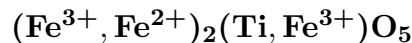


Pseudobrookite



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Crystal Data: Monoclinic. *Point Group:* 2. Commonly in short to long prismatic crystals, elongated along [010], to 7 cm, may be equant, flattened on {001}, with {hk0} striated || [010], terminated by {0kl}; typically in radiating sheaves.

Physical Properties: *Cleavage:* {102}, distinct. *Fracture:* Uneven to subconchoidal. Hardness = 6 D(meas.) = 4.33–4.39 D(calc.) = 4.39

Optical Properties: Opaque, transparent in thin fragments. *Color:* Dark reddish brown, brownish black, black; in transmitted light, yellowish brown or reddish brown. *Streak:* Reddish brown to ocher-yellow. *Luster:* Metallic adamantine, may be tarnished iridescent, greasy on fractures.

Optical Class: Biaxial (+). *Pleochroism:* In browns. *Orientation:* $Y = a$; $Z = c$; $X \wedge a \simeq 26^\circ$. *Dispersion:* $r < v$. *Absorption:* $X < Y > Z$. $\alpha = 2.35\text{--}2.38$ $\beta = 2.36\text{--}2.39$ $\gamma = 2.38\text{--}2.42$ $2V(\text{meas.}) = \sim 50^\circ$

$R_1\text{--}R_2$: (400) 22.8–24.0, (420) 21.9–23.1, (440) 21.2–22.3, (460) 20.5–21.4, (480) 19.8–20.7, (500) 19.4–20.4, (520) 19.0–19.9, (540) 18.5–19.3, (560) 18.1–18.8, (580) 17.8–18.5, (600) 17.5–18.1, (620) 17.3–17.9, (640) 17.1–17.7, (660) 17.0–17.6, (680) 16.8–17.4, (700) 16.7–17.3

Cell Data: *Space Group:* $C/2$ (synthetic Fe_2TiO_5). $a = 22.23$ $b = 3.73$ $c = 9.80$
 $\beta = 116.2^\circ$ $Z = 8$

X-ray Powder Pattern: Synthetic Fe_2TiO_5 . (ICDD 9-182).
3.483 (100), 2.748 (80), 4.902 (45), 1.54 (35), 1.862 (30), 2.402 (25), 1.971 (25)

Chemistry:

	(1)	(2)	(3)
TiO ₂	41.93	38.8	33.34
Fe ₂ O ₃	57.08	61.8	66.66
MgO	0.99	0.3	
Total	[100.00]	100.9	100.00

(1) Aranyer Berg, Romania; recalculated to 100% after deduction of SiO₂ 1.29%. (2) Cuchillo, New Mexico, USA; by electron microprobe, total Fe as Fe₂O₃. (3) Fe₂TiO₅.

Occurrence: Formed by pneumatolytic processes in titanium-rich andesite, rhyolite, basalt, etc., and by reactions with xenoliths within these; commonly in lithophysae.

Association: Hematite, magnetite, bixbyite, ilmenite, enstatite-ferrosilite, tridymite, quartz, sanidine, topaz, spessartine, beryl, mica, cassiterite, apatite.

Distribution: Many of the localities following are minor; others are known. On Măgura Uroiului (Aranyer Berg), near Piski, Romania. In Germany, near Mayen, Eifel district. From Riveau Grande, Mt. Dore, Puy-de-Dôme, France. At Vesuvius, Campania, Italy. From Jumilla, Murcia Province, Spain. On Fayal and San Miguel Islands, Azores. On Kilimanjaro, Tanzania. From Réunion Island, Indian Ocean. In the USA, fine crystals from the Thomas Range, Juab Co., Utah; at Crater Lake, West Klamath Co., and Lemolo Lake, Douglas Co., Oregon; at a number of places in the Black Range, Sierra Co., New Mexico. From Cerro los Remedios, Durango, Mexico.

Name: From the Greek for *false* and *brookite*, as it was for some time thought to be that mineral.

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