

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As prismatic crystals, to 100  $\mu\text{m}$ , elongated on [010].

**Physical Properties:** *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~ 6 VHN = 901 (100 g load). *D(meas.)* = n.d. *D(calc.)* = 3.845

**Optical Properties:** Opaque. *Color:* Grayish black, dark gray in reflected light. *Streak:* Black. *Luster:* Vitreous. *Pleochroism:* Weak, dark gray to slightly bluish gray. *Anisotropism:* Weak, grayish blue.

*Optical Class:* n.d.

$R_1$ - $R_2$ : (471.1) 21.3-25.4, (548.3) 20.6-24.1, (586.6) 20.0-23.5, (652.3) 19.1-22.4

**Cell Data:** *Space Group:*  $Pnma$ .  $a = 27.714(1)$   $b = 2.9881(3)$   $c = 11.3564(6)$   $Z = 4$

**X-ray Powder Pattern:** Orapa area, Botswana.

7.17 (100), 4.84 (70), 2.450 (70), 2.841 (50), 2.706 (50), 2.541 (50), 2.296 (45)

<b>Chemistry:</b>	(1)
Na <sub>2</sub> O	16.46
CaO	1.01
MgO	5.31
Fe <sub>2</sub> O <sub>3</sub>	22.24
Cr <sub>2</sub> O <sub>3</sub>	1.05
Al <sub>2</sub> O <sub>3</sub>	0.03
<u>TiO<sub>2</sub></u>	<u>53.81</u>
Total	99.91

(1) Orapa area, Botswana; average of 12 electron microprobe analyses; corresponds to  $(\text{Na}_{2.89}\text{Ca}_{0.10})_{\Sigma=2.99}(\text{Ti}_{3.67}\text{Fe}^{3+}_{1.52}\text{Mg}_{0.72}\text{Cr}_{0.08})_{\Sigma=5.99}\text{O}_{12}$ .

**Occurrence:** In a serpentinized xenolith in kimberlite.

**Association:** Mg-rich ilmenite, freudenbergite, ulvöspinel.

**Distribution:** In a drill-core sample (depth 138 m, pipe AK-8) from the Orapa area, Botswana.

**Name:** Honors Galina Kudryavtseva (1947-2006), founder of the Diamond Mineralogy Laboratory, Lomonosov State University, Moscow, Russia.

**Type Material:** Natural History Museum, Florence, Italy (3115/I).

**References:** (1) Anashkin, S., A. Bovkun, L. Bindi, V. Garanin, and Y. Litvin (2013) Kudryavtsevaite,  $\text{Na}_3\text{MgFe}^{3+}\text{Ti}_4\text{O}_{12}$ , a new kimberlitic mineral. *Mineral. Mag.*, 77(3), 327-334. (2) (2015) *Amer. Mineral.*, 100, 2010-2011 (abs. ref. 1).