Bearsite $Be_2(AsO_4)(OH)\cdot 4H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$ or m. As tangled fibrous aggregates of prismatic crystals, to 1 mm, elongated ‖ [001] with longitudinal striations, displaying the forms {100}, {130}, and {131}; as fine incrustations.

Physical Properties: Hardness = n.d. D(meas.) = < 2.0 D(calc.) = 2.20

Optical Properties: Transparent to translucent. *Color:* White.
Optical Class: Biaxial (–). *Orientation:* $Z \wedge c = 8°–10°$. $\alpha = 1.490(1)$ $\beta = \sim 1.502$ $\gamma = 1.502(1)$ 2V(meas.) = n.d.

Cell Data: *Space Group:* $[C2/m$ or $Cc]$ (by analogy to moraesite). $a = 8.55(2)$ $b = 36.90(2)$ $c = 7.13(2)$ $\beta = 97°49(30)'$ Z = 12

X-ray Powder Pattern: Bota-Burum deposit, Kazakhstan; nearly identical to moraesite. 6.95 (10), 3.31 (8), 4.23 (6), 3.02 (6), 2.88 (5), 2.145 (5), 1.956 (5)

Chemistry:

	(1)	(2)
As_2O_5	> 25.5	46.71
SiO_2	1.64	
Al_2O_3	6.06	
Fe_2O_3	1.08	
BeO	16.75	20.33
MgO	0.61	
CaO	1.40	
H_2O	> 29.0	32.96
Total		100.00

(1) Bota-Burum deposit, Kazakhstan; partial analysis by microchemical methods. Identity depends on the correspondence of the X-ray powder pattern with moraesite.
(2) $Be_2(AsO_4)(OH)\cdot 4H_2O$.

Occurrence: As a secondary mineral formed during the oxidation of an arsenic-bearing metal sulfide deposit associated with a felsite porphyry containing beryl.

Association: Pharmacosiderite, arseniosiderite, scorodite–mansfieldite, conichalcite, tyrolite, sodium uranospinite, metazeunerite, arsenopyrite, molybdenite, galena, pyrite, sphalerite, realgar, orpiment, uraninite, beryl.

Distribution: Found in the Bota-Burum uranium deposit, 15 km south of Alakol' Lake, Chu-Ili Mountains, Kazakhstan.

Name: For BEryllium and ARSenic in the composition.

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

References: (1) Kopchenova, E.B. and G.A. Sidorenko (1962) Bearsite – an arsenic analogue of moraesite. Zap. Vses. Mineral. Obshch., 91, 442–446 (in Russian). (2) (1963) Amer. Mineral., 48, 210–211 (abs. ref. 1).