Svyatoslavite $CaAl_2Si_2O_8$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals prismatic ‖ [100], with {011}, {100}, and {110}, to 0.8 mm.

Physical Properties: *Cleavage:* Poor on {100}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = ∼6 D(meas.) = 2.695(5) D(calc.) = 2.687 Fluoresces weak yellowish in SW UV.

Optical Properties: Semitransparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Orientation:* $X = c$; $Y = b$; $Z = a$. $\alpha = 1.552(2)$ $\beta = 1.578(2)$ $\gamma = 1.581(2)$ 2V(meas.) = n.d. 2V(calc.) = 37.08°

Cell Data: *Space Group:* $P2_12_12$. $a = 8.232(5)$ $b = 8.606(10)$ $c = 4.852(5)$ Z = 2

X-ray Powder Pattern: Kopeysk, Russia.
3.22 (100), 4.16 (80), 2.09 (80), 2.71 (70), 1.967 (70), 1.670 (70), 3.75 (60)

Chemistry:

	(1)
SiO_2	43.62
Al_2O_3	35.37
FeO	0.02
MnO	0.00
MgO	0.03
CaO	19.33
Na_2O	0.41
K_2O	0.01
Total	98.79

(1) Kopeysk, Russia; by electron microprobe, average of two analyses; corresponds to $(Ca_{0.96}Na_{0.04})_{\Sigma=1.00}Al_{1.95}Si_{2.04}O_8$.

Polymorphism & Series: Trimorphous with anorthite and dmisteinbergite.

Mineral Group: Feldspar group.

Occurrence: In burning dumps, as a sublimate on fracture walls in coal, formed at about 700 °C–900 °C.

Association: Anorthite, troilite, cohenite, fayalite, titanite, graphite.

Distribution: From Kopeysk, Chelyabinsk coal basin, Southern Ural Mountains, Russia.

Name: For Svyatoslav Nestorovich Ivanov (1911–), Soviet geologist, Ural Scientific Center, Yekaterinburg (Sverdlovsk), Russia.

Type Material: Il'menskii Preserve Museum, Miass, 16243vr; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Chesnokov, B.V., E.V. Lotova, V.S. Pavlyuchenko, L.V. Usova, A.F. Bushmakin, and T.P. Nishanbayev (1989) Svyatoslavite $CaAl_2Si_2O_8$ (orthorhombic) – a new mineral. Zap. Vses. Mineral. Obshch., 118(2), 111–114 (in Russian). (2) (1991) Amer. Mineral., 76, 300–301 (abs. ref. 1).