Mozgovaite $PbBi_4(S,Se)_7$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Acicular crystals, to 600 μm, in sprays.

Physical Properties: Hardness = n.d. VHN = 116 (10 g load). D(meas.) = n.d. D(calc.) = 6.26(6)

Optical Properties: Opaque. *Color:* Silvery gray; white in reflected light. *Luster:* Metallic. *Optical Class:* Biaxial. *Anisotropism:* Strong, without color effects. *Bireflectance:* Very weak. R_1–R_2: (400) —, (420) 36.4–40.3, (440) 36.0–40.1, (460) 35.8–40.2, (480) 35.7–40.3, (500) 35.7–40.3, (520) 35.4–40.6, (540) 35.3–40.6, (560) 35.1–40.6, (580) 35.0–40.6, (600) 35.0–40.3, (620) 34.9–40.1, (640) 34.8–40.1, (660) 34.9–40.1, (680) 34.8–39.8, (700) 34.7–39.6

Cell Data: *Space Group:* *Bbmm* (by analogy to synthetic $PbBi_4S_7$). $a = 13.18(6)$ $b = 37.4(2)$ $c = 4.05(3)$ Z = 6

X-ray Powder Pattern: Vulcano, Italy.
3.80 (10), 2.95 (4B), 2.34 (4B), 3.58 (3), 3.30 (3), 3.40 (2), 3.11 (2)

Chemistry:

	(1)	(2)
Pb	13.90	16.35
Cu	0.01	
Cd	0.26	
Fe	0.02	
Bi	64.79	65.94
As	0.05	
S	16.91	17.71
Total	97.57	100.00

(1) Vulcano, Italy; by electron microprobe, average of four analyses; corresponding to $(Pb_{0.87}Cd_{0.03})_{\Sigma=0.90}(Bi_{4.01}As_{0.01})_{\Sigma=4.02}(S_{6.82}Se_{0.27})_{\Sigma=7.09}$. (2) $PbBi_4S_7$.

Occurrence: Very rare, as a sublimate in a volcanic fumarole, deposited at about 600 °C.

Association: Bismuthinite, cannizzarite, lillianite, galenobismutite.

Distribution: From the Fossa crater, Vulcano, Lipari Islands, Italy [TL].

Name: In honor of Dr. Nadezhda Nikolaevna Mozgova (1931–), Russian mineralogist, Institute of Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry, Moscow, Russia, who has contributed especially to the knowledge of sulfosalt minerals.

Type Material: University of Bari, Bari, Italy, 5/nm.

References: (1) Vurro, F., A. Garavelli, C. Garbarino, Y. Moëlo, and Y.S. Borodaev (1999) Rare sulfosalts from Vulcano, Aeolian Islands, Italy. II. Mozgovaite, $PbBi_4(S,Se)_7$, a new mineral species. Can. Mineral., 37, 1499–1506. (2) (2000) Amer. Mineral., 85, 1562–1563.