

**Davidite-(Ce)****(Ce, La)(Y, U, Fe<sup>2+</sup>)(Ti, Fe<sup>3+</sup>)<sub>20</sub>(O, OH)<sub>38</sub>**

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**Crystal Data:** Hexagonal; metamict. *Point Group:* [3 or  $\bar{3}$ ] [by analogy to davidite-(La)]. In elongated masses, to 20 cm, with rough semi-linear outlines.

**Physical Properties:** *Fracture:* Subconchoidal. *Tenacity:* [Brittle.] *Hardness =* 6  
D(meas.) = 4.29 D(calc.) = n.d. Radioactive.

**Optical Properties:** Opaque, translucent in very thin fragments. *Color:* Black, brownish on oxidized surfaces; clove-brown in transmitted light; gray in reflected light. *Streak:* Black to very dark gray. *Luster:* Vitreous.

*Optical Class:* Isotropic.  $n =$  n.d.

R: n.d.

**Cell Data:** *Space Group:* [ $R\bar{3}$ ]  $a =$  n.d.  $c =$  n.d.  $Z =$  n.d.

**X-ray Powder Pattern:** Tuftane, Norway; after heating at 1030 °C for one hour.  
2.88 (vs), 2.47 (s), 2.23 (s), 2.13 (s), 1.59 (s), 1.43 (s), 3.39 (m)

**Chemistry:**

	(1)
U <sub>3</sub> O <sub>8</sub>	1.1
SiO <sub>2</sub>	0.34
TiO <sub>2</sub>	52.1
RE <sub>2</sub> O <sub>3</sub>	17.3
Fe <sub>2</sub> O <sub>3</sub>	9.5
FeO	17.1
MnO	1.0
H <sub>2</sub> O	1.63
Total	100.07

(1) Tuftane, Norway; separate spectrographic analysis of RE<sub>2</sub>O<sub>3</sub> gave: Y<sub>2</sub>O<sub>3</sub> 23%, La<sub>2</sub>O<sub>3</sub> 22%, CeO<sub>2</sub> 32%, Pr<sub>6</sub>O<sub>11</sub> 2.4%, Nd<sub>2</sub>O<sub>3</sub> 2.8%, Sm<sub>2</sub>O<sub>3</sub> < 0.2%, Eu<sub>2</sub>O<sub>3</sub> 0.4%, Gd<sub>2</sub>O<sub>3</sub> < 0.1%, Tb<sub>4</sub>O<sub>7</sub> < 0.2%, Dy<sub>2</sub>O<sub>3</sub> 1.6%, Ho<sub>2</sub>O<sub>3</sub> 0.55%, Er<sub>2</sub>O<sub>3</sub> 2.5%, Tm<sub>2</sub>O<sub>3</sub> 1.2%, Yb<sub>2</sub>O<sub>3</sub> 9.5%, Lu<sub>2</sub>O<sub>3</sub> 1.7%, and ThO<sub>2</sub> 1.5%.

**Mineral Group:** Crichtonite group.

**Occurrence:** In a pegmatite dike, rich in rare-earth minerals, in granite.

**Association:** Ilmenite, rutile, gadolinite, euxenite, thortveitite, xenotime, allanite, zircon.

**Distribution:** From Tuftane, Iveland, Norway.

**Name:** For its relation to *davidite* and dominant *cerium* content.

**Type Material:** Mineralogical-Geological Museum, University of Oslo, Oslo, Norway.

**References:** (1) Neumann, H. and T.L. Sverdrup (1960) Davidite from Tuftan, Iveland. Norsk geol. tidsskr., 40(3-4), 277–288. (2) Vlasov, K.A., Ed. (1966) Mineralogy of rare elements, v. II, 255–258.