Alarsite $AlAsO_4$

Crystal Data: Hexagonal. *Point Group:* 32. Subhedral grains, to 0.3 mm, in aggregates.

Physical Properties: *Tenacity:* Brittle. Hardness = n.d. VHN = 336–480, average 440 (20 g load). D(meas.) = 3.32(1) D(calc.) = 3.34

Optical Properties: Semitransparent. *Color:* Colorless, with pale tints of yellow, green, blue due to inclusions; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (+). $\omega = 1.596(1)$ $\epsilon = 1.608(1)$

Cell Data: *Space Group:* [$P3_121$ or $P3_221$] (by analogy to synthetic $AlAsO_4$). $a = 5.031(1)$ $c = 11.226(6)$ Z = 3

X-ray Powder Pattern: Tolbachik volcano, Russia.
3.442 (100), 4.06 (31), 4.36 (20), 1.873 (16), 2.359 (15), 1.4202 (11), 2.514 (8)

Chemistry:

	(1)	(2)
As_2O_5	66.71	69.27
Al_2O_3	31.98	30.73
Fe_2O_3	0.60	
CuO	0.54	
Total	99.83	100.00

(1) Tolbachik volcano, Russia; by electron microprobe, average of 20 analyses, total Fe as Fe_2O_3; corresponds to $(Al_{1.04}Fe_{0.01}Cu_{0.01})_{\Sigma=1.06}As_{0.96}O_4$. (2) $AlAsO_4$.

Occurrence: A fumarolic mineral.

Association: Fedotovite, klyuchevskite, lammerite, nabokoite, atlasovite, langbeinite, hematite, tenorite.

Distribution: Occurs at the Tolbachik fissure volcano, Kamchatka Peninsula, Russia.

Name: For ALuminum and ARSenic in the composition.

Type Material: Mining Institute, St. Petersburg, Russia.

References: (1) Semenova, T.F., L.P. Vergasova, S.K. Filatov, and V.V. Ananev (1994) Alarsite $AlAsO_4$: a new mineral from volcanic exhalations. Doklady Acad. Nauk SSSR, 338, 501–505 (in Russian). (2) (1995) Amer. Mineral., 80, 1328 (abs. ref. 1).