

Chukhrovite-(Ce)**Ca₃(Ce, Y)Al₂(SO₄)F₁₃•10H₂O**

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Crystal Data: Cubic. *Point Group:* $2/m\bar{3}$. Octahedral crystals, to 1.5 mm.

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

Optical Properties: Semitransparent. *Color:* [Colorless.]
Optical Class: Isotropic. $n = 1.443(2)$

Cell Data: *Space Group:* $Fd\bar{3}$. $a = 16.74(4)$ $Z = 8$

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; RE₂O₃ = Y₂O₃ 20.7%, La₂O₃ 8.9%, Ce₂O₃ 27.1%, Pr₂O₃ 6.3%, Nd₂O₃ 14.8%, Sm₂O₃ 7.0%, Gd₂O₃ 6.6%, Dy₂O₃ 4.0%, Er₂O₃ 2.2%, Yb₂O₃ 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, gearsutite, 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 Krai, Siberia, Russia.

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

Type Material: n.d.

References: (1) Walenta, K. (1979) Chukhrovit-(Ce) and Rhabdophan-(Ce) aus der Grube Clara bei Oberwolfach im mittlern Schwarzwald. *Chem. Erde*, 38, 331–339 (in German with English abs.). (2) (1980) *Amer. Mineral.*, 65, 1065 (abs. ref. 2). (3) Novikova, M.I. (1973) Occurrence of chukhrovite in Siberia. *Zap. Vses. Mineral. Obshch.*, 102, 200–202 (in Russian). (4) Mathew, M., S. Takagi, K.R. Waerstad, and A.W. Frazier (1981) The crystal structure of synthetic chukhrovite, Ca₄AlSi(SO₄)F₁₃•12H₂O. *Amer. Mineral.*, 66, 392–397. (5) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. *Ocean Pictures*, Moscow, 65–66.