

**Crystal Data:** Monoclinic. *Point Group:* 2/m: As bladed or acicular crystals, flattened on {010} and elongated along [001], and as flat plates; also as spherulites and radiating fibrous clusters.

*Twinning:* By two-fold rotation around  $[40\bar{1}]$ .

**Physical Properties:** *Cleavage:* Two good prismatic cleavages noted. Hardness = < 2  
D(meas.) = ~ 4.1 D(calc.) = 3.80 Radioactive.

**Optical Properties:** Transparent to translucent. *Color:* Yellow. *Luster:* Waxy to silky.  
Optical Class: Biaxial (-).  $\alpha = 1.596$   $\beta = 1.603$   $\gamma = 1.606$   $2V(\text{meas.}) = \sim 60^\circ$   $2V(\text{calc.}) = 66^\circ$   
*Pleochroism:* X = colorless, Y = pale yellow-green, Z = yellow-green. *Dispersion:*  $r > v$ , strong.  
*Orientation:* X = b, Y = c, Z = a.

**Cell Data:** *Space Group:* C2/m.  $a = 14.26(2)$   $b = 35.88(10)$   $c = 14.20(2)$   $\beta = 111.578(3)^\circ$  Z = 4

**X-ray Powder Pattern:** Thomas Range, Utah, USA.

7.11 (10), 5.57 (9), 8.98 (8), 3.55 (7), 3.30 (7), 2.91 (6), 3.20 (5)

Chemistry:	(1)		(1)
Na <sub>2</sub> O	0.53	Al <sub>2</sub> O <sub>3</sub>	0.6
K <sub>2</sub> O	4.73	SiO <sub>2</sub>	29.44
CaO	0.67	UO <sub>3</sub>	55.78
BaO	3.11	<u>H<sub>2</sub>O</u>	<u>17.021</u>
MgO	0.18	Total	101.28
SrO	0.20		

(1) Anderson mine, Arizona, USA; average of 8 electron microprobe analyses, supplemented by TGA, H<sub>2</sub>O calculated from structure, corresponds to  $(K_{1.031}Na_{0.176}Ca_{0.123}Ba_{0.208})_{\Sigma=1.537}(UO_2)_{2.002}(Si_{5.030}O_{13}) \cdot 4H_2O$ .

**Occurrence:** In "opal" veinlets in rhyolite, agglomerates, sandstones and limestones.

**Association:** "Opal," "chalcedony," calcite, gypsum, fluorite, uraninite, thorigummite, uranophane, boltwoodite, carnotite, margaritasite.

**Distribution:** In the USA, in Utah, at the Autunite No. 8 and Good Will claims, Thomas Range, Juab Co.; in California, from the Coso Mountains, Inyo Co., and in the Red Rock district, Lassen Co.; in New Mexico, from the Jackpile mine, Laguna, Valencia Co.; in Wyoming, in the Silver Cliff mine, near Lusk, Niobrara Co.; and in Nevada, at Teels Marsh, Mineral Co. From the Mammoth mine, near Presidio, Presidio Co., Texas; in Arizona, from the Red Knob claims, Muggins Mountains, Yuma Co. and the Anderson mine, Yavapai Co.; and from the Williams quarry, Easton, Northampton Co., Pennsylvania, USA. At the Margaritas and other mines, Sierra Peña Blanca, Chihuahua, Mexico. In France, from Les Bois-Noirs, Loire. From Rössing, Namibia.

**Name:** Honors Dr. Mary Alice Dowse Weeks (1909-1988), mineralogist with the U.S. Geological Survey, noted specialist in the mineralogy of uranium and vanadium.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 128713, 115886, 121949.

**References:** (1) Outerbridge, W.F., M.H. Staatz, R. Meyrowitz, and A.M. Pommer (1960) Weeksite, a new uranium silicate from the Thomas Range, Juab County, Utah. *Amer. Mineral.*, 45, 39-52. (2) Stohl, F.V. and D.K. Smith (1981) The crystal chemistry of the uranyl silicate minerals. *Amer. Mineral.*, 66, 610-625. (3) Fejfarova, K., J. Plášil, H. Yang, J. Čejka, M. Dušek, R.T. Downs, M.C. Barkley, and R. Škoda (2012) Revision of the crystal structure and chemical formula of weeksite,  $K_2(UO_2)_2(Si_5O_{13}) \cdot 4H_2O$ . *Amer. Mineral.*, 97, 750-754. (4) (2012) *Amer. Mineral.*, 97, 2072 (abs. ref. 3)