Kornite $KNa_2(Mg, Mn^{3+}, Fe^{3+}, Li)_5Si_8O_{22}(OH)_2$

Crystal Data: Monoclinic. *Point Group:* [2/*m*.] In bundles of fibers, elongated along [001], commonly bent, to 200 μm; rimming hennomartinite.

Physical Properties: *Cleavage:* Parallel to [001]. *Tenacity:* Brittle. Hardness = [5–6] D(meas.) = n.d. D(calc.) = 3.15

Optical Properties: Transparent. *Color:* Dark red to brownish lilac. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Pleochroism:* X = pink; Y = dark red; Z = red-orange. *Orientation:* $Z = b$; $Y \wedge c = 60°$–$65°$. $\alpha = 1.654(4)$ $\beta = [1.675]$ $\gamma = 1.696(4)$ 2V(meas.) = 88°–92°

Cell Data: *Space Group:* $P2_1/m$ or $P2_1/a$. a = 9.94(1) b = 17.80(2) c = 5.302(4) $\beta = 105.5(2)°$ Z = 2

X-ray Powder Pattern: Wessels mine, South Africa; assembled from single crystal patterns. 3.257 (s), 3.132 (s), 2.812 (s), 2.553 (s), 8.890 (m), 8.427 (m), 5.077 (m)

Chemistry:

	(1)
SiO_2	56.06
Al_2O_3	0.00
Fe_2O_3	4.93
Mn_2O_3	13.17
MgO	10.03
CaO	0.00
Li_2O	1.96
Na_2O	7.61
K_2O	3.56
F	n.d.
H_2O	[2.68]
Total	[100.00]

(1) Wessels mine, South Africa; by electron microprobe, Li by ion microprobe, average of seven analyses, H_2O by difference; corresponds to $(K_{0.65}Na_{0.31})_{\Sigma=0.96}(Na_{1.79}Li_{0.21})_{\Sigma=2.00}(Mg_{2.12}Mn^{3+}_{1.43}Li_{0.91}Fe^{3+}_{0.52})_{\Sigma=4.98}Si_{8.00}O_{22}(OH)_2$.

Mineral Group: Amphibole (alkali) group: $Na_B \geq 1.34$; $Li_C \geq 0.5$; $Mn^{3+} > Fe^{3+}$.

Occurrence: From a hand specimen, in veinlets of sérandite-pectolite cutting sugilite, probably of hydrothermal origin in a bedded manganese deposit.

Association: Sérandite-pectolite, sugilite, braunite, taikanite, hennomartinite.

Distribution: From the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: For Hermann Korn (?–1946), German geologist, professionally associated with Henno Martin, for whom an associated mineral is named.

Type Material: Natural History Museum, Bern, Switzerland, B5564.

References: (1) Armbruster, T., R. Oberhänsli, V. Bermanec, and R. Dixon (1993) Hennomartinite and kornite, two new Mn^{3+} rich silicates from the Wessels mine, Kalahari, South Africa. Schweiz. Mineral. Petrog. Mitt., 73, 349–355. (2) (1994) Amer. Mineral., 79, 763–764 (abs. ref. 1).