Grayite

Crystal Data: Hexagonal. Point Group: 622. Quasi-pyramidal grains, to 2 mm; powdery.


X-ray Powder Pattern: Gunnison, Colorado, USA; after heating to 800 °C, pattern is similar to monazite. 3.03 (vs), 2.82 (s), 2.15 (s), 4.35 (m), 1.856 (m), 6.05 (w), 3.46 (vw)

Chemistry: (1) Fremont Co., Wyoming, USA; semiquantitative spectrographic analysis shows Si and Th > 10%; Ca 7%, P and Al 3%, Fe and Mg 1.5%. The name is applied to a mineral with composition approximating Th(PO_4) and showing a rhabdophane X-ray pattern, which changes to a monazitelike X-ray pattern on heating to 800 °C–900 °C.

Mineral Group: Rhabdophane group.

Occurrence: In a lithium-bearing pegmatite (Mtoko district, Zimbabwe); in an oxidized granitic vein in Precambrian rocks (Gunnison, Colorado, USA); in fracture fillings and disseminated through limestone (Fremont Co., Wyoming, USA).

Association: Thorite (Mtoko district, Zimbabwe); monazite-(Ce), xenotime-(Y), zircon (Havey quarries, Maine, USA).

Distribution: In the Gooddays mine, Mtoko district, Zimbabwe; and on the Mahaka and Verdale claims, Wedza district, Zimbabwe. From the Mungenyi pegmatite, about 65 km southwest of Mbarara, Ankole district, Uganda. In the USA, from southwest of Gunnison, Gunnison Co., Colorado; in Fremont Co., Wyoming; from the Zapot pegmatite, 25 km northeast of Hawthorne, Fitting district, Mineral Co., Nevada; at the Havey quarries, Topsham, Sagadahoc Co., Maine.

Name: In honor of Anton Gray, mining engineer, advisor to the United Kingdom Atomic Energy Authority.

Type Material: n.d.