Minehillite $(K,Na)_{2-3}Ca_{28}Zn_4Al_4Si_{40}O_{112}(OH)_{16}$

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Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$, $\bar{6}m2$, or $6mm$. As plates, to 5 mm, forming bands and incrustations.

Physical Properties: *Cleavage:* {0001}, perfect. Hardness = ∼4 D(meas.) = 2.93 D(calc.) = 2.94 Fluoresces medium dull violet in SW and duller violet in LW UV.

Optical Properties: Transparent. *Color:* Colorless; white in aggregates, gray to black with lead inclusions. *Luster:* Pearly on cleavage, vitreous on fractures.
Optical Class: Uniaxial (–). $\omega = 1.607(2)$ $\epsilon = 1.604(2)$

Cell Data: *Space Group:* $P6_3/mmc$, $P\bar{6}2c$, or $P6_3mc$. a = 9.77(2) $c = 33.01(7)$ Z = 1

X-ray Powder Pattern: Franklin, New Jersey, USA.
2.764 (100), 3.35 (90), 1.847 (90), 16.1 (70), 3.07 (70), 3.14 (60), 2.965 (50)

Chemistry:

	(1)
SiO_2	49.8
Al_2O_3	4.6
FeO	0.2
MnO	0.2
ZnO	8.1
MgO	0.1
CaO	32.0
Na_2O	0.2
K_2O	1.9
H_2O	2.84
Total	99.9

(1) Franklin, New Jersey, USA; by electron microprobe, H_2O by the Penfield method; corresponds to $K_{1.9}Na_{0.3}Fe_{0.1}Mg_{0.1}Mn_{0.1}Ca_{27.5}Zn_{4.8}Al_{4.4}Si_{39.4}O_{112}(OH)_{15.2}$.

Occurrence: A secondary low-temperature hydrothermal mineral formed by replacement of associated minerals in a metamorphosed stratiform zinc deposit.

Association: Microcline, wollastonite, grossular, vesuvianite, margarosanite, calcite, diopside, lead, allanite.

Distribution: At Franklin, Sussex Co., New Jersey, USA.

Name: For Mine Hill, at Franklin, New Jersey, USA, where the Franklin deposit was exposed at the surface.

Type Material: National Museum of Natural History, Washington, D.C., USA, C6411, C6412, 150332.

References: (1) Dunn, P.J., D.R. Peacor, P.B. Leavens, and F.J. Wicks (1984) Minehillite, a new layer silicate from Franklin, New Jersey, related to reyerite and truscottite. Amer. Mineral., 69, 1150–1155.

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