

Rostite**Al(SO₄)(OH, F)·5H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As flattened rhomboidal tablets, to 0.5 mm, in nodular aggregates and masses.

Physical Properties: Hardness = "Soft". D(meas.) = 1.892 D(calc.) = 1.92–1.96

Optical Properties: Semitransparent. *Color:* Chalky white.

Optical Class: Biaxial (+) or (-). *Orientation:* Y bisects the acute angle of the tablets; Z ⊥ flattening. α = 1.440–1.462 β = 1.460–1.470 γ = 1.483–1.487 2V(meas.) = 68°

Cell Data: *Space Group:* Pcab. a = 11.169–11.187 b = 13.039–13.060 c = 10.871–10.893 Z = 8

X-ray Powder Pattern: Libušín, Czech Republic.

4.248 (100), 4.183 (70), 3.901 (58), 3.403 (33), 2.730 (23), 3.269 (15), 3.347 (14)

Chemistry:

	(1)	(2)	(3)
SO ₃	35.51	33.49	34.64
Al ₂ O ₃	22.07	20.83	22.06
Fe ₂ O ₃		0.53	
MgO	0.52	0.02	
CaO		0.36	
Na ₂ O	1.09	trace	
NH ₃		0.48	
F		4.25	4.11
H ₂ O	40.69	41.51	40.92
insol.		0.39	
-O = F ₂		1.79	1.73
Total	99.88	[100.07]	100.00

(1) Libušín, Czech Republic. (2) Do.; original total given as 100.09%; after deduction of gypsum and tschermigite, stated to correspond to (Al_{1.06}Fe_{0.02}³⁺)_{Σ=1.08}(SO₄)_{0.99}[(OH)_{0.64}F_{0.62}]_{Σ=1.26}·5H₂O. (3) Al(SO₄)(OH, F)·5H₂O with OH:F = 1:1.

Polymorphism & Series: Dimorphous with jurbanite.

Occurrence: In burning waste heaps at a coal mine, formed by decomposition of aluminum-bearing rocks by gasses containing SO₂ and fluorine (Libušín, Czech Republic).

Association: Tschermigite, alunogen, copiapite (Libušín, Czech Republic).

Distribution: From the Nejedlý I (Schoeller) coal mine, Libušín, near Kladno, Czech Republic. At the Cetine mine, 20 km southwest of Siena, Tuscany, Italy.

Name: Honoring Professor Rudolph Rost (1902–?), Czech mineralogist, Charles University, Prague, Czech Republic, who first characterized the mineral.

Type Material: National Museum, Prague, Czech Republic, 29742.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 601 ["lapparentite" of Rost = rostitite]. (2) Čech, F. (1979) Rostite, a new name for orthorhombic Al(SO₄)(OH)·5H₂O. Neues Jahrb. Mineral., Monatsh., 193–194. (3) Žáček, V. and P. Povondra (1988) New mineralogical data for rostitite from Libušín, central Bohemia, Czechoslovakia. Neues Jahrb. Mineral., Monatsh., 476–480.