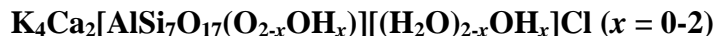


**Fivegite****Crystal Data:** Orthorhombic. *Point Group:*  $mm2$ . As pseudomorphs after delhayelite to 10 cm.**Physical Properties:** *Cleavage:* Perfect on {100}, distinct on {010}. *Fracture:* n.d. *Tenacity:* n.d. Hardness = 4 D(meas.) = 2.42(2) D(calc.) = 2.449 Pink under LW UV; purple under SW UV.**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous to pearly. *Optical Class:* Biaxial (+).  $\alpha = 1.540(2)$   $\beta = 1.542(2)$   $\gamma = 1.544(2)$   $2V(\text{meas.}) = 60(10)^\circ$   $2V(\text{calc.}) = \text{n.d.}$  *Orientation:*  $X = a, Y = c, Z = b$ .**Cell Data:** *Space Group:*  $Pm2_1n$ .  $a = 24.335(2)$   $b = 7.0375(5)$   $c = 6.5400(6)$   $Z = 2$ **X-ray Powder Pattern:** Central mine, Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia. 3.072 (100), 2.893 (53), 2.943 (47), 3.040 (46), 3.517 (38), 1.759 (30), 3.239 (28)

<b>Chemistry:</b>	(1)
Na <sub>2</sub> O	0.44
K <sub>2</sub> O	19.56
CaO	14.01
SrO	0.13
MnO	0.03
Fe <sub>2</sub> O <sub>3</sub>	0.14
Al <sub>2</sub> O <sub>3</sub>	6.12
SiO <sub>2</sub>	50.68
SO <sub>3</sub>	0.15
F	0.14
Cl	3.52
H <sub>2</sub> O	4.59
<u>-O = (Cl,F)<sub>2</sub></u>	<u>0.85</u>
Total	99.66

(1) Central mine, Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia; average of 10 electron microprobe analyses, H<sub>2</sub>O by Alimarin method, IR spectroscopy confirms OH; corresponding to H<sub>4.22</sub>K<sub>3.44</sub>Na<sub>0.39</sub>Ca<sub>2.07</sub>Sr<sub>0.01</sub>Fe<sub>0.01</sub>Al<sub>1.00</sub>Si<sub>6.99</sub>O<sub>21.15</sub>F<sub>0.06</sub>Cl<sub>0.82</sub>(SO<sub>4</sub>)<sub>0.02</sub>.**Occurrence:** A late-stage hydrothermal phase in high-potassium peralkaline pegmatite in urtite near the contact with nepheline-apatite rock.**Association:** Delhayelite, hydrodelhayelite, pectolite, kalborsite.**Distribution:** From the Central mine (southern wall, 640 m level), Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia.**Name:** Honors Russian geologist and mining engineer, Mikhail Pavlovich Fiveg (1899-1986), the pioneer prospector of the Khibiny apatite deposits.**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (3881/1).**References:** (1) Pekov, I.V., N.V. Zubkova, N.V. Chukanov, A.E. Zadov, and D. Yu. Pushcharovsky (2010) Fivegite,  $K_4Ca_2[AlSi_7O_{17}(O_{2-x}OH_x)][(H_2O)_{2-x}OH_x]Cl$  - a new mineral from the Khibiny alkaline massif (Kola Peninsula, Russia). *Zap. Ross. Mineral. Obshch.*, 139(4), 47-63 (in Russian with English abstract). *Geol. Ore Deposits*, 53(7), 591-603 (in English). (2) (2012) *Amer. Mineral.*, 97, 1262 (abs. ref. 1).