

Crystal Data: Monoclinic. *Point Group:* 2/m. As zones to 0.05 mm in crude prismatic crystals of V- and P-containing tilasite or as homogeneous grains to 0.1 mm. As intimate intergrowths with anhydrite, rhabdoborite-group minerals, V and As-enriched fluorapatite, and magnesioferrite.

Physical Properties: *Cleavage:* None observed. *Tenacity:* n.d. *Fracture:* Uneven. *Hardness:* = n.d. *D(meas.)* = n.d. *D(calc.)* = 3.453

Optical Properties: Transparent to semi-transparent. *Color:* Colorless, gray in reflected light.

Streak: White. *Luster:* Vitreous.

Optical Class: Anisotropy: Distinct. *Birefractance:* Very weak. Non-pleochroic.

R₁-R₂: (470) 7.4-7.1, (546) 6.9-6.4, (589) 6.9-6.4, (650) 7.1-6.5

Cell Data: *Space Group:* C2/c. *a* = 6.6912(7) *b* = 8.9395(7) *c* = 7.0587(8) *β* = 113.078(13)° *Z* = 4

X-Ray Diffraction Pattern: Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. 3.082 (100), 3.250 (66), 2.631 (44), 2.854 (34), 2.683 (33), 3.686 (26), 2.531 (25)

| Chemistry: | (1) | (2) |
|--------------------------------|-------------|-------------|
| MgO | 20.44 | 20.32 |
| CaO | 26.83 | 28.28 |
| P ₂ O ₅ | 6.24 | |
| V ₂ O ₅ | 21.09 | 45.86 |
| As ₂ O ₅ | 18.97 | |
| SO ₃ | 0.47 | |
| F | 9.42 | 9.58 |
| <u>-O = F</u> | <u>3.97</u> | <u>4.04</u> |
| Total | 99.49 | 100.00 |

(1) Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia; average electron microprobe analysis and Raman spectroscopy; corresponds to Ca_{0.97}Mg_{1.03}(V_{0.47}As_{0.33}P_{0.18}S_{0.01})_{Σ=0.99}O_{3.99}F_{1.01}.
 (2) CaMg(VO₄)F.

Mineral Group: Tilasite group.

Occurrence: In polymineralic sublimate encrustations at an active volcanic fumarole.

Association: Svabite-fluorapatite-pliniusite system; schäferite-berzeliite, tilasite-isokite, wagnerite-arsenowagnerite and udinaite-arsenudinaite series; calciojohillerite, diopside, forsterite, titanite, rhabdoborite-(V), rhabdoborite-(W), rhabdoborite-(Mo), ludwigite, powellite, scheelite, hematite, baryte, magnesioferrite.

Distribution: From the Arsenatnaya fumarole, Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: Honors Russian mineralogist Leonid Zinovievich *Reznitsky* (b. 1938), Institute of the Earth's Crust, Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia, for contributions to the mineralogy of vanadium.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (97682).

References: (1) Koshlyakova, N.N., I.V. Pekov, M.F. Viggasina, N.V. Zubkova, A.A. Agakhanov, S.N. Britvin, E.G. Sidorov, and D.Yu. Pushcharovsky (2022) Reznitskyite, CaMg(VO₄)F, a new mineral from the Tolbachik volcano, Kamchatka, Russia and the first vanadate with a titanite-type structure. *Mineral. Mag.*, 86(2), 307-313.