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Crystal Data: Triclinic. Point Group: $\overline{1}$. Crystals are bladed prismatic to acicular, elongated along [001], tabular on {100}, showing {100}, {010}, {001}, to 4 mm, typically parallel to divergent, and in spherical aggregates. Twinning: On {100}, common.

Physical Properties: Cleavage: On $\{100\}$, perfect; also a parting along $\{100\}$ twin boundaries. Tenacity: Very brittle. Hardness = ~ 4 D(meas.) = 2.27 D(calc.) = 2.25

Optical Properties: Transparent. *Color:* Colorless to white. *Luster:* Vitreous to dull, vitreous on cleavages.

Optical Class: Biaxial (-). Orientation: $Y \wedge c \simeq 11^{\circ}$. Dispersion: r < v, moderate. $\alpha = 1.511(2)$ $\beta = 1.529(2)$ $\gamma = 1.544(2)$ 2V(meas.) = n.d. $2V(\text{calc.}) = 84^{\circ}$

Cell Data: Space Group: $P\overline{1}$. a = 9.590(2) b = 9.818(2) c = 6.860(1) $\alpha = 108.04(3)^{\circ}$ $\beta = 99.63(3)^{\circ}$ $\gamma = 98.87(3)^{\circ}$ Z = 2

X-ray Powder Pattern: Barker mine, South Dakota, USA. 9.2 (100), 5.06 (60), 5.41 (50), 4.58 (40), 2.834 (40), 2.701 (40), 2.943 (30)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
P_2O_5	35.30	36.5	35.58	Na_2O	0.09		
Al_2O_3	9.35	12.6	12.78	\mathbf{F}	n.d.	2.0	
FeO	7.4	6.9		$\mathrm{H_2O^+}$	14.6		
MnO	12.5	11.3	17.78	$\overline{\mathrm{H}_{2}^{-}}\mathrm{O}^{-}$	16.7		
ZnO	0.03			$\overline{\mathrm{H_2O}}$		31.3	33.86
$_{ m MgO}$	0.25	0.2		$-O = F_2$		0.8	
CaO	3.31			Total	99.53	[100.0]	100.00

(1) Barker mine, South Dakota, USA; corresponds to $(Mn_{0.71}Ca_{0.24}Fe_{0.15}Mg_{0.02}Na_{0.01})_{\Sigma=1.13}$ $(Al_{0.74}Fe_{0.26}^{3+})_{\Sigma=1.00}(PO_3OH)_{2.00}(OH)_{1.26} \cdot 6.35H_2O.$ (2) Do.; by electron microprobe, total Fe as FeO, total Mn as MnO, H₂O by the Penfield method, normalized to 100.0% with H₂O as determined, from an original total of 106.5%, thought high due to loss of H₂O in the electron beam; then corresponds to $(Mn_{0.64}Fe_{0.38}Mg_{0.02})_{\Sigma=1.04}Al_{1.00}(PO_3OH)_{2.08}$ [(OH)_{0.44}F_{0.42}]_{\Sigma=0.86} \cdot 5.56H₂O. (3) MnAl(PO₃OH)₂(OH) \cdot 6H₂O.

Occurrence: A late-stage hydrothermal alteration product of triphylite in complex zoned granite pegmatites.

Association: Vivianite, huréaulite, carbonate-apatite, strengite, barbosalite, fluellite (Barker pegmatite, South Dakota, USA).

Distribution: In the USA, from the Barker (Ferguson) mine, five km southeast of Keystone, Pennington Co., South Dakota; and in the Palermo #3 mine, near North Groton, Grafton Co., New Hampshire.

Name: To honor Dr. John Sinkankas (1915–2002), American author and bibliographer on mineralogical and gemological subjects.

Type Material: The Natural History Museum, London, England; National Museum of Natural History, Washington, D.C., USA, 149597.

References: (1) Peacor, D.R., P.J. Dunn, W.L. Roberts, T.J. Campbell, and W.B. Simmons (1984) Sinkankasite, a new phosphate from the Barker pegmatite, South Dakota. Amer. Mineral., 69, 380–382. (2) Burns, P.C. and F.C. Hawthorne (1995) The crystal structure of sinkankasite, a complex heteropolyhedral sheet mineral. Amer. Mineral., 80, 620–627.

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