

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals are tabular to prismatic, elongated along [100], to 8 mm, showing {010}, {100}, {001}, typically in aggregates.

Physical Properties: *Cleavage:* On {010}, nearly perfect; on {001}, poor. Hardness = 3.5 D(meas.) = 2.206 D(calc.) = 2.201 Soluble in H_2O ; becomes dull and dark red or yellowish brown on exposure to air.

Optical Properties: Transparent if fresh. *Color:* Pale violet to yellowish brown; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Orientation:* $\text{OAP} \wedge \{010\} = 86^\circ$. *Dispersion:* $r > v$, strong. $\alpha = 1.522(2)$ $\beta = 1.568(1)$ $\gamma = 1.578(4)$ $2V(\text{meas.}) = 47^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 6.477(1)$ $b = 15.298(3)$ $c = 6.309(1)$ $\alpha = 90.20(1)^\circ$ $\beta = 101.11(1)^\circ$ $\gamma = 93.97(1)^\circ$ $Z = 1$

X-ray Powder Pattern: Xitieshan mine, China.

4.79 (100), 3.61 (78), 5.07 (70), 4.06 (68), 3.98 (38), 2.859 (36), 4.11 (29)

Chemistry:

	(1)	(2)
SO_3	41.00	39.37
Al_2O_3	0.37	
Fe_2O_3	18.28	19.63
FeO	0.11	
MnO	0.76	
ZnO	8.17	10.00
CdO	0.01	
PbO	0.01	
MgO	0.05	
CaO	2.25	
Na_2O	0.02	
H_2O	29.20	31.00
Total	100.23	100.00

(1) Xitieshan mine, China; average of two analyses, Fe^{3+} confirmed by Mössbauer spectroscopy; neglecting CaO as anhydrite impurity, corresponds to $(\text{Zn}_{0.86}\text{Mn}_{0.09}\text{Fe}_{0.01}^{2+}\text{Mg}_{0.01})_{\Sigma=0.97}(\text{Fe}_{1.96}^{3+}\text{Al}_{0.06})_{\Sigma=2.02}\text{S}_{4.04}\text{O}_{16.13} \cdot 13.87\text{H}_2\text{O}$. (2) $\text{ZnFe}_2(\text{SO}_4)_4 \cdot 14\text{H}_2\text{O}$.

Occurrence: In cavities and veinlets in anhydrite in the oxidation zone of a Pb–Zn deposit.

Association: Anhydrite, römerite, copiapite, sulfur, gypsum, pyrite, quartz.

Distribution: From the Xitieshan Pb–Zn mine, south of Mt. Qilianshan, Chaidamu, Qinghai Province, China.

Name: To honor Li Shizhen (1518–1593), famous Chinese pharmacologist.

Type Material: Department of Geology, Lanzhou University, Lanzhou; Geology Museum, Beijing, China.

References: (1) Wanmao Li and Guoying Chen (1990) Lishizhenite – a new zinc sulfate mineral. *Acta Mineral. Sinica*, 10(4), 299–305 (in Chinese with English abs.). (2) (1991) *Amer. Mineral.*, 76, 2022 (abs. ref. 1). (3) Wang Qiguang and Li Wanmao (1988) Crystal structure of a new ferric sulfate mineral. *Kexue Tongbao*, 33(21), 1783–1787 (in English).