

Meniaylovite**Ca₄AlSi(SO₄)F₁₃·12H₂O**

Crystal Data: Cubic. *Point Group:* $2/m\bar{3}$. As octahedral and cubo-octahedral crystals to 0.2 mm; in yellowish-white crusts.

Physical Properties: *Cleavage:* n.d. *Tenacity:* n.d. *Hardness =* n.d. *Fracture:* n.d.
D(meas.) = 2.25(2) D(calc.) = n.d.

Optical Properties: Transparent. *Color:* Colorless or white. *Streak:* n.d. *Luster:* Vitreous.
Optical Class: Isotropic. $n(\text{calc.}) = 1.430(1)$

Cell Data: *Space Group:* $Fd\bar{3}$. $a = 16.722(2)$ $Z = 8$

X-ray Powder Pattern: Tolbachik Volcano, Kamchatka, Russia.
9.63 (100), 5.91 (46), 2.178 (33), 3.219 (32), 2.235 (28), 5.04 (27), 4.17 (19)

Chemistry:	(1)
CaO	28.96
Al ₂ O ₃	6.85
SiO ₂	7.77
SO ₃	10.33
H ₂ O ⁺	27.89
F	31.90
<u>-O = F</u>	<u>13.43</u>
Total	100.00

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Mineral Group: Chukhrovite group.

Occurrence: A product of the alteration of volcanic rocks by fumarole gases.

Association: Malladrite, hieratite(?), ralstonite, anhydrite, gypsum, hematite (Tolbachik); anhydrite, bassanite, gypsum, jarosite, anatase, hematite, opal, ralstonite, jakobssonite, oskarssonite (Eldfell).

Distribution: From First and Second cinder cones, Northern Breakthrough of the Tolbachik Main Fracture Eruption (1975-1976), Tolbachik Volcano, Kamchatka, Russia [TL]. At Eldfell volcano, Heimaey Island, Vestmannaeyjar archipelago, Iceland.

Name: Honors Russian volcanologist Igor Aleksandrovich *Meniayloy* (1937-1993), for his study of the geochemistry of exhalations of the Tolbachik Main Fracture Eruption; Institute of Volcanology, Far East Branch, Russian Academy of Sciences, Petropavlovsk-Kamchatsky, Russia.

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

References: (1) Vergasova, L.P., T.F. Semyonova, V.B. Epifanova, S.K. Filatov, and V.M. Chubarov (2004) Meniaylovite, Ca₄AlSi(SO₄)F₁₃·12H₂O, a new mineral of volcanic exhalations. *Vulkanologiya i Seismologiya*, 2, 3-5 (in Russian). (2) Mathew, M., S. Takagi, K.R. Waerstad, and A.W. Frazier (1981) The crystal structure of synthetic chukhrovite, Ca₄AlSi(SO₄)F₁₃·12H₂O. *Amer. Mineral.*, 66, 392-397. (3) Jacobsen, M.J., T. Balić-Žunić, D. Mitolo, A. Katerinopoulou, A. Garavelli, and S.P. Jacobsson (2014) Oskarssonite, AlF₃, a new fumarolic mineral from Eldfell volcano, Heimaey, Iceland. *Mineral. Mag.*, 78(1), 215-222 [locality].