**Pentahydroborite**  
\( \text{CaB}_2\text{O}(\text{OH})_6\cdot2\text{H}_2\text{O} \)

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**Crystal Data:** Triclinic.  
**Point Group:** \( \mathbf{T} \).  
Anhedral granular.

**Physical Properties:**  
Hardness = 2.5  
\( D(\text{meas.}) = 2.00-2.03 \)  
\( D(\text{calc.}) = 2.02 \)  
Fluoresces violet under LW UV.

**Optical Properties:**  
Transparent.  
**Color:** Colorless.  
**Luster:** Vitreous.  
**Optical Class:** Biaxial (+).  
\( \alpha = 1.530-1.532 \)  
\( \beta = 1.536-1.539 \)  
\( \gamma = 1.542-1.546 \)  
\( 2V(\text{meas.}) = 73^\circ-79^\circ \)

**Cell Data:**  
**Space Group:** \( \text{P} \).  
\( a = 7.845(4) \)  
\( b = 6.525(5) \)  
\( c = 8.124(5) \)  
\( \alpha = 111.62(5)^\circ \)  
\( \beta = 111.19(4)^\circ \)  
\( \gamma = 73.44(5)^\circ \)  
\( Z = 2 \)

**X-ray Powder Pattern:**  
Novofrolovskoye deposit, Russia.  
7.04 (10), 2.99 (9), 3.54 (8), 1.937 (8), 2.88 (6), 3.20 (5), 2.49 (5)

**Chemistry:**  
| \( \text{SiO}_2 \) | 2.80 |  
| \( \text{B}_2\text{O}_3 \) | 28.35 | 32.09 | 32.27 |  
| \( \text{Al}_2\text{O}_3 \) | 1.13 |  
| \( \text{Fe}_2\text{O}_3 \) | 1.87 |  
| \( \text{MgO} \) | 0.66 |  
| \( \text{CaO} \) | 27.27 | 25.71 | 25.99 |  
| \( \text{H}_2\text{O}^+ \) | 37.27 |  
| \( \text{H}_2\text{O} \) | 41.60 | 41.74 |  
| Total | 99.86 | 99.40 | 100.00 |  

(1) Novofrolovskoye deposit, Russia. (2) Fuka, Japan. (3) \( \text{CaB}_2\text{O}(\text{OH})_6\cdot2\text{H}_2\text{O} \).

**Occurrence:** In boron-rich iron-ore skarns (Novofrolovskoye deposit, Russia); in a volcanogenic-sedimentary borate deposit (near the Studenitsa Cloister, Yugoslavia).

**Association:** Andradite–grossular, magnetite, szaibélyite (Novofrolovskoye deposit, Russia); colemanite, howlite, ulexite, studenitsite (near the Studenitsia Cloister, Yugoslavia).

**Distribution:** In Russia, from the Novofrolovskoye copper deposit, near Krasnoturinsk, Turinsk district, Northern Ural Mountains, and at the Solongo boron deposit, Buryatia, Siberia. From the Sayak-IV boron deposit, northeast Balkhash region, Kazakhstan. Found near the Studenitsa Cloister, 280 km south of Belgrade, Yugoslavia. In Japan, at Fuka, near Bicchu, Okayama Prefecture.

**Name:** For the composition, originally described as a hydrated borate with five molecules of water per formula unit.

**Type Material:** All-Union Research Institute of Mineral Resources, Moscow, Russia.

**References:**  

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