

**Wilcoxite****MgAl(SO<sub>4</sub>)<sub>2</sub>F·17–18H<sub>2</sub>O**

©2001-2005 Mineral Data Publishing, version 1

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$  or 1. As stubby crystals, showing {010}, {110}, {100},  $\{\bar{1}10\}$ ,  $\{0\bar{1}1\}$ , typically with rounded edges, to about 1 mm, aggregated in thick crusts and spongy masses, may be stalactitic.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = 1–2 D(meas.) = 1.58(1) D(calc.) = 1.67 Soluble in H<sub>2</sub>O; slightly heated, it will dissolve in its own H<sub>2</sub>O.

**Optical Properties:** Transparent. *Color:* Colorless, pale blue, pale green, becoming milky white on exposure to air. *Luster:* Greasy.  
*Optical Class:* Biaxial (-).  $\alpha = 1.424\text{--}1.425$   $\beta = 1.436$   $\gamma = 1.437\text{--}1.438$  2V(meas.) = n.d. 2V(calc.) = 48°

**Cell Data:** *Space Group:*  $P\bar{1}$  or  $P1$ .  $a = 14.90$   $b = 6.65$   $c = 6.77$   $\alpha = 117^\circ 26'$   
 $\beta = 100^\circ 35'$   $\gamma = 89^\circ 10'$   $Z = 1$

**X-ray Powder Pattern:** Lone Pine mine, New Mexico, USA.  
4.908 (10), 5.654 (9), 4.371 (6), 3.384 (5), 5.877 (4), 4.117 (4), 2.980 (4)

Chemistry:	(1)	(2)	(3)
SO <sub>3</sub>	27.50	27.89	27.29
SiO <sub>2</sub>		0.29	
Al <sub>2</sub> O <sub>3</sub>	8.13	8.20	8.69
Fe <sub>2</sub> O <sub>3</sub>	0.46	0.30	
MnO	0.13		
MgO	6.61	7.25	6.87
F	3.48	4.00	3.24
H <sub>2</sub> O	56.40	52.92	55.27
-O = F <sub>2</sub>	1.47	1.68	1.36
Total	101.24	99.17	100.00

- (1) Lone Pine mine, New Mexico, USA; by microanalysis, H<sub>2</sub>O by the Penfield method.  
(2) Deputatskoye deposit, Russia. (3) MgAl(SO<sub>4</sub>)<sub>2</sub>F·18H<sub>2</sub>O.

**Occurrence:** A rare post-mine mineral deposited from solutions derived from an oxidizing breccia zone (Lone Pine mine, New Mexico, USA); in intensely oxidized cassiterite–tourmaline–quartz–polysulfide ore (Deputatskoye deposit, Russia).

**Association:** Fluorite, gypsum, khademite, lannonite, pyrite (Lone Pine mine, New Mexico, USA); melanterite, fibroferrite, gypsum, goethite, ice (Deputatskoye deposit, Russia).

**Distribution:** From the Lone Pine mine, Wilcox district, near Silver City, Catron Co., New Mexico, USA. In the Deputatskoye tin deposit, northeast Sakha, Russia. From the Valle del Cura, San Juan Province, Argentina.

**Name:** To honor William Wilcox (?–1880), discoverer of the Wilcox district, New Mexico, USA.

**Type Material:** Natural History Museum, Paris, France; The Natural History Museum, London, England, 1980,545; National Museum of Natural History, Washington, D.C., USA, 149525.

**References:** (1) Williams, S.A. and F.P. Cesbron (1983) Wilcoxite and lannonite, two new fluosulphates from Catron Co., New Mexico. *Mineral. Mag.*, 47, 37–40. (2) (1984) *Amer. Mineral.*, 69, 407 (abs. ref. 1). (3) Zhdanov, Y.Y., L.I. Solov'yev, and V.S. Suknev (1993) Wilcoxite from Yakutia [Sakha], its second find in the world. *Doklady Acad. Nauk SSSR*, 317, 136–139 (in English).

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.