Krasnovite $\mathbf{Ba(Al, Mg)(PO_4, CO_3)(OH)_2 \cdot H_2O}$

Crystal Data: Orthorhombic. *Point Group:* $2/m \ 2/m \ 2/m$. Fibers, elongated along [010], in spherulites, to 3 mm.

Physical Properties: *Cleavage:* Two ∥ [010], perfect. *Fracture:* Fibrous. Hardness = 2
D(meas.) = 3.70(5) D(calc.) = 3.69

Optical Properties: Translucent. *Color:* Pale blue. *Streak:* White. *Luster:* Silky.
Optical Class: Biaxial (–). *Orientation:* Y = b. *Dispersion:* $r > v$, weak. $\alpha = 1.616(2)$
$\beta = 1.629(2)$ $\gamma = 1.640(2)$ 2V(meas.) = 70°–90° 2V(calc.) = 85°

Cell Data: *Space Group: Pnnn* or *Pnna.* $a = 8.939(2)$ $b = 5.669(3)$ $c = 11.073(3)$
Z = 4

X-ray Powder Pattern: Kovdor massif, Russia.
2.768 (100), 3.479 (82), 5.54 (79), 2.543 (61), 3.345 (59), 2.072 (41), 2.354 (32)

Chemistry:

	(1)
P_2O_5	19.8
CO_2	[3.55]
Al_2O_3	14.3
FeO	0.3
MgO	1.7
SrO	0.7
BaO	49.1
K_2O	0.05
H_2O	10.5
Total	[100.00]

(1) Kovdor massif, Russia; by electron microprobe, average of three analyses; total Fe as FeO, confirmed by microchemical tests, H_2O by the Penfield method, CO_2 by difference, confirmed by IR; corresponds to $(Ba_{1.00}Sr_{0.02})_{\Sigma=1.02}(Al_{0.88}Mg_{0.13}Fe_{0.01})_{\Sigma=1.02}[(PO_4)_{0.87}(CO_3)_{0.25}]_{\Sigma=1.12}$ $(OH)_{1.85} \cdot 0.90H_2O$.

Occurrence: A very rare mineral from an iron ore deposit in a carbonatized ultramafic-alkalic intrusive.

Association: Dolomite, manasseite, carbonate-apatite, crandallite, barite.

Distribution: From the Iron mine, Kovdor massif, Kola Peninsula, Russia.

Name: Honoring Natal'ya Ivanovna Krasnova (1941–), mineralogist and specialist on the Kovdor massif, St. Petersburg University, St. Petersburg, Russia, in whose collection the first specimen was found.

Type Material: Mining Institute, St. Petersburg, Russia, 2044/1.

References: (1) Britvin, S.N., Y.A. Pakhomovskii, and A.N. Bogdanova (1996) Krasnovite $Ba(Al, Mg)(PO_4, CO_3)(OH)_2 \cdot H_2O$ – a new mineral. Zap. Vses. Mineral. Obshch., 125(3), 110–112 (in Russian). (2) (1997) Amer. Mineral., 82, 621–622 (abs. ref. 1).