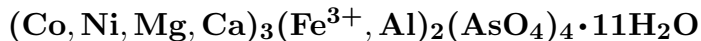


## Smolianinovite



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**Crystal Data:** Orthorhombic. *Point Group:* n.d. Finely fibrous, to 200 $\mu\text{m}$ , in earthy to dense aggregates and incrustations.

**Physical Properties:** Hardness =  $\sim 2$   $D(\text{meas.}) = 2.05\text{--}2.15; 2.43\text{--}2.49$   $D(\text{calc.}) = 2.2$

**Optical Properties:** Transparent. *Color:* Yellow to yellow-brown. *Luster:* Silky.  
*Optical Class:* Biaxial; birefringence 0.003–0.004. *Orientation:* Parallel extinction, positive elongation.  $n = 1.625(5)$

**Cell Data:** *Space Group:* n.d.  $a = 6.40$   $b = 11.72$   $c = 21.9$   $Z = 2$

**X-ray Powder Pattern:** [Khovu-Aksy deposit, Russia or Bou Azzer, Morocco]; all lines diffuse.

21.94 (10), 11.58 (8), 3.20 (6), 2.92 (5), 1.642 (5), 1.486 (2), 2.59 (1)

### Chemistry:

	(1)	(2)
As <sub>2</sub> O <sub>5</sub>	41.88	43.96
SiO <sub>2</sub>	0.75	0.00
Al <sub>2</sub> O <sub>3</sub>	1.5	2.36
Fe <sub>2</sub> O <sub>3</sub>	11.8	12.01
CoO	8.01	14.88
NiO	8.18	0.42
MgO	2.10	1.31
CaO	3.69	5.10
H <sub>2</sub> O <sup>+</sup>	15.38	20.83
H <sub>2</sub> O <sup>-</sup>	6.41	
Total	99.7	100.87

(1) [Khovu-Aksy deposit, Russia or Bou Azzer, Morocco]; IR confirms (AsO<sub>4</sub>)<sup>3-</sup>, H<sub>2</sub>O, and lack of (OH)<sup>1-</sup>; with (OH)<sup>1-</sup> for charge balance, corresponds to (Co<sub>1.21</sub>Ni<sub>1.08</sub>Mg<sub>0.87</sub>Ca<sub>0.74</sub>)<sub>Σ=3.90</sub>(Fe<sub>1.67</sub>Al<sub>0.33</sub>)<sub>Σ=2.00</sub>(AsO<sub>4</sub>)<sub>4.11</sub>(OH)<sub>1.47</sub>•11H<sub>2</sub>O. (2) Mt. Cobalt, Australia; Fe<sup>3+</sup> confirmed by Mössbauer spectra, H<sub>2</sub>O by a microgravimetric technique; with (OH)<sup>1-</sup> for charge balance, corresponds to (Co<sub>2.02</sub>Ca<sub>0.93</sub>Mg<sub>0.33</sub>Ni<sub>0.06</sub>)<sub>Σ=3.34</sub>(Fe<sub>1.53</sub>Al<sub>0.47</sub>)<sub>Σ=2.00</sub>(AsO<sub>4</sub>)<sub>3.89</sub>(OH)<sub>1.01</sub>•11H<sub>2</sub>O.

**Occurrence:** An oxidation product of Ni–Co arsenides.

**Association:** Erythrite, pharmacolite, quartz.

**Distribution:** From the Khovu-Aksy Ni–Co deposit, Tuva, Siberia, Russia. At the Bastnäs mine, near Riddarhyttan, Västmanland, Sweden. From Bou Azzer, Morocco. On Mt. Cobalt, 110 km south of Cloncurry, Queensland, and in the Dome Rock copper mine, about 40 km northwest of Mingary, South Australia. At the Sara Alicia mine, near Alamos, Sonora, Mexico. From Schneeberg, Saxony, Germany. At the Muckcross mine, Co. Kerry, Ireland.

**Name:** To honor Professor Nikolai Alekseevich Smol'yaninov (1885–1957), Russian mineralogist, Moscow University, Moscow, Russia.

**Type Material:** Mining Institute, St. Petersburg, 1286/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 64823.

**References:** (1) Yakhontova, L.K. (1956) A new mineral – smolianinovite. Doklady Acad. Nauk SSSR, 109, 849–850 (in Russian). (2) (1957) Amer. Mineral., 42, 307–308 (abs. ref. 1). (3) Yakhontova, L.K., G.A. Sidorenko, N.E. Sergeeva, and L.I. Ryabakova (1973) New data on smolianinovite. Konst. Svoistva Mineral., 7, 120–123 (in Russian). (4) (1974) Amer. Mineral., 59, 1141 (abs. ref. 3). (5) Smith, L.K., K.N. Han, and F. Lawson (1977) On the occurrence of smolianinovite in the Mount Cobalt deposit, in north-western Queensland, Australia. Mineral. Mag., 41, 385–388. (6) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 189–190.

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