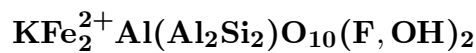


**Siderophyllite**

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**Crystal Data:** Monoclinic. *Point Group:* n.d. Crystals sharp, pseudo-hexagonal, to 1 cm; in foliated aggregates.**Physical Properties:** *Cleavage:* {001}, perfect. *Hardness* = 2.5–3 *D*(meas.) = 3.1  
*D*(calc.) = [3.17]**Optical Properties:** Semitransparent. *Color:* Black, dark brown, dark green.  
*Optical Class:* Biaxial (-). *Pleochroism:* X = brown; Y = Z = dark brown. *Orientation:* Y = b.  
*Dispersion:* r < v.  $\alpha = 1.590$   $\beta = 1.640$   $\gamma = 1.640$  *2V*(meas.) = Small.**Cell Data:** *Space Group:* n.d. (synthetic  $\sim\text{KFe}_2^{2+}\text{Al}(\text{Al}_2\text{Si}_2)\text{O}_{10}(\text{OH})_2$ ). *a* = 5.348(2)  
*b* = 9.261(3) *c* = 10.263(4)  $\beta = 100.19(7)^\circ$  *Z* = 2**X-ray Powder Pattern:** Altenberg, Germany; resembles zinnwaldite. (ICDD 25-1355).  
9.99 (10b), 2.62 (10), 3.36 (9), 3.27 (9), 1.542 (9), 2.432 (8), 1.666 (8b)

<b>Chemistry:</b>	(1)	(2)		(1)	(2)
SiO <sub>2</sub>	34.21	37.01	Na <sub>2</sub> O	1.43	0.58
TiO <sub>2</sub>		0.02	K <sub>2</sub> O	6.50	9.02
Al <sub>2</sub> O <sub>3</sub>	16.53	15.89	Rb <sub>2</sub> O		0.19
Fe <sub>2</sub> O <sub>3</sub>	20.15	trace	Cs <sub>2</sub> O		0.12
FeO	14.17	30.16	F	0.08	3.88
MnO	0.91	1.01	Cl		0.24
MgO	1.34	0.22	H <sub>2</sub> O		1.92
CaO	0.48	0.10	LOI	4.54	
Li <sub>2</sub> O		1.01	-O = (F, Cl) <sub>2</sub>	0.03	1.68
			<b>Total</b>	<b>100.31</b>	<b>99.69</b>

(1) Pikes Peak, Colorado, USA; loss on ignition taken as H<sub>2</sub>O. (2) Brooks Mountain [sic], Alaska, USA; corresponds to (K<sub>0.93</sub>Na<sub>0.09</sub>Rb<sub>0.01</sub>) $\Sigma=1.03$ Fe<sub>2.02</sub><sup>2+</sup>(Al<sub>0.47</sub>Li<sub>0.33</sub>Mn<sub>0.07</sub>Mg<sub>0.03</sub>) $\Sigma=0.90$ (Si<sub>2.97</sub>Al<sub>1.03</sub>) $\Sigma=4.00$ O<sub>10</sub>(F, OH)<sub>2</sub>.**Polymorphism & Series:** 1M polytype.**Mineral Group:** Mica group.**Occurrence:** In pegmatites in nepheline syenite; in greisens in granite and aplite.**Association:** Microcline, astrophyllite (Pikes Peak, Colorado, USA).**Distribution:** On Pikes Peak, El Paso Co., Colorado, and in the Brooks Range, Alaska, USA. At Mont Saint-Hilaire, Quebec, Canada. From Altenberg, Saxony, Germany. In the Reschen Pass, Trentino-Alto Adige, Italy. At Badzhala, Ural Mountains, Russia. From Newcastle, Co. Down, Ireland. Probably additional localities exist.**Name:** From the Greek for *iron* and *leaf*, for its composition and habit.**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 627–632.  
(2) Foster, M.D. (1960) Interpretation of the composition of trioctahedral micas. U.S. Geol. Sur. Prof. Paper 354-B, 11–49. (3) Levillain, C., P. Maurel, and F. Menil (1981) Mössbauer studies of synthetic and natural micas on the polyolithionite-siderophyllite join. Phys. Chem. Minerals, 7, 71–76.