Chukhrovite-(Ce) \( \text{Ca}_3(\text{Ce}, \text{Y})\text{Al}_2(\text{SO}_4)\text{F}_{13} \cdot 10\text{H}_2\text{O} \)

Crystal Data: Cubic. \( \text{Point Group: } 2/m \ 3 \). Octahedral crystals, to 1.5 mm.

Physical Properties: Cleavage: [On {111}, distinct.] [by analogy to chukhrovite-(Y)]. Fracture: [Irregular.] Tenacity: [Brittle.] Hardness = [\( \sim 3 \)] \( \text{D(meas.) = n.d. D(calc.) = n.d.} \)

Optical Properties: Semitransparent. Color: [Colorless.]

Optical Class: Isotropic. \( n = 1.443(2) \)

Cell Data: \( \text{Space Group: } Fd3. \ a = 16.74(4) \ Z = 8 \)

X-ray Powder Pattern: Clara mine, Germany.
9.75 (10), 5.93 (8), 3.22 (7), 2.56 (6), 2.17 (6), 4.20 (5), 2.24 (5)

Chemistry: (1) Clara mine, Germany; by electron microprobe, Ce determined as the dominant rare-earth element, with Y absent. (2) Yaroslavsk deposit, Russia; \( \text{RE}_2\text{O}_3 = \text{Y}_2\text{O}_3 \) 20.7%, \( \text{La}_2\text{O}_3 \) 8.9%, \( \text{Ce}_2\text{O}_3 \) 27.1%, \( \text{Pr}_2\text{O}_3 \) 6.3%, \( \text{Nd}_2\text{O}_3 \) 14.8%, \( \text{Sm}_2\text{O}_3 \) 7.0%, \( \text{Gd}_2\text{O}_3 \) 6.6%, \( \text{DY}_2\text{O}_3 \) 4.0%, \( \text{Er}_2\text{O}_3 \) 2.2%, \( \text{Yb}_2\text{O}_3 \) 1.4%; identity established by X-ray powder pattern and physical properties.

Occurrence: In a hydrothermal barite–fluorite vein deposit (Clara mine, Germany); from the oxidized zone of a banded sellaite–tourmaline–fluorite deposit (Yaroslavsk deposit, Russia).

Association: Fluorite, jarosite, pyrite, sulfur (Clara mine, Germany); sellaite, gearksutite, yaroslavite (Yaroslavsk deposit, Russia).

Distribution: From the Clara mine, near Oberwolfach, Black Forest, Germany. At the Yaroslavsk tin deposit, 50 km south of Lake Khanka, Primorskiy Kray, Siberia, Russia.

Name: For its relation to chukhrovite-(Y) and content of cerium as the dominant rare-earth element.

Type Material: n.d.