Pautovite $CsFe_2S_3$

Crystal Data: Orthorhombic. *Point Group:* 2/*m* 2/*m* 2/*m.* As crude prismatic to acicular crystals to 120 μm, elongated probably on [001] by analogy to rasvumite.

Physical Properties: *Cleavage:* Perfect on {110}. *Fracture:* Splintery. *Tenacity*: Flexible needles. Hardness = 'Soft'. D(meas.) = n.d. D(calc.) = 3.85

Optical Properties: Opaque. *Color:* Dark steel-gray, grayish white to grey in reflected light. *Streak:* n.d. *Luster:* Metallic.
Optical Class: n.d. *Pleochroism:* Grayish-white to grey with a slightly pinkish tint.
Anisotropism: Strong, pale brownish tints.
R_1-R_2: (470) 13.95-24.6, (546) 14.65-23.45, (589) 15.15-24.55, (650) 16.0-27.05

Cell Data: Space Group: *Cmcm*. (analogy to rasvumite.) a = 9.477(4) b = 11.245(4) c = 5.485(2) Z = 4

X-ray Powder Pattern: Palitra pegmatite, Kedykverpakjk Mountain, Kola Peninsula, Russia. 2.981 (100), 1.910 (60), 2.723 (40), 1.565 (40), 4.69 (30), 2.003 (30), 1.785 (30)

Chemistry:

	(1)	(2)
K	0.21	
Rb	1.31	
Cs	36.12	39.00
Tl	0.50	
Fe	33.80	32.78
S	28.85	28.22
Total	100.79	100.00

(1) Palitra pegmatite, Kedykverpakjk Mountain, Kola Peninsula, Russia; average of 16 electron microprobe analyses; corresponds to $(Cs_{0.91}Rb_{0.05}K_{0.02}Tl_{0.01})_{\Sigma=0.99}Fe_{2.02}S_{2.99}$. (2) $CsFe_2S_3$.

Occurrence: As hydrothermal overgrowths on belovite-(Ce), ussingite, microcline, nordite-(Ce) and bornemanite, and as inclusions in massive villiaumite in a lens-shaped peralkaline pegmatite within urtite-foyaite-lujavite rocks of an alkaline igneous complex.

Association: Aegirine, natrosilite, sodalite, potassicarfvedsonite, serandite, ferronordite-(Ce), vuonnemite, lomonosovite, vitusite-(Ce), phosinaite-(Ce), barytolamprophyllite, mangan-neptunite, manaksite, chkalovite, kapustinite, kazakovite, steenstrupine-(Ce), thorosteenstrupine, bario-olgite, nalipoite, sphalerite, löllingite, wurtzite, bartonite, chlorbartonite, zakharovite.

Distribution: From the Palitra peralkaline pegmatite, Kedykverpakjk Mountain, Lovozero alkaline complex, Kola Peninsula, Russia.

Name: Honors Leonid Anatol'evich Pautov (b. 1958), a Russian mineralogist with the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow, in recognition of his contribution to the study of minerals by physical methods, the mineralogy of alkaline pegmatites and the mineralogy of cesium.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow Russia (# 3168/1).

References: (1) Pekov, I.V., A.A. Agakhanov, M.M. Boldyreva, and V.G. Grishin (2005) Pautovite, $CsFe_2S_3$, a new mineral species from the Lovozero alkaline complex, Kola peninsula, Russia. Can. Mineral., 43, 965-972. (2) (2006) Amer. Mineral., 91, 712-713 (abs. ref. 1).