

Clinomimetite

Pb₅(AsO₄)₃Cl

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Crystal Data: Monoclinic, pseudohexagonal. *Point Group:* 2/m. As six-sided, barrel-shaped or spindlelike, short to long prismatic crystals, elongated || [001], to 9 mm.

Physical Properties: Hardness = 4 D(meas.) = 7.36(1) D(calc.) = 7.37

Optical Properties: Transparent to translucent. *Color:* Greenish yellow, pale greenish yellow, wax-yellow, white.

Optical Class: Biaxial (-). *Orientation:* X = c; Y or Z \wedge b \simeq 30° (probable). α = [2.129]
 β = [2.144] γ = [2.144] 2V(meas.) = 8(3)°

Cell Data: *Space Group:* P2₁/b. a = 10.189(3) b = 20.372(8) c = 7.46(1)
 β = 119.88(3)° Z = 2

X-ray Powder Pattern: Johanngeorgenstadt, Germany.

3.048 (100), 3.008 (70), 2.947 (70), 2.106 (60), 3.342 (50), 1.961 (50), 1.903 (50)

Chemistry:

| | (1) | (2) |
|--------------------------------|---------|--------|
| SO ₃ | 0.15 | |
| P ₂ O ₅ | 0.33 | |
| As ₂ O ₅ | 22.05 | 23.17 |
| SiO ₂ | 0.14 | |
| PbO | 74.61 | 74.99 |
| CaO | 0.00 | |
| Cl | 2.58 | 2.38 |
| -O = Cl ₂ | [0.58] | 0.54 |
| Total | [99.28] | 100.00 |

(1) Johanngeorgenstadt, Germany; by electron microprobe, corresponds to Pb_{5.00}[(As_{0.97}P_{0.02}Si_{0.01}S_{0.01}) $\Sigma=1.01$ O_{3.98}]₃Cl_{1.09}. (2) Pb₅(AsO₄)₃Cl.

Polymorphism & Series: Dimorphous with mimetite.

Mineral Group: Apatite group.

Occurrence: A rare secondary mineral in the oxidized zone of some base-metal deposits.

Association: Romanéchite, hematite (Johanngeorgenstadt, Germany).

Distribution: In Germany, from Johanngeorgenstadt, Saxony, and at Horhausen, Harz Mountains. From Eureka, Juab Co., Utah, USA.

Name: For its *monoclinic* structure and relation to *mimetite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, B13647.

References: (1) Dai, Y. (1993) Clinomimetite – the history and substantiation of the natural monoclinic dimorph of mimetite. *Mineral. Record*, 24, 307–310. (2) (1994) *Amer. Mineral.*, 79, 189 (abs. ref. 1). (3) Dai, Y., J.M. Hughes, and P.B. Moore (1991) The crystal structures of mimetite and clinomimetite, Pb₅(AsO₄)₃Cl. *Can. Mineral.*, 29, 369–376.