

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 2008 was about \$600 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:	2004	2005	2006	2007	2008^e
Production ² (rounded)	300	300	300	300	200
Imports for consumption	872	1,000	1,030	1,220	1,210
Exports, ^e all forms	6	14	21	6	10
Consumption, reported ³	1,494	^e 1,390	^e 1,510	^e 1,600	1,550
Price, dollars per metric ton, yearend:					
Ilmenite, bulk, minimum 54% TiO ₂ , f.o.b. Australia	81	80	80	107	99
Rutile, bulk, minimum 95% TiO ₂ , f.o.b. Australia	455	470	475	594	500
Slag, 80%-95% TiO ₂ ⁴	347-466	390-555	402-454	418-457	404-505
Stocks, mine, consumer, yearend	369	NA	NA	NA	NA
Employment, mine and mill, number ^e	300	286	246	220	194
Net import reliance ⁵ as a percentage of reported consumption	58	71	67	76	77

Recycling: None.

Import Sources (2004-07): South Africa, 52%; Australia, 27%; Canada, 15%; Ukraine, 3%; and other, 3%.

Tariff: Item	Number	Normal Trade Relations
		12-31-08
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.

Events, Trends, and Issues: Domestic consumption of titanium mineral concentrates was estimated to have decreased moderately. While mining continued at Starke, FL, and Stony Creek, VA, mining operations at Green Cove Springs, FL, were limited to reprocessing of tailings to recover zircon. At the Stony Creek mining operation, development of the Brink deposit, located 48 kilometers south of the Old Hickory Mine, was proceeding, and production was expected to begin in the second quarter of 2009.

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Global production of titanium mineral concentrates was estimated to have decreased slightly compared with that of 2007. In Vietnam, new government policies were being implemented to cease ilmenite exports, control illegal mining, and promote the development of upgraded products. In Sierra Leone, a dredge capsized, removing about 100,000 tons per year of natural rutile production capacity. In South Africa, production was hindered by mineral processing difficulties, power supply issues, and a water ingress at a slag furnace. New mining projects were being developed in Australia, Canada, Chile, India, Kenya, Madagascar, Mozambique, Senegal, and South Africa.

World Mine Production, Reserves, and Reserve Base: Reserve base estimate for Australia was revised based on new information derived from government and industry reports.

	Mine production		Reserves ⁶	Reserve base ⁶
	2007	2008 ^e		
Ilmenite:				
United States ²	⁷ 300	⁷ 200	6,000	59,000
Australia	1,400	1,250	130,000	150,000
Brazil	127	130	43,000	84,000
Canada ⁸	816	900	31,000	36,000
China	550	550	200,000	350,000
India	378	378	85,000	210,000
Mozambique	14	133	16,000	21,000
Norway ⁸	377	380	37,000	60,000
South Africa ⁸	1,100	1,090	63,000	220,000
Ukraine	290	302	5,900	13,000
Vietnam	254	215	1,600	14,000
Other countries	115	109	66,000	150,000
World total (ilmenite, rounded)	5,720	5,640	680,000	1,400,000
Rutile:				
United States	(⁹)	(⁹)	400	1,800
Australia	297	309	22,000	31,000
Brazil	3	3	1,200	2,500
India	20	20	7,400	20,000
Mozambique	—	3	480	570
Sierra Leone	79	95	2,500	3,600
South Africa	108	121	8,300	24,000
Ukraine	57	57	2,500	2,500
Other countries	—	—	400	1,000
World total (rutile, rounded)	⁹ 564	⁹ 608	45,000	87,000
World total (ilmenite and rutile, rounded)	6,290	6,250	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, leucoxene, 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.