

Crystal Data: Orthorhombic, pseudohexagonal. *Point Group:* n.d. As six-sided crystals, flattened on {010}, and as rosettes of platy crystals, to 0.5 mm, and smaller spherules. *Twinning:* Common, on {101} and {181}.

Physical Properties: *Cleavage:* {010}, perfect; {101}, distinct. *Tenacity:* Very brittle. Hardness = 5 D(meas.) = 3.42 D(calc.) = 3.418 Paramagnetic. Some data presented here may be that of cafetite.

Optical Properties: Translucent. *Color:* Brownish pink to pale yellow. *Luster:* Adamantine. *Optical Class:* Biaxial (-). *Pleochroism:* Weak; colorless to pale yellow. *Orientation:* X = c; Z = b. *Dispersion:* r > v; very strong. α = 1.95(1) β = 2.13 γ = 2.21 2V(meas.) = 58°

Cell Data: *Space Group:* n.d. a = 8.99–9.08 b = 9.55–[9.56] c = 5.23–5.26 Z = 4

X-ray Powder Pattern: Afrikanda massif, Russia.

3.30 (10), 1.761 (10), 4.77 (5), 3.63 (4), 2.29 (4), 1.501 (4), 7.2 (3)

Chemistry:

	(1)	(3)
SiO ₂	0.55	
TiO ₂	65.59	68.32
Al ₂ O ₃	0.98	
Fe ₂ O ₃	1.92	
CaO	23.03	23.98
SrO	0.05	
Na ₂ O	0.11	
K ₂ O	0.04	
F	0.04	
H ₂ O ⁺	8.04	7.70
H ₂ O ⁻	trace	
–O = F ₂	0.02	
Total	100.33	100.00

(1) Afrikanda massif, Russia; after deduction of SiO₂ as titanite, corresponds to [Ca_{0.95}(H₃O)_{0.04}Na_{0.01}]_{Σ=0.96}(Ti_{1.92}Fe_{0.06}Al_{0.05})_{Σ=2.03}O_{3.96}(OH)_{2.04}. (2) Josephine Creek, Oregon, USA; by electron microprobe, analysis not given; stated to correspond to Ca(Ti_{1.87}Fe_{0.13})_{Σ=2.00}O_{3.87}(OH)_{2.13}. (3) CaTi₂O₄(OH)₂.

Occurrence: Liningmiarolitic cavities in alkalic pegmatites (Afrikanda massif, Russia); in nepheline syenite (Diamond Jo quarry, Arkansas, USA).

Association: Cafetite, perovskite, titanite (Afrikanda massif, Russia); perovskite, rutile, ilmenite, titanite (Josephine Creek, Oregon, USA).

Distribution: From the Afrikanda pyroxenite massif, Kola Peninsula, Russia. In the USA, from the Diamond Jo quarry, Magnet Cove, Hot Spring Co., Arkansas; and in a mantle xenolith from Josephine Creek, Josephine Co., Oregon. At the Wuyang iron deposit, Henan Province, China.

Name: Honors Academician Nikolai Grigor'evich Kassín (1885–1949), the geologist who discovered the Afrikanda massif, Russia.

Type Material: Mineralogical Museum, St. Petersburg University, St. Petersburg, Russia, 17402.

References: (1) Kukharensko, A.A., M.P. Orlova, A.G. Bulakh, E.A. Bagdasarov, O.M. Rinskaya-Korsakova, Y.I. Nefedov, G.A. Ilyinskiy, A.C. Sergeyev, and N.B. Abakumova (1965) The Caledonian complex of the ultrabasic alkalic rocks and carbonatites of the Kola Peninsula and northern Karelia. Izdat. "Nedra" Moscow, 368–375 (in Russian). (2) (1967) Amer. Mineral., 52, 559–560 (abs. ref. 1). (3) Evans, H.T., Jr., E.J. Dwornik, and C. Milton (1986) Kassite from the Diamond Jo quarry, Magnet Cove, Hot Spring County, Arkansas: the problem of cafetite and kassite. Amer. Mineral., 71, 1045–1048. (4) Self, P.G. and P.R. Buseck (1991) Structure model for kassite, CaTi₂O₄(OH)₂. Amer. Mineral., 76, 283–287.

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