BRANNERITE (U,Ca,Y,Ce)(Ti,Fe)₂O₆

A relatively rare radioactive species that occurs in a diversity of deposits: pegmatites, high-temperature veins, and in the Blind River, Ontario, conglomeratic uranium deposits. Difficult to identify without X-ray and/or chemical data. Northern Peninsula.

Marquette County: Identified along with radioactive niobian anatase, by optical and SEM observation, in a 36 meter section of drill core from a 2.56 billion-year-old migmatite zone "near Republic." Formed by incomplete alteration of niobian ilmenite (1 to 2% Nb₂O₅) to brannerite + pyrite. This reaction was followed by the low-temperature alteration, also incomplete, of ilmenite + brannerite to niobian anatase (Hoffman, 1982).

FROM: Robinson, G.W., 2004 Mineralogy of Michigan by E.W. Heinrich updated and revised: published by A.E. Seaman Mineral Museum, Houghton, MI, 252p.