	W	W	W	W	W
Price, dollars per metric ton:					
Ilmenite:					
Bulk, 54% TiO ₂ , f.o.b. Australian ports	65	63	77	83	93
Slag: ^e					
80% TiO ₂ , f.o.b. Sorel, Quebec	276	276	278	244	297
85% TiO ₂ , f.o.b. Richards Bay, South Africa	322	330	334	349	351
Stocks, mine, distributor and consumer, yearend ²	254	218	208	137	150
Employment, mine and mill ³ , number	400	395	400	400	400
Net import reliance ⁴ as a percent of apparent consumption	W	W	W	W	W

Recycling: None.

Import Sources (1992-95): South Africa, 58%; Australia, 26%; Canada, 8%; and other, 8%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN⁵ 12/31/96
Ilmenite and ilmenite sand	2614.00.6020	Free	Free.
Titanium slag	2620.90.5000	Free	Free.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Another year of near record titanium pigment consumption resulted in a high demand for ilmenite and titanium slag concentrates. Consequently, prices for ilmenite and slag concentrates increased moderately. Although total imports of ilmenite plus slag were nearly unchanged, imports of slag decreased 16% while imports of ilmenite increased 19%. Imports of ilmenite from Australia increased significantly.

Exploration and development of titanium mineral deposits continued in 1996. These activities were most evident in Australia, Canada, India, Indonesia, Mozambique, Russia, South Africa, Ukraine, the United States, and Vietnam. Producers continued efforts to develop higher grade concentrates. In Canada, a producer of titanium slag initiated a project to produce an upgraded version of titanium slag suitable for use by chloride-base pigment production.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	1995	1996 ^e		
United States	W	W	8,000	59,000
Australia	1,130	1,150	33,000	88,000
Brazil	56	60	18,000	18,000
Canada (slag)	652	650	31,000	36,000
China	80	80	30,000	41,000
Egypt	—	—	—	1,700
Finland	—	—	1,400	1,400
India	162	160	30,000	38,000
Italy	—	—	—	2,200
Madagascar	—	—	—	19,000
Malaysia	84	90	—	1,000
Norway (ilmenite and slag)	374	320	40,000	40,000
South Africa (slag)	842	840	63,000	63,000
Sri Lanka	34	35	13,000	13,000
Ukraine	100	100	5,900	13,000
Other countries	5	5	1,000	1,000
World total (rounded)	<u>73,520</u>	<u>73,490</u>	<u>270,000</u>	<u>440,000</u>

World Resources: Ilmenite supplies about 90% of the world's demand for titaniferous material. World ilmenite resources total about 1 billion tons of titanium dioxide. Major resources occur in Australia, Canada, China, India, New Zealand, Norway, South Africa, Ukraine, and the United States.

Substitutes: Rutile and synthetic rutile were extensively used to produce titanium dioxide pigment.

^eEstimated. W Withheld to avoid disclosing company proprietary data.

¹See also Rutile and Titanium and Titanium Dioxide.

²Includes titanium slag from Canada, Norway, and South Africa and leucosene from Australia.

³Includes operating employees shown under Rutile, subject to the same footnoted comments.

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

⁵See Appendix B.

⁶See Appendix C for definitions.

⁷Excludes U.S. production.