

Zajacite-(Ce)**Na(Ca, Ce, La)₂F₆**

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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. As very fine-grained crusts and films on, and complete replacements of, bismuthinite crystals.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 7.88\text{--}8.34$ $D(\text{calc.}) = 9.21$

Optical Properties: Transparent in thin layers. *Color:* Gray; colorless in transmitted light. *Luster:* Semimetallic to greasy.

Optical Class: Uniaxial; anomalous weak birefringence. $n = 2.213(5)$

Cell Data: *Space Group:* $P4/nmm$ (synthetic). $a = 3.75(1)$ $c = 6.23(1)$ $Z = 2$

X-ray Powder Pattern: Mt. Sherlova, Russia.

1.028–1.025 (10), 0.998 (10), 1.141 (9), 1.108 (9), 1.037 (9), 3.18 (8), 1.614 (8b)

Chemistry:

	(1)	(2)
Bi ₂ O ₃	94.93	95.49
F	4.33	7.79
H ₂ O	0.51	
CO ₂	1.84	
S	0.50	
–O = F ₂	1.82	3.28
–O = S	0.25	
Total	100.04	100.00

(1) Mt. Sherlova, Russia; after deduction of bismuthinite and bismutite, corresponds to Bi_{1.10}O_{1.00}[F_{0.80}(OH)_{0.20}]_{Σ=1.00}. (2) BiOF.

Occurrence: An alteration product of bismuthinite in bismuth-bearing hydrothermal ore deposits in quartz-topaz-siderophyllite greisens cutting a granite pluton (Mt. Sherlova, Russia); in a quartz-muscovite-topaz greisen (Torrington, Australia).

Association: Bismuthinite, bismuth, bismutite, gold (Mt. Sherlova, Russia); bismuthinite (Torrington, Australia).

Distribution: From Mt. Sherlova, Chita region, eastern Transbaikal, Siberia, Russia. At the Fielders Hill mine, near Torrington, New South Wales, Australia. In Japan, from the Ebisu mine, Hirugawa, Gifu Prefecture. In the Moldava fluorite mine, about 20 km northwest of Teplice, Krušné hory Mountains, Czech Republic. From the Evans-Lou quarry, near Wakefield Lake, Quebec, Canada.

Name: To honor Academician Aleksandr Nikolaevich Zavaritskii (1884–1952), Russian petrographer, Institute of Geology, Moscow, Russia.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 64103, 64254–64256.

References: (1) Dolomanova, Y.I., V.M. Senderova, and M.T. Yanchenko (1962) Zavaritskite (BiOF), a new oxyfluoride mineral. *Doklady Acad. Nauk SSSR*, 146, 680–682 (in Russian).

(2) (1963) *Amer. Mineral.*, 48, 210 (abs. ref. 1).