Kasatkinite $Ba_2Ca_8B_5Si_8O_{32}(OH)_3 \cdot 6H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m* or *m*. As subparallel or sheaf-like aggregates and spherulites of acicular crystals, ~ 500 × 5 μm, rarely 600 × 20 μm.

Physical Properties: *Cleavage:* None observed. *Tenacity:* Brittle, individual fibers are elastic and resilient, aggregates are tough (similar to nephrite). *Fracture:* Uneven to jagged.
Hardness = 4-4.5 D(meas.) = 2.95(5) D(calc.) = 2.89

Optical Properties: Translucent to nearly opaque. *Color:* Colorless, snow-white (aggregates); colorless in transmitted light. *Streak:* White. *Luster:* Vitreous to silky.
Optical Class: Biaxial (+). α = 1.600(5) b = 1.603(2) γ = 1.626(2) 2V(meas.) = 30(20)°
2V(calc.) = 40° *Pleochroism:* None.

Cell Data: Space Group: $P2_1/c$, $P2/c$, or Pc. a = 5.745(3) b = 7.238(2) c = 20.79(1)
β = 90.82(5)° Z = 1

X-ray Powder Pattern: Bazhenovskoe chrysotile-asbestos deposit, Middle Urals, Russia.
3.009 (100), 2.925 (65), 2.633 (33), 2.116 (29), 5.89 (24), 3.36 (24), 3.48 (23), 10.52 (14)

Chemistry:

	(1)
Na_2O	0.23
K_2O	0.57
CaO	28.94
BaO	16.79
B_2O_3	11.57
Al_2O_3	0.28
SiO_2	31.63
F	0.05
H_2O	9.05
$-O=F_2$	0.02
Total	99.09

(1) Bazhenovskoe chrysotile-asbestos deposit, Middle Urals, Russia; average of 17 electron microprobe analyses, IR spectroscopy and the ^{11}B MAS NMR spectrum confirm the presence of BO_4, H_2O by TGA; corresponds to $Na_{0.11}K_{0.18}Ba_{1.66}Ca_{7.84}B_{5.05}Al_{0.08}Si_{8.00}O_{31.80}(OH)_{3.06}F_{0.04} \cdot 6.10H_2O$.

Occurrence: Of hydrothermal origin in cavities in rhodingite.

Association: Prehnite, pectolite, calcite, clinochlore; or grossular, diopside, chrysotile, pectolite, minerals of the tobermorite and hydrotalcite families.

Distribution: From the Bazhenovskoe chrysotile-asbestos deposit (eastern part of the open pit Yuzhnyi), near Asbest, Middle Urals, Russia.

Name: Honors Russian amateur mineralogist and mineral collector Anatoly V. Kasatkin (b. 1970).

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia; 41291/1.

References: (1) Pekov, I.V., N.V. Chukanov, Ya.E. Filinchuk, A.E. Zadov, N.N. Kononkova, S.G. Epanchintsev, P. Kaden, A. Kutzer, and J. Göttlicher (2012) Kasatkinite, $Ba_2Ca_8B_5Si_8O_{32}(OH)_3 \cdot 6H_2O$, a new mineral from the Bazhenovskoe deposit (Middle Urals, Russia). Zap. Ross. Mineral. Obshch., 141(3), 39-49 (in Russian, English abstract). (2) (2013) Amer. Mineral., 98, 2201-2202 (abs. ref. 1).