Yimengite \( \text{K(Cr}^{3+}, \text{Ti, Fe}^{3+}, \text{Mg})_{12}\text{O}_{19} \)

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**Crystal Data:** Hexagonal. **Point Group:** \( 6/m 2/m 2/m \). As irregular platy to tabular grains, to 2 mm; as rims around spinel grains.

**Physical Properties:** Cleavage: \{0001\}, perfect; \{11\overline{2}1\}, good; \{10\overline{1}1\}, poor. Hardness = 4.1 VHN = 273 (20 g load). \( D(\text{meas.}) = 4.34 \quad D(\text{calc.}) = 4.35 \)

**Optical Properties:** Opaque. Color: Black; gray to grayish white in reflected light. 
**Optical Class:** Uniaxial. **Pleochroism:** Weak.


**Cell Data:** **Space Group:** \( P6_3/mmc \). \( a = 5.875(11) \quad c = 22.9403(54) \quad Z = 2 \)

**X-ray Powder Pattern:** Yimeng Mountain area, China.
2.630 (10), 2.780 (9), 1.622 (9), 1.475 (8), 1.665 (6), 2.240 (5), 2.450 (4)

**Chemistry:**

\[
\begin{array}{ccc}
\text{SiO}_2 & 0.55 & 0.52 \\
\text{TiO}_2 & 29.15 & 30.57 \\
\text{Al}_2\text{O}_3 & 1.61 & 3.61 \\
\text{Fe}_2\text{O}_3 & 2.76 & \\
\text{Cr}_2\text{O}_3 & 37.06 & 39.37 \\
\text{FeO} & 18.36 & 9.88 \\
\text{MgO} & 7.89 & 6.19 \\
\text{BaO} & 1.61 & 2.31 \\
\text{SrO} & 0.36 & \\
\text{K}_2\text{O} & 3.75 & 4.50 \\
\end{array}
\]

Total 99.98 100.07

(1) Yimeng Mountain area, China; by electron microprobe, total Fe as FeO. (2) Guaniamo district, Venezuela; by electron microprobe, Fe\(^{2+}\):Fe\(^{3+}\) calculated from stoichiometry; corresponding to \((\text{K}_{0.88}\text{Ba}_{0.14}\text{Sr}_{0.03})_{\Sigma=1.05}\text{Cr}_{4.74}\text{Ti}_{3.50}\text{Mg}_{1.46}\text{Fe}_{2.26}\text{Al}_{1.65}\text{Fe}_{3.32}\text{Si}_{0.08})_{\Sigma=11.95}\text{O}_{19}\)

**Mineral Group:** Magnetoplumbite group.

**Occurrence:** A metasomatic alteration product of chromian spinel in kimberlites.

**Association:** Chromian spinel, mathiasite, olivine, phlogopite, pyrope, chromite, ilmenite, chromian diopside, apatite, zircon, moissanite, perovskite (Yimeng Mountain area, China).

**Distribution:** From the Yimeng Mountain area, Shandong Province, China. In the Guaniamo district, Bolivar Province, Venezuela.

**Name:** For its occurrence in the Yimeng Mountain area, China.

**Type Material:** n.d.


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