Crystal Data: Orthorhombic. Point Group: 2/m 2/m 2/m. Well-formed crystals common, typically morphologically complex, long to short prismatic, to 1.2 m. Prism faces commonly vertically striated, with etch and growth figures on non-prism faces; columnar, compact, massive.


Cell Data: Space Group: Pbnm. a = 4.6499(3) b = 8.7968(6) c = 8.3909(5) Z = 4

X-ray Powder Pattern: Minas Gerais, Brazil; Durango, Mexico; Thomas Range, Utah, USA; average of three patterns. (ICDD 12-765).

Chemistry: (1) SiO₂ 31.93 33.00 H₂O⁺ 0.19 2.67
Al₂O₃ 56.26 56.76 H₂O⁻ 0.04
F 20.37 13.23 –O = F₂ 8.58 5.57
Total 100.17 100.13

(1) Thomas Range, Utah, USA; corresponds to Al₂₂₅₆(Si₀.₉₈Al₀.₀₂)Σ₁ = 1.₀₀O₁.₉₉ [F₁.₉₇(OH)₀.₀₂]Σ₂ = 2.₀₁. (2) Brewer mine, Chesterfield Co., South Carolina, USA.

Occurrence: In veins and cavities in granite, granite pegmatite, rhyolite, and in greisen, formed from high-temperature, volatile-rich pneumatolytic hydrothermal fluids. From high-grade metamorphism of aluminous, quartz-rich, and fluorine-bearing sediments. As a heavy detrital mineral.

Association: Tourmaline, beryl, microcline, albite, fluorite, cassiterite, zinnwaldite, quartz.

Distribution: Widespread; only a few localities for the finest specimens can be mentioned. In Russia, near Murmansk, Ural Mountains, and in the Adun-Chilon and Borschovchonoi Mountains, Nerchinsk district, Siberia. At Schneckenstein, Saxony, Germany. At Xilingeleimeng, Inner Mongolia, China. On Ghunzau Hill, near Katlang, Mardan district, and in the Skardu and Gilgit districts, Pakistan. From the Mogok district, Myanmar (Burma). At Tanokaniyama, Shiga Prefecture, and the Naegi district, Gifu Prefecture, Japan. From Ouro Preto and near Virgem da Lapa, Minas Gerais, Brazil. In the USA, at Devils Head, Douglas Co., Colorado; from the Thomas Range, Juab Co., Utah; Lord’s Hill, Stoneham, Oxford Co., Maine; Baldface Mountain, Carroll Co., New Hampshire; from Ramona, San Diego Co., California; near Streeter, Mason Co., Texas. At Tepetate, San Luis Potosí, Mexico. In the St. Anne’s mine, Miami district, Zimbabwe. From the Alto Ligonha district, Mozambique. At Klein Spitzkopje, Namibia. In the Jos district, Nigeria.

Name: From the Greek topazion, meaning to seek, apparently in allusion to the Island of Zabargad (Zabirget or St. Johns), in the Red Sea, Egypt; the location of which was long hidden, known for olivine (“peridot” and “chrysolite”), referred to since antiquity as topaz.