

UPDATE

TITANITE



Also called “sphene.” It is widespread as a microscopic accessory in granites, gneisses, and schists and also as an accessory detrital species in sands and sandstone (Stewart, 1937). Large crystals are sometimes found in skarns and alpine cleft-type deposits, but no Michigan occurrences are known to produce collector-quality specimens. Northern and Southern Peninsulas.

Gogebic County: **1.** Marenisco: A megascopic accessory in the pegmatitic phase in the Presque Isle granite contains 1,500 ppm yttrium, 1,000 ppm lanthanum, and 300 ppm niobium. **2.** In an Archean tonalitic augen gneiss from the Watersmeet dome, as a microscopic accessory, with apatite, allanite-(Ce), zircon, and opaque oxide minerals. Titanite also occurs in cataclastic gneiss exposed in the northwest part of the dome with the same associates, plus fluorite (Sims et al., 1984).

Gratiot County: Near Ithaca, T10N, R2W in Michigan Basin Deep Drill Hole in the altered lower basaltic unit with anatase replacing pyrogenic ilmenite (McCallister et al., 1978).

Houghton County: A microscopic alteration product of olivine, pyroxene and titanian magnetite in basaltic rocks of the Copper Country (Butler and Burbank, 1929). Also as microscopic inclusions in powellite (q.v.).

Iron County: Section 21, T42N, R34W: With carbonate, chlorite, and stilpnomelane in vesicles in an agglomerate of the Badwater Greenstone (James et al., 1968).

Marquette County: Section 22, T47N, R29W: As a minor accessory mineral in the Crockley granitic pegmatite (Heinrich, 1962a).

Ontonagon County: White Pine: Microscopic grains in Copper Harbor Conglomerate (Hamilton, 1967).

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Marquette County: Grayish tan cleavages of titanite occur as a sparse accessory mineral in feldspar-carbonate veins exposed by a road cut on state highway 95, SE ¼ SE ¼ section 20, T47N, R29W, north of Republic. Con-firmed by X-ray diffraction and energy dispersion X-ray spectrometry.

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