Bicapite $KNa_2Mg_2(H_2PV^{5+}_{14}O_{42})\cdot 25H_2O$

Crystal Data: Tetragonal. *Point Group*: 4/*m*. As square tablets to ~0.2 mm on edge, displaying {001}, {101} and {011}.

Physical Properties: *Cleavage*: Excellent on {100}. *Fracture*: Irregular, stepped. *Tenacity*: Brittle. Hardness = 1.5 D(meas.) = 2.44(2) D(calc.) = 2.428
Dissolves slowly in dilute HCl.

Optical Properties: Translucent. *Color*: Dark red-brown, often appearing black.
Streak: Orange. *Luster*: Vitreous.
Optical Class: Uniaxial (+). $\omega = 1.785(5)$ $\varepsilon \approx 1.81$ *Pleochroism*: Red-brown.
Absorption: $E > O$, slight.

Cell Data: Space Group: *I*4/*m*. $a = 11.5446(12)$ $c = 20.5460(14)$ Z = 2

X-ray Powder Pattern: Pickett Corral mine, Bull Canyon, Montrose County, Colorado, USA.
10.14 (100), 2.978 (29), 2.809 (11), 2.583 (11), 5.037 (10), 4.348 (10), 40142 (8)

Chemistry:

	(1)	(2)	(3)
K_2O	3.49	2.89	2.35
Na_2O	4.16	3.44	3.10
MgO	3.59	2.97	4.03
P_2O_5	4.35	3.60	3.54
V_2O_5	76.25	63.04	63.59
MoO_3	0.61	0.50	
H_2O		[23.57]	23.39
Total		100.01	100.00

(1) Pickett Corral mine, Bull Canyon, Montrose County, Colorado, USA; average of 4 electron microprobe analyses, H_2O calculated from structure; corresponds to $(K_{1.23}Na_{2.23}Mg_{1.48})_{\Sigma=4.94}[H_{2.51}P_{1.02}(V^{5+}_{13.91}Mo^{6+}_{0.07})_{\Sigma=13.98}O_{42}]\cdot 25H_2O$. (2) Do., Normalized.
(3) $KNa_2Mg_2(H_2PV^{5+}_{14}O_{42})\cdot 25H_2O$.

Occurrence: Formed by the oxidation of montroseite-corvusite assemblages in a moist environment on sandstone in a Colorado Plateau type, roll-front uranium/vanadium deposit.

Association: Gypsum, huemulite, thenardite, montroseite, corvusite.

Distribution: From the Pickett Corral mine, Bull Canyon, Montrose County, Colorado, USA.

Name: In recognition of this being the only known mineral with a structure based on a *bicap*ped Keggin anion.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (66915 and 66916).

References: (1) Kampf, A.R., J.M. Hughes, B.P. Nash, and J. Marty (2019) Bicapite, $KNa_2Mg_2(H_2PV^{5+}_{14}O_{42})\cdot 25H_2O$, a new polyoxometalate mineral with a bicapped Keggin anion from the Pickett Corral mine, Montrose County, Colorado, U.S.A. Amer. Mineral., 104(12), 1851-1856.