

**Crystal Data:** Hexagonal. *Point Group:* n.d. Acicular, minute, possibly comprised of rolled thin plates; in aggregates with clay particles.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = \text{n.d.}$   $D(\text{calc.}) = 4.20$  Transforms in air to goethite.

**Optical Properties:** [Opaque.] *Color:* Brown, yellow-brown.  
*Optical Class:* Uniaxial.  $\omega = \text{n.d.}$   $\epsilon = \text{n.d.}$

**Cell Data:** *Space Group:* n.d.  $a = 2.93$   $c = 4.60$   $Z = 1$

**X-ray Powder Pattern:** Locality not stated; may be confused with vernadite.  
2.54 (10), 1.47 (8), 2.23 (5), 1.69 (3)

**Chemistry:** Natural material appears not to have been analyzed; confirmation is from the correspondence of X-ray powder pattern and other physical properties with synthetic material.

**Polymorphism & Series:** Trimorphous with goethite and lepidocrocite.

**Occurrence:** In sea-floor Fe–Mn concretions. As cement and coatings on clasts in chemically reduced, poorly drained soils and sediments, formed by the rapid oxidation of ferrous compounds.

**Association:** Lepidocrocite, goethite.

**Distribution:** In soils around Kolomyya, Carpathian Mountains, Ukraine. Also near Moscow, Ryazan, and Smolensk, Russia. On the floors of the Pacific Ocean, at depths of 4800 m, and the Baltic, White, and Kara Seas. Found in the Koktenkol deposit, central Kazakhstan. In Holocene sediments near Parainen and Somero, Finland. From Laurium, Greece, in slag.

**Name:** For the principal components, iron (FERrum), OXYgen, and HYdroxyl, in its composition.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

**References:** (1) Chukhrov, F.V., B.B. Zvyagin, A.I. Gorshkov, L.P. Yermilova, V.V. Korovushkin, Y.S. Rudnitskaya, and N.Y. Yakubovskaya (1976) Feroxyhyte, a new modification of  $\text{FeO(OH)}$ . *Izv. Akad. Nauk SSSR, Ser. Geol.*, 5, 5–24 (in Russian). (2) (1977) *Amer. Mineral.*, 62, 1057 (abs. ref. 1). (3) Carlson, L. and U. Schwertmann (1980) Natural occurrence of feroxyhite [sic]( $\delta\text{-FeOOH}$ ). *Clays and Clay Minerals*, 28, 272–280. (4) Drits, V.A., B.A. Sakharov, and A. Manceau (1993) Structure of feroxyhite as determined by simulation of X-ray diffraction curves. *Clay Minerals*, 28, 209–222.