Korzhinskite $CaB_2O_4 \cdot 0.5H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Granular, prismatic, in lamellar aggregates. *Twinning:* Observed in some thin sections.

Physical Properties: *Cleavage:* One, parallel elongation. Hardness = n.d. D(meas.) = n.d. D(calc.) = n.d.

Optical Properties: Transparent. *Color:* Colorless.
Optical Class: Biaxial (+). *Orientation:* Parallel extinction; $X \perp$ cleavage, $Y = Z = \parallel$ cleavage.
$\alpha = 1.642(1)$ $\beta = 1.647(1)$ $\gamma = 1.672(1)$ 2V(meas.) = 43.6°

Cell Data: *Space Group:* $P2/m$. $a = 4.33$ $b = 6.47$ $c = 10.08$ $\beta = 85(2)°$ Z = n.d.

X-ray Powder Pattern: Novofrolovskoye deposit, Russia.
2.02 (10), 3.11 (7), 2.81 (7), 1.905 (5), 1.800 (5), 1.757 (4), 2.70 (3)

Chemistry:

	(1)	(2)
CO_3	18.41	
SiO_2	1.26	
B_2O_3	22.87	51.68
Al_2O_3	0.30	
Fe_2O_3	0.80	
FeO	trace	
MnO	0.15	
MgO	0.26	
CaO	50.12	41.63
H_2O^+	5.29	
H_2O^-	0.62	
H_2O		6.69
Total	100.08	100.00

(1) Novofrolovskoye deposit, Russia; analysis on material estimated 50% pure; after deduction of calcite, dolomite, garnet, major sibirskite, minor calciborite, then stated to correspond to $CaB_{2.10}O_{4.15} \cdot H_2O$; identification depends on correspondence of X-ray pattern with synthetic $CaB_2O_4 \cdot 0.5H_2O$. (2) $CaB_2O_4 \cdot 0.5H_2O$.

Occurrence: In boron-rich iron-ore skarn.

Association: Andradite–grossular, dolomite, calcite, sibirskite, calciborite.

Distribution: From the Novofrolovskoye copper deposit, near Krasnoturinsk, Turinsk district, Northern Ural Mountains, Russia.

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Type Material: Vernadsky Geological Museum, Moscow, 48612; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72025.

References: (1) Malinko, S.V. (1963) A new calcium borate, korzhinskite. Zap. Vses. Mineral. Obshch., 92, 555–559 (in Russian). (2) (1964) Amer. Mineral., 49, 441 (abs. ref. 1). (3) Malinko, S.V and V.T. Dubinchuk (1996) New data on calcium borates. Zap. Vses. Mineral. Obshch., 125(4), 60–71 (in Russian with English abs.).