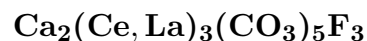


Röntgenite-(Ce)



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Crystal Data: Hexagonal. *Point Group:* 3. Crystals are hexagonal, with $\{10\bar{1}1\}$, $\{01\bar{1}2\}$, $\{11\bar{2}0\}$, small (0001), striated horizontally, to 3 mm; commonly in syntaxial intergrowth with bastnäsite-(Ce), synchysite-(Ce), parisite-(Ce), cordylite-(Ce). *Twinning:* On (0001), twin and composition plane, rare.

Physical Properties: *Fracture:* Subconchoidal. Hardness = 4.5 (by analogy to related rare-earth carbonates). $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 4.19$

Optical Properties: Transparent to translucent. *Color:* Wax-yellow, brown, green; pale yellow to colorless in transmitted light.

Optical Class: Uniaxial (+). $\omega = 1.658\text{--}1.662$ $\epsilon = 1.756$

Cell Data: *Space Group:* $R\bar{3}$. $a = 7.13(3)$ $c = 69.4(2)$ $Z = 9$

X-ray Powder Pattern: n.d.

Chemistry: (1) Chemical composition has been inferred by interpolation in the bastnäsite–synchysite series.

Occurrence: A rare late-stage hydrothermal mineral in granite pegmatite (Narssârssuk, Greenland); in alkaline orthoclase pegmatite (Mianning deposit, China).

Association: Bastnäsite-(Ce), parisite-(Ce), synchysite-(Ce) as syntactic intergrowths.

Distribution: From Narssârssuk, Greenland. In the Mianning rare-earth deposit, Sichuan Province, China. At an undefined locality in the Chatkal Range, Tien-Shan Mountains, Uzbekistan. From Mont Saint-Hilaire, Quebec, Canada.

Name: To honor Wilhelm Conrad Röntgen (1845–1923), German physicist, discoverer of X-rays, as the species was noted and confirmed by use of X-rays only.

Type Material: Harvard University, Cambridge, Massachusetts, 84233; National Museum of Natural History, Washington, D.C., USA, R2609, R2613, R2615.

References: (1) Donnay, G. (1953) Roentgenite [röntgenite], $3\text{CeFCO}_3 \cdot 2\text{CaCO}_3$, a new mineral from Greenland. *Amer. Mineral.*, 38, 868–870. (2) Donnay, G. and J.D.H. Donnay (1953) The crystallography of bastnaesite, parisite, roentgenite, and synchysite. *Amer. Mineral.*, 38, 932–963. (3) Van Landuyt, J. and S. Amelinckx (1975) Multiple beam direct lattice imaging of new mixed-layer compounds of the bastnaesite-synchysite series. *Amer. Mineral.*, 60, 351–358. (4) Ni, Y., J.M. Hughes, and A.N. Mariano (1993) The atomic arrangement of bastnäsite-(Ce), $\text{Ce}(\text{CO}_3)\text{F}$, and structural elements of synchysite-(Ce), röntgenite-(Ce), and parisite-(Ce). *Amer. Mineral.*, 78, 415–418.