TITANIUM MINERAL CONCENTRATES[1]

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

Domestic Production and Use: At the beginning of 2019, two companies were recovering ilmenite and rutile concentrates from surface-mining operations near Nahunta, GA, and Starke, FL. In August, the owner of the operation in Florida acquired the operations in Georgia. A third (separate) company processed existing mineral sands tailings in Florida. Based on reported data through October 2019, the estimated value of titanium mineral and synthetic concentrates imported into the United States in 2019 was $840 million. Zircon was a coproduct of mining from ilmenite and rutile deposits. About 90% of titanium mineral concentrates were consumed by domestic titanium dioxide (TiO_2) pigment producers. The remaining 10% was used in welding-rod coatings and for manufacturing carbides, chemicals, and titanium metal.

Salient Statistics—United States:	2015	2016	2017	2018	2019[e]
Production[2]	200	100	100	100	100
Imports for consumption	1,100	1,020	1,180	1,100	1,300
Exports, all forms[e]	2	5	6	32	4
Consumption, apparent[3]	1,300	1,120	1,270	1,170	1,400
Price, dollars per metric ton:					
Rutile, bulk, minimum 95% TiO_2, f.o.b. Australia[4]	840	740	740	1,025	1,100
Ilmenite, bulk, minimum 54% TiO_2, f.o.b. Australia[4]	110	105	173	NA	NA
Ilmenite, import, dollars per ton	215	142	172	219	180
Slag, 80%–95% TiO_2[5]	687–742	612–682	621–700	699–738	740–900
Employment, mine and mill, number	285	156	264	270	320
Net import reliance[6] as a percentage of apparent consumption	85	91	92	91	93

Recycling: None.

Import Sources (2015–18): South Africa, 36%; Australia, 26%; Canada, 11%; Mozambique, 10%; and other, 17%.

Tariff: Item	Number	Normal Trade Relations 12–31–19
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: Consumption of titanium mineral concentrates is tied to production of TiO_2 pigments that are primarily used in paint, paper, and plastics. Domestic apparent consumption of titanium mineral concentrates in 2019 was estimated to have increased by about 16% from that of 2018. Exports in 2019 decreased substantially from those in the previous year because of a large intracompany transfer of inventory to Australia from Virginia in 2018.

In Australia, mining was restarting at the Jacinth-Ambrosia Mine in South Australia. In Greenland, a prefeasibility study was completed on the Dundas mining project on the northwestern coast of Greenland. Production capacity of up to 440,000 tons per year of ilmenite concentrate was planned to be commissioned by 2021 contingent upon approval of a mining license. China continued to be the leading producer and consumer of titanium mineral concentrates. In Saudi Arabia, a project to produce up to 500,000 tons per year of titanium slag was scheduled to be commissioned in 2020. Other projects were being developed in Australia, Mozambique, and Tanzania.

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TITANIUM MINERAL CONCENTRATES

World Mine Production and Reserves: Reserves for Kenya, Madagascar, and South Africa were revised based on Government or industry reports.

	Mine production		Reserves[7]
	2018	2019[e]	
Ilmenite:			
United States[2, 8]	100	100	2,000
Australia	720	660	[9]250,000
Brazil	66	70	43,000
Canada[10]	630	690	31,000
China	2,100	2,100	230,000
India	319	320	85,000
Kenya	272	200	850
Madagascar[10]	228	300	8,600
Mozambique	575	590	14,000
Norway	236	260	37,000
Senegal	297	290	NA
South Africa[10]	765	820	35,000
Ukraine	373	380	5,900
Vietnam	105	150	1,600
Other countries	83	90	26,000
World total (ilmenite, rounded)[8]	6,870	7,000	770,000
Rutile:			
United States	([8])	([8])	([8])
Australia	141	140	[9]29,000
India	15	14	7,400
Kenya	90	74	380
Mozambique	8	8	880
Senegal	9	9	NA
Sierra Leone	114	120	490
South Africa	103	110	6,100
Ukraine	94	94	2,500
Other countries	21	29	400
World total (rutile, rounded)[8]	594	600	47,000
World total (ilmenite and rutile, rounded)	7,460	7,600	820,000

World Resources: Ilmenite accounts for about 89% of the world's consumption of 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 TiO_2 pigment, titanium metal, and welding-rod coatings.

[e]Estimated. NA Not available.

[1]See also Titanium and Titanium Dioxide.

[2]Rounded to the nearest 100,000 tons to avoid disclosing company proprietary data.

[3]Defined as production + imports – exports.

[4]Source: Industrial Minerals; average of yearend price. Prices of ilmenite from Australia were discontinued at yearend 2017.

[5]Landed duty-paid value based on U.S. imports for consumption. Data series revised to reflect annual average unit value range of significant importing countries.

[6]Defined as imports – exports.

[7]See Appendix C for resource and reserve definitions and information concerning data sources.

[8]U.S. rutile production and reserves data are included with ilmenite.

[9]For Australia, Joint Ore Reserves Committee-compliant reserves for ilmenite and rutile were 57 million and 6.7 million tons, respectively.

[10]Mine production is primarily used to produce titaniferous slag.