

Crystal Data: Monoclinic. *Point Group:* 2. As tabular crystals and irregular grains to 15 mm.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = 4 VHN = 191-215 (203 average) (25 g load). D(meas.) = 3.69 D(calc.) = 3.78

Optical Properties: Transparent. *Color:* Yellow-green to dark green. *Streak:* Greenish white. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.615$ $\beta = 1.655$ $\gamma = 1.700$ $2V(\text{meas.}) = 114^\circ\text{-}115^\circ$

$2V(\text{calc.}) = 88.8^\circ$ *Pleochroism:* Strong; pale yellow-green to deep green.

Dispersion: $r > v$, medium.

Cell Data: *Space Group:* C2. $a = 5.2050(12)$ $b = 9.033(2)$ $c = 32.077(8)$ $\beta = 93.49(8)^\circ$ $Z = 4$

X-ray Powder Pattern: Shiti barium deposit, Dabashan region, China.

2.676 (100), 5.340 (91), 2.294 (29), 3.209 (23), 2.008 (11), 4.010 (10), 15.866 (7)

| Chemistry: | (1) | | (1) |
|--------------------------------|-------|--------------------------------|-------|
| SiO ₂ | 19.64 | NiO | 0.01 |
| TiO ₂ | 1.12 | SrO | 0.34 |
| Al ₂ O ₃ | 11.19 | Y ₂ O ₃ | 0.85 |
| MgO | 0.54 | La ₂ O ₃ | 0.14 |
| CaO | 4.91 | Nd ₂ O ₃ | 0.26 |
| BaO | 34.89 | F | 1.80 |
| V ₂ O ₃ | 9.93 | Cl | 0.04 |
| Cr ₂ O ₃ | 1.75 | CO ₂ | 10.37 |
| Na ₂ O | 0.20 | H ₂ O | 1.30 |
| K ₂ O | 0.06 | - O = F | 0.76 |
| MnO | 0.01 | - O = Cl | 0.01 |
| FeO | 0.02 | Total | 98.60 |

(1) Shiti barium deposit, Dabashan region, China; average of 44 electron microprobe analyses, supplemented by DTA, TGA, FTIR and Raman spectroscopy and high-frequency combustion infrared absorption spectroscopy; corresponds to $(\text{Ba}_{1.98}\text{Na}_{0.06}\text{K}_{0.01})_{\Sigma=2.05}(\text{Ca}_{0.76}\text{Mg}_{0.12}\text{Y}_{0.06}\text{Sr}_{0.03}\text{La}_{0.01}\text{Nd}_{0.01})_{\Sigma=0.99}(\text{V}_{1.15}\text{Al}_{0.75}\text{Cr}_{0.20}\text{Ti}_{0.12})_{\Sigma=2.22}[(\text{Si}_{2.84}\text{Al}_{1.16})_{\Sigma=4.00}\text{O}_{10}][(\text{OH})_{1.25}\text{O}_{0.77}]_{\Sigma=2.02}(\text{F}_{0.82}\text{Cl}_{0.01})_{\Sigma=0.83}(\text{CO}_3)_{2.05}$.

Occurrence: Disseminated in lenticular bodies and veins associated with strataform hydrothermal barium deposits.

Association: Witherite, barite, barytocalcite, quartz.

Distribution: From the Shiti barium deposit, Dabashan region, China.

Name: After the *Hanjiang* River, that flows through the Shiti ore district and is the largest branch of the Yangtze River, China.

Type Material: Geological Museum of China, Beijing, China (M11740).

References: (1) Jiajun Liu, Guowu Li, Qian Mao, Shenghua Wu, Zhenjiang Liu, Shangguo Su, Ming Xiong, and Xiaoyan Yu (2012) Hanjiangite, a new barium-vanadium phyllosilicate carbonate mineral from the Shiti barium deposit in the Dabashan region, China. *Amer. Mineral.*, 97, 281-290.