Kurchatovite $Ca(Mg, Mn^{2+}, Fe^{2+})B_2O_5$

Crystal Data: Orthorhombic. *Point Group:* n.d. Granular, to 4 mm.

Physical Properties: *Cleavage:* One perfect, parallel elongation; two others, imperfect. Hardness = 4.5 D(meas.) = 3.02 D(calc.) = n.d. Fluoresces bright violet under LW UV.

Optical Properties: Semitransparent. *Color:* Pale gray. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r > v$, slight. $\alpha = 1.635(1)$ $\beta = 1.681(1)$ $\gamma = 1.698(1)$ 2V(meas.) = 66°

Cell Data: *Space Group:* n.d. $a = 11.15(2)$ $b = 36.4(1)$ $c = 5.55(1)$ Z = 24

X-ray Powder Pattern: Solongo deposit, Russia.
2.78 (10), 1.922 (9), 2.67 (8), 1.232 (8), 2.26 (7), 2.01 (7), 1.633 (6)

Chemistry:

	(1)	(2)		(1)	(2)
As_2O_5	0.31		FeO	1.48	
CO_2	1.60		MnO	6.84	
SiO_2	0.49		ZnO	0.28	
TiO_2	0.00		MgO	19.70	24.28
B_2O_3	38.22	41.94	CaO	30.23	33.78
Al_2O_3	0.65		H_2O^+	0.66	
Fe_2O_3	0.00		Total	100.46	100.00

(1) Solongo deposit, Russia; $(B_2O_5)^{4-}$ confirmed by IR; after deduction of calcite, szaibélyite, "chlorite", and svabite, corresponds to $Ca_{0.95}(Mg_{0.81}Mn_{0.18}Fe_{0.04})_{\Sigma=1.03}B_{1.98}O_5$. (2) $CaMgB_2O_5$.

Polymorphism & Series: Dimorphous with clinokurchatovite.

Occurrence: In an iron-bearing skarn (Solongo deposit, Russia).

Association: Clinokurchatovite, szaibélyite, solongoite, hexahydroborite, calcite, "chlorite", vesuvianite, garnet, svabite, magnetite, sphalerite (Solongo deposit, Russia).

Distribution: In Russia, from the Solongo boron deposit, Buryatia, and at the Novofrolovskoye copper deposit, near Krasnoturinsk, Turinsk district, Northern Ural Mountains.

Name: To honor Igor Vasil'evich Kurchatov (1903–1960), Russian physicist, Institute of Nuclear Energy, Moscow, Russia.

Type Material: Mining Institute, St. Petersburg, 998/2, 4; Vernadsky Geological Museum, Moscow, 49712; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 68717, 72769.

References: (1) Malinko, S.V., A.E. Lisitsyn, K.A. Dorofeeva, I.V. Ostrovskaya, and D.P. Shashkin (1966) Kurchatovite – a new mineral. Zap. Vses. Mineral. Obshch., 95, 203–209 (in Russian). (2) (1966) Amer. Mineral., 51, 1816 (abs. ref. 1). (3) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. Ocean Pictures, Moscow, 123.