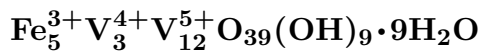


Kazakhstanite



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Crystal Data: Monoclinic. *Point Group:* $2/m$ or m . Crystals platy, dominated by {001}, in round or oval grains, to 1 mm, in aggregates up to 1.5 cm.

Physical Properties: *Cleavage:* Perfect on {001}. *Hardness* = ~ 2.5 *VHN* = 62–69 (10 g load). *D*(meas.) = 3.4–3.6 *D*(calc.) = 3.52

Optical Properties: Opaque. *Color:* Black. *Streak:* Black, with slight brownish tint.

Luster: Adamantine, dull in aggregates.

Optical Class: Biaxial.

R: (400) —, (420) —, (440) 16.4, (460) 15.8, (480) 15.0, (500) 14.3, (520) 13.6, (540) 13.1, (560) 12.8, (580) 12.3, (600) 12.1, (620) 12.0, (640) 12.0, (660) 11.9, (680) 11.8, (700) 11.8

Cell Data: *Space Group:* $C2/c$ or Cc . $a = 11.84(1)$ $b = 3.6500(4)$ $c = 21.27(1)$
 $\beta = 100(0.1)^\circ$ $Z = 1$

X-ray Powder Pattern: Kara-Tau Mountains, Kazakhstan.

10.51 (10), 3.484 (6), 2.606 (4), 2.915 (3), 2.756 (3), 3.184 (2), 2.095 (2)

Chemistry:

	(1)	(2)
V ₂ O ₅	55.10	55.04
V ₂ O ₄	12.88	12.55
Fe ₂ O ₃	19.88	20.14
CaO	0.09	
K ₂ O	0.14	
H ₂ O ⁺	12.50	12.27
P ₂ O ₅	0.17	
Total	100.76	100.00

(1) Kara-Tau Mountains, Kazakhstan; Fe₂O₃ given as Fe₄O₃, stated to correspond to Fe₅³⁺V₃⁴⁺V₁₂⁵⁺O₃₉(OH)₉•8.55H₂O. (2) Fe₅V₃⁴⁺V₁₂⁵⁺O₃₉(OH)₉•9H₂O.

Occurrence: In thin veins or cementing breccia in the weathering zone of vanadiferous black shales (Kara-Tau Mountains, Kazakhstan); in a hydrothermal gold deposit (Gold Quarry mine, Nevada, USA).

Association: Bokite (Kara-Tau Mountains, Kazakhstan); fervanite, schubnelite, hewettite, tyuyamunite, cacoxenite, variscite, fluellite (Gold Quarry mine, Nevada, USA).

Distribution: From the Kurumsak, Balasauskandyk, and Ran vanadium deposits, northwestern Kara-Tau Mountains, and at Mt. Dzhebagly, Talass Alatau Range, southern Kazakhstan. In the Gold Quarry mine, near Carlin, Maggie Creek district, Eureka Co., Nevada, USA.

Name: For its occurrences in Kazakhstan.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, p457/1.

References: (1) Ankinovich, E.A., G.K. Bekenova, and N.I. Podlipaeva (1989) A new hydrous ferrovandian mineral kazakhstanite Fe₅³⁺V₃⁴⁺V₁₂⁵⁺O₃₉(OH)₉•8.55H₂O from a carbonaceous-siliceous formation in NW Karatau (southern Kazakhstan). *Zap. Vses. Mineral. Obshch.*, 118(5), 95–100 (in Russian). (2) (1991) *Amer. Mineral.*, 76, 667 (abs. ref. 1). (3) (1992) *Amer. Mineral.*, 77, 213 (erratum). (4) Jensen, M.C., J.C. Rota, and E.E. Foord (1995) The Gold Quarry mine, Carlin-Trend, Eureka, Nevada. *Mineral. Record*, 26, 449–469, esp. 459.