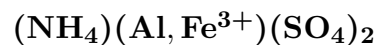


Godovikovite



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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 H₂O.

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 (NH₄)Al(SO₄)₂]. $a = 4.75(1)$
 $c = 8.30(1)$ 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 ₃	57.02
TiO ₂	0.66
Al ₂ O ₃	11.98
Fe ₂ O ₃	7.70
MnO	0.04
MgO	1.00
CaO	0.40
Na ₂ O	< 0.05
K ₂ O	0.52
(NH ₄) ₂ O	8.50
insol.	12.49
Total	100.31

(1) Kopeysk, Russia; K by flame photometry; after removal of insoluble as quartz, corresponds to [(NH₄)_{0.92}Mg_{0.07}K_{0.03}Ca_{0.02}]_{Σ=1.04}(Al_{0.66}Fe_{0.27}Ti_{0.02})_{Σ=0.95}(SO₄)₂.

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, Libušín, 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 – NH₄(Al, Fe)(SO₄)₂, a new ammonium-bearing sulfate. Zap. Vses. Mineral. Obshch., 117, 208–211 (in Russian). (2) (1990) Amer. Mineral., 75, 241–242 (abs. ref. 1).