

Ashcroftine-(Y) **$\text{K}_5\text{Na}_5(\text{Y}, \text{Ca})_{12}\text{Si}_{28}\text{O}_{70}(\text{CO}_3)_8(\text{OH})_2 \cdot 8\text{H}_2\text{O}$**

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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. As fibrous prismatic crystals, to 2 cm, striated || [001]; in divergent sprays; as a fine, crystalline powder.

Physical Properties: *Cleavage:* Perfect on {100}, distinct on {001}. *Tenacity:* Flexible. Hardness = 5 D(meas.) = 2.61 D(calc.) = [2.59]

Optical Properties: Transparent to translucent. *Color:* Pale pink, white, pinkish brown, pinkish purple, deep violet-brown. *Streak:* White. *Luster:* Vitreous, may be silky.

Optical Class: Uniaxial (+). $\omega = 1.536\text{--}1.537$ $\epsilon = 1.545\text{--}1.549$

Cell Data: *Space Group:* $I4/mmm$. $a = 24.01(1)$ $c = 17.52(1)$ $Z = 4$

X-ray Powder Pattern: Narssârssuk, Greenland.

17.027 (100), 12.043 (90), 7.615 (60), 3.114 (50), 2.687 (50), 5.379 (35), 6.014 (30)

Chemistry:

	(1)	(2)
SiO ₂	38.09	42.69
Y ₂ O ₃	26.61	34.37
MnO	0.79	
MgO	0.87	
CaO	5.72	
Na ₂ O	3.62	3.93
K ₂ O	5.65	5.97
H ₂ O ⁺	4.8	4.11
H ₂ O [−]	6.40	
CO ₂	7.2	8.93
Total	99.75	100.00

(1) Narssârssuk, Greenland; Y₂O₃ originally determined as Al₂O₃. (2) $\text{K}_5\text{Na}_5\text{Y}_{12}\text{Si}_{28}\text{O}_{70}(\text{CO}_3)_8(\text{OH})_2 \cdot 8\text{H}_2\text{O}$.

Occurrence: In cavities in augite syenite (Narssârssuk, Greenland); in igneous breccia and pegmatites in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Calcite, elpidite, albite, quartz, aegirine, orthoclase, zinnwaldite, graphite (Narssârssuk, Greenland); aegirine, bastnäsité, lorenzenite, brookite, elpidite, leucospheinite, cordylite, narsarsukite (Mont Saint-Hilaire, Canada).

Distribution: From Narssârssuk, Greenland. At Mont Saint-Hilaire, Quebec, Canada. From Cava del 'Osa, near Rome, Lazio, Italy.

Name: To honor Frederick Noel Ashcroft (1878–1949), benefactor to the British Museum (Natural History), London, England.

Type Material: The Natural History Museum, London, England, 1924,867; University of Copenhagen, Copenhagen, Denmark; Harvard University, Cambridge, Massachusetts, 110266; National Museum of Natural History, Washington, D.C., USA, 95320, R4333.

References: (1) Hey, M.H. and F.A. Bannister (1933) Studies on the zeolites. Part IV. Ashcroftine (kalithomsonite of S.G. Gordon). Mineral. Mag., 23, 305–308. (2) Moore, P.B., J.M. Bennett, and S.J. Louisnathan (1969) Ashcroftine is not a zeolite! Mineral. Mag., 37, 515–517. (3) Moore, P.B., P.K. Sen Gupta, E.O. Schlemper, and S. Merlino (1987) Ashcroftine, ca. $\text{K}_{10}\text{Na}_{10}(\text{Y}, \text{Ca})_{24}(\text{OH})_4(\text{CO}_3)_{16}(\text{Si}_{56}\text{O}_{140}) \cdot 16\text{H}_2\text{O}$, a structure with enormous polyanions. Amer. Mineral., 72, 1176–1189. (4) Mandarino, J.A. and V. Anderson (1989) Monteregian Treasures. Cambridge Univ. Press, 30.

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