

**Lepidolite****K(Li, Al)<sub>3</sub>(Si, Al)<sub>4</sub>O<sub>10</sub>(F, OH)<sub>2</sub>**

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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$  or  $m$  (1M). Tabular to prismatic pseudohexagonal crystals, commonly with rounded terminal faces, to 20 cm. In coarse to fine scaly aggregates and massive. *Twinning:* Rare, composition plane {001}, twin axis [310].

**Physical Properties:** *Cleavage:* {001}, perfect. *Tenacity:* Flexible, elastic. Hardness = 2.5–4 D(meas.) = 2.8–2.9 D(calc.) = 2.693

**Optical Properties:** Transparent to translucent. *Color:* Pink, purple, rose-red, violet-gray, yellowish, white, colorless; colorless to pale pink in thin section. *Luster:* Pearly to vitreous. *Optical Class:* Biaxial (-). *Pleochroism:*  $X =$  almost colorless;  $Y = Z =$  pink, pale violet. *Orientation:*  $Y = b$ ;  $X \wedge a = 90^\circ\text{--}87^\circ$ ;  $Z \wedge a = 0^\circ\text{--}7^\circ$ . *Dispersion:*  $r > v$ , weak. *Absorption:*  $Y \simeq Z > X$ .  $\alpha = 1.525\text{--}1.548$   $\beta = 1.551\text{--}1.585$   $\gamma = 1.554\text{--}1.587$   $2V(\text{meas.}) = 0^\circ\text{--}58^\circ$

**Cell Data:** *Space Group:*  $C2/m$  (1M).  $a = 5.209(2)$   $b = 9.011(5)$   $c = 10.149(5)$   $\beta = 100.77(4)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Topsham, Sagadahoc Co., Maine, USA; 1M. (ICDD 10-485). 3.34 (100), 10.0 (75), 4.99 (75), 3.62 (75), 3.08 (75), 2.578 (75), 1.992 (60)

**X-ray Powder Pattern:** Gunnison Co., Colorado, USA;  $2M_2$ . (ICDD 14-11). 2.577 (100), 1.989 (80), 10.0 (60), 5.0 (50), 4.5 (50), 3.62 (50), 3.48 (50)

Chemistry:	(1)		(2)		
	(1)	(2)	(1)	(2)	
SiO <sub>2</sub>	48.58	51.45	K <sub>2</sub> O	10.02	9.09
Al <sub>2</sub> O <sub>3</sub>	28.93	22.62	Rb <sub>2</sub> O	0.91	1.69
Fe <sub>2</sub> O <sub>3</sub>		0.16	Cs <sub>2</sub> O	0.16	0.94
FeO	0.04	0.04	F	4.93	7.40
MnO	0.92	0.51	H <sub>2</sub> O <sup>+</sup>	2.56	2.36
MgO	0.00	0.53	H <sub>2</sub> O <sup>-</sup>	0.54	0.84
CaO	trace	0.20	-O = F <sub>2</sub>	2.08	3.11
Li <sub>2</sub> O	3.70	5.42	rem.		0.01
Na <sub>2</sub> O	0.87	0.26	Total	100.08	100.41

(1) Stewart mine, Pala, California, USA; TiO<sub>2</sub> trace; corresponds to (K<sub>0.85</sub>Na<sub>0.11</sub>Rb<sub>0.04</sub>)<sub>Σ=1.00</sub> (Al<sub>1.50</sub>Li<sub>0.99</sub>Mn<sub>0.05</sub>)<sub>Σ=2.54</sub> (Si<sub>3.23</sub>Al<sub>0.77</sub>)<sub>Σ=4.00</sub> O<sub>10</sub>[(OH)<sub>1.14</sub>F<sub>1.04</sub>]<sub>Σ=2.18</sub>. (2) Radkovice, Czech Republic; remainder includes traces of Ga<sub>2</sub>O<sub>3</sub>, Cr<sub>2</sub>O<sub>3</sub>, and Tl<sub>2</sub>O<sub>3</sub>; corresponds to (K<sub>0.79</sub>Rb<sub>0.07</sub>Na<sub>0.03</sub>Cs<sub>0.03</sub>Ca<sub>0.01</sub>)<sub>Σ=0.93</sub> (Li<sub>1.48</sub>Al<sub>1.30</sub>Mg<sub>0.05</sub>Mn<sub>0.03</sub>Fe<sub>0.01</sub><sup>3+</sup>)<sub>Σ=2.87</sub> (Si<sub>3.49</sub>Al<sub>0.51</sub>)<sub>Σ=4.00</sub> O<sub>10</sub>(F, OH)<sub>2</sub>.

**Polymorphism & Series:** 1M, 2M<sub>2</sub>, 3A polytypes common; 2M<sub>1</sub>, 3M<sub>2</sub> rare; a group name.

**Mineral Group:** Mica group.

**Occurrence:** In granite pegmatites, derived by metasomatic replacement of muscovite or biotite; in some high-temperature quartz veins, greisens, and granites.

**Association:** Spodumene, elbaite, amblygonite, columbite, cassiterite, topaz, beryl, micas.

**Distribution:** At Rožná, near Bystřice, Czech Republic. From Alabashka, Ural Mountains, Russia. In the Varuträsk pegmatite, 15 km northwest of Skellefteå, Västerbotten, Sweden. In the USA, at Mt. Mica, near Paris, Oxford Co., and Auburn, Androscoggin Co., Maine; in the Mesa Grande and Pala districts, San Diego Co., California; from the Brown Derby pegmatite, Gunnison Co., Colorado; in the Ingersoll mine, near Keystone, Pennington Co., South Dakota. From the Tanco mine, Bernic Lake, Manitoba, Canada. At Maharitra, Mt. Bity, Madagascar. From Bikita, All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.

Zimbabwe. In India, at Hazaribagh, Bihar. From the Virgem da Lapa pegmatite, Minas Gerais, Brazil.

**Name:** From the Greek *lepidos* for *scale*, in allusion to its micaceous structure.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 624–625.  
(2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 3, sheet silicates, 85–91. (3) Guggenheim, S. (1981) Cation ordering in lepidolite. Amer. Mineral., 66, 1221–1232.