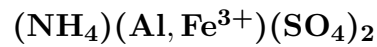


# Godovikovite



©2001-2005 Mineral Data Publishing, version 1

**Crystal Data:** Hexagonal. *Point Group:* 32. Fibrous crystals, to 0.015 mm, in compact to porous aggregates.

**Physical Properties:** *Fracture:* Uneven. Hardness = 2 D(meas.) = 2.53 D(calc.) = 2.52 Slowly soluble in H<sub>2</sub>O.

**Optical Properties:** Translucent. *Color:* White; colorless in thin section. *Luster:* Dull to chalky in aggregates.

*Optical Class:* Uniaxial (+).  $\omega = 1.572(2)$   $\epsilon = 1.581(2)$

**Cell Data:** *Space Group:* [P321] [by analogy to synthetic (NH<sub>4</sub>)Al(SO<sub>4</sub>)<sub>2</sub>].  $a = 4.75(1)$   
 $c = 8.30(1)$  Z = 1

**X-ray Powder Pattern:** Kopeysk, Russia.

3.69 (10), 8.30 (9), 2.921 (9), 2.374 (8), 2.764 (7), 1.848 (7), 2.280 (6)

## Chemistry:

	(1)
SO <sub>3</sub>	57.02
TiO <sub>2</sub>	0.66
Al <sub>2</sub> O <sub>3</sub>	11.98
Fe <sub>2</sub> O <sub>3</sub>	7.70
MnO	0.04
MgO	1.00
CaO	0.40
Na <sub>2</sub> O	< 0.05
K <sub>2</sub> O	0.52
(NH <sub>4</sub> ) <sub>2</sub> O	8.50
insol.	12.49
Total	100.31

(1) Kopeysk, Russia; K by flame photometry; after removal of insoluble as quartz, corresponds to [(NH<sub>4</sub>)<sub>0.92</sub>Mg<sub>0.07</sub>K<sub>0.03</sub>Ca<sub>0.02</sub>]<sub>Σ=1.04</sub>(Al<sub>0.66</sub>Fe<sub>0.27</sub>Ti<sub>0.02</sub>)<sub>Σ=0.95</sub>(SO<sub>4</sub>)<sub>2</sub>.

**Occurrence:** As reaction crusts around outlets releasing sulfuric acid from burning coal heaps.

**Association:** Unspecified anhydrous calcium and magnesium sulfates.

**Distribution:** From near Kopeysk, Chelyabinsk coal basin, Southern Urals, Russia. At the Schoeller mine, Libušin, near Kladno, Czech Republic. From near Ravat, Tien-Shan Mountains, Tajikistan.

**Name:** Honors Aleksandr Aleksandrovich Godovikov (1927–1995), Russian mineralogist and Director of the Fersman Mineralogical Museum, Moscow, Russia.

**Type Material:** Il'menskii Preserve Museum, Miass, 5894; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 87566.

**References:** (1) Shcherbakova, Y.P., L.F. Bazhenova, and B.V. Chesnokov (1988) Godovikovite – NH<sub>4</sub>(Al, Fe)(SO<sub>4</sub>)<sub>2</sub>, a new ammonium-bearing sulfate. Zap. Vses. Mineral. Obshch., 117, 208–211 (in Russian). (2) (1990) Amer. Mineral., 75, 241–242 (abs. ref. 1).