Oberwolfachite $SrFe^{3+}_3(AsO_4)(SO_4)(OH)_6$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}\,2/m$. As tabular to lamellar hexagonal crystals to 3 mm with dominant {0001} modified by {0112} and in globular, rosette-like aggregates to 6 mm.

Physical Properties: *Cleavage*: Distinct on {0001}. *Tenacity*: Brittle. *Fracture*: Uneven.
Hardness = 5 D(meas.) = n.d. D(calc.) = 3.874

Optical Properties: Translucent. *Color*: Light yellow to brown, gray in reflected light.
Streak: Brownish yellow. *Luster*: Adamantine.
Optical Class: *n*(calc.) = 1.91 *Bireflectance*: Weak. *Anisotropy*: Weak. Nonpleochroic.
R_1-R_2: (470) 9.2-9.5, (546) 8.6-8.8, (589) 8.4-8.6, (650) 8.3-8.5

Cell Data: *Space Group: R* $\bar{3}$ *m*. *a* = 7.3270(3) *c* = 17.0931(9) Z = 3

X-Ray Diffraction Pattern: Clara mine, Schwarzwald, Baden-Württemberg, Germany.
3.082 (100), 5.95 (56), 3.664 (37), 1.983 (26), 2.280 (22), 1.832 (19), 3.117 (16)

Chemistry:

	(1)	(2)	(3)
K_2O	1.25	1.86	
SrO	6.41	11.15	17.50
BaO	8.13	0.45	
PbO	2.18		
Al_2O_3	0.16	0.23	
Fe_2O_3	38.99	39.98	40.44
La_2O_3	1.68		
Ce_2O_3	1.28	2.06	
P_2O_5	0.12		
As_2O_5	17.55	16.85	19.41
SO_3	12.86	14.99	13.52
H_2O	[8.72]	[9.05]	9.13
Total	99.33	96.62	100.00

(1) Clara mine, Oberwolfach, Schwarzwald, Baden-Württemberg, Germany; average electron microprobe analysis supplemented by IR spectroscopy, H_2O from stoichiometry; corresponds to $(Sr_{0.38}Ba_{0.33}K_{0.16}Pb_{0.06}La_{0.06}Ce_{0.05})_{\Sigma=1.04}(Fe^{3+}_{3.03}Al_{0.02})_{\Sigma=3.05}[(SO_4)_{1.00}(AsO_4)_{0.95}(PO_4)_{0.01}](O_{6.16}H_{6.00})$.
(2) Monterniers mine, Lantignié, Rhône, Auvergne-RhôneAlpes, France; average electron microprobe analysis, H_2O from stoichiometry; corresponds to $(Sr_{0.64}K_{0.24}Ce_{0.08}Ba_{0.02})_{\Sigma=0.97}(Fe^{3+}_{3.00}Al_{0.02})_{\Sigma=3.02}[(SO_4)_{1.12}(AsO_4)_{0.88}](OH)_6$. (3) $SrFe^{3+}_3(AsO_4)(SO_4)(OH)_6$.

Mineral Group: Alunite supergroup, beudantite group.

Occurrence: Secondary in a low-temperature association.

Association: Quartz, baryte, hematite, illite, goethite, beudantite, dussertite (Clara); arsenogoyazite, jarosite, graulichite-(Ce), goethite, hematite (Monterniers).

Distribution: From the Clara mine, Oberwolfach, Schwarzwald, Baden-Württemberg, Germany (holotype) and the Monterniers mine, Lantignié, Rhône, Auvergne-RhôneAlpes, France (cotype).

Name: For the *Oberwolfach* baryte mining area where the studied material was collected first.

Type Material: A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (5674/1 holotype) and the Natural History Museum, University of Oslo, Norway (KNR 44331 cotype).

References: (1) Chukanov, N.V., G. Möhn, F. Dal Bo, N.V. Zubkova, D.A. Varlamov, I.V. Pekov, L. Jouffret, J.-M. Henot, P. Chollet, Y. Vessely, H. Friis, D.A. Ksenofontov, A.A. Agakhanov, S.N. Britvin, J. Desor, N.N. Koshlyakova, and D.Yu. Pushcharovsky (2021) Oberwolfachite, $SrFe^{3+}_3(AsO_4)(SO_4)(OH)_6$, a new alunite-supergroup mineral from the Clara mine, Schwarzwald, Germany and Monterniers mine, Rhône, France. Mineral. Mag., 85(5), 808-816.