

# Yimengite

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

©2001-2005 Mineral Data Publishing, version 1

**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;  $\{11\bar{2}1\}$ , good;  $\{10\bar{1}1\}$ , poor. Hardness = 4.1 VHN = 273 (20 g load).  $D(\text{meas.}) = 4.34$   $D(\text{calc.}) = 4.35$

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

*Streak:* Brown. *Luster:* Metallic.

*Optical Class:* Uniaxial. *Pleochroism:* Weak.

$R_1$ – $R_2$ : (402) 12.7–17.7, (438) 11.3–18.2, (498) 15.1–16.0, (548) 15.7–16.2, (588) 13.0–16.5, (624) 13.5–16.7, (641) 12.6–15.5

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

**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:

	(1)	(2)
SiO <sub>2</sub>	0.55	0.52
TiO <sub>2</sub>	29.15	30.57
Al <sub>2</sub> O <sub>3</sub>	1.61	3.61
Fe <sub>2</sub> O <sub>3</sub>		2.76
Cr <sub>2</sub> O <sub>3</sub>	37.06	39.37
FeO	18.36	9.88
MgO	7.89	6.19
BaO	1.61	2.31
SrO		0.36
K <sub>2</sub> O	3.75	4.50
Total	99.98	100.07

(1) Yimeng Mountain area, China; by electron microprobe, total Fe as FeO. (2) Guaniamo district, Venezuela; by electron microprobe,  $\text{Fe}^{2+}:\text{Fe}^{3+}$  calculated from stoichiometry; corresponding to  $(\text{K}_{0.88}\text{Ba}_{0.14}\text{Sr}_{0.03})_{\Sigma=1.05}(\text{Cr}_{4.74}\text{Ti}_{3.50}\text{Mg}_{1.40}\text{Fe}_{1.26}^{2+}\text{Al}_{0.65}\text{Fe}_{0.32}^{3+}\text{Si}_{0.08})_{\Sigma=11.95}\text{O}_{19}$ .

**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.

**References:** (1) Dong Zhenxin, Zhou Jianxiong, Lu Qi, and Peng Zhizhong (1983) Yimengite,  $\text{K}(\text{Cr}, \text{Ti}, \text{Fe}, \text{Mg})_{12}\text{O}_{19}$ , a new mineral from China. *Kexue Tongbao*, 15, 932–936 (in Chinese). (2) (1985) *Amer. Mineral.*, 70, 218 (abs. ref. 1). (3) Peng Zhizhong and Lu Qi (1985) The crystal structure of yimengite. *Scientia Geologia Sinica*, 28, 882–887 (in Chinese). (4) Nixon, P.H. and E. Condliffe (1989) Yimengite of K–Ti metasomatic origin in kimberlitic rocks from Venezuela. *Mineral. Mag.*, 53, 305–309.