

Xitieshanite**Fe³⁺(SO₄)Cl·6H₂O**

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Crystal Data: Monoclinic. *Point Group:* 2/m. Rare in rhombic crystals, to 2 cm; massive.**Physical Properties:** *Cleavage:* One, imperfect. *Fracture:* Uneven to conchoidal. Hardness = 2.7 D(meas.) = 1.98–1.99 D(calc.) = 1.997 Soluble in H₂O.**Optical Properties:** Translucent to nearly transparent. *Color:* Bright yellowish green; brownish red if superficially oxidized. *Streak:* Yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Pleochroism:* Strong; X = colorless to pale yellow; Y = pale yellow; Z = pale yellow with greenish tint. *Orientation:* Positive or negative elongation; parallel or inclined extinction. *Dispersion:* r > v. α = 1.536 β = 1.570 γ = 1.628 2V(meas.) = n.d. 2V(calc.) = 77°**Cell Data:** *Space Group:* P2₁/c. a = 10.6776(23) b = 6.9148(13) c = 14.1193(29) β = 111.407(15)° Z = 4**X-ray Powder Pattern:** Xitieshan mine, China.

4.96 (10), 4.81 (10), 3.90 (9), 6.67 (6), 6.09 (5), 5.69 (5), 5.44 (5)

Chemistry:	(1)	(2)	(3)
SO ₃	27.69		27.10
Al ₂ O ₃	0.01		
Fe ₂ O ₃	26.15		27.02
FeO	0.18		
MgO	0.03		
CaO	0.09		
Na ₂ O	0.07		
K ₂ O	0.03		
Cl	n.d.	10.05	12.00
H ₂ O	45.02		36.59
–O = Cl ₂			2.71
Total	99.27		100.00

(1) Xitieshan mine, China. (2) Do.; separate analysis on type material. (3) Fe(SO₄)Cl·6H₂O.**Occurrence:** Formed in the oxidation zone of a pyrite-rich orebody in a very arid climate.**Association:** Copiapite, römerite, coquimbite, amarillite, sideronatrite, melanterite.**Distribution:** From the Xitieshan Pb–Zn mine, south of Mt. Qilianshan, Chaidamu, Qinghai Province, China.**Name:** For its occurrence in the Xitieshan mine, China.**Type Material:** Institute of Geochemistry, Guiyang; Museum of Geology, Beijing, China.**References:** (1) Li Xilin, Zhou Jingliang, and Li Jiaju (1983) Xitieshanite – a new ferric sulphate mineral. *Geochemistry (China)*, 2, 261–267 (in English). (2) (1984) *Amer. Mineral.*, 69, 1194 (abs. ref. 1). (3) Zhou Jingliang, Li Xilin, and Dong Wei (1988) The crystal structure of xitieshanite. *Kexue Tongbao*, 33(6), 502–505 (in English).