Xanthiosite $Ni_3(AsO_4)_2$

Crystal Data: Monoclinic. *Point Group:* $2/m$. In microcrystalline to amorphous crusts, to 2 mm thick.

Physical Properties: Hardness = 4 D(meas.) = 4.98–5.42 D(calc.) = 5.388

Optical Properties: Semitransparent. *Color:* Sulfur-yellow, golden yellow.
Optical Class: [Biaxial.] α = n.d. β = n.d. γ = n.d. 2V(meas.) = n.d.

Cell Data: *Space Group:* $P2_1/a$. $a = 10.174(5)$ $b = 9.548(2)$ $c = 5.766(1)$
$\beta = 92°58.5(1.0)'$ Z = 4

X-ray Powder Pattern: Johanngeorgenstadt, Germany.
2.529 (vvsb), 3.46 (vsb), 2.757 (vs), 2.739 (vs), 2.690 (vs), 2.666 (vs), 4.32 (sb)

Chemistry:

	(1)	(2)	(3)
As_2O_5	50.53	50.0	50.64
Bi_2O_3	0.62		
FeO		0.5	
CoO	0.21	1.0	
NiO	48.24	47.0	49.36
CuO	0.57	0.7	
Total	100.17	99.2	100.00

(1) Johanngeorgenstadt, Germany; corresponds to $(Ni_{2.96}Cu_{0.03}Co_{0.01})_{\Sigma=3.00}(AsO_4)_{2.01}$.
(2) South Terras mine, Cornwall, England; corresponds to $(Ni_{2.90}Co_{0.06}Cu_{0.04}Fe_{0.03})_{\Sigma=3.03}(AsO_4)_{2.00}$. (3) $Ni_3(AsO_4)_2$.

Occurrence: A rare secondary mineral in hydrothermal Ni–As–U ore deposits.

Association: Bismuth, bunsenite, aerugite (Johanngeorgenstadt, Germany); aerugite (South Terras mine, Cornwall, England).

Distribution: From Johanngeorgenstadt, Saxony, Germany. In the South Terras mine, St. Stephen-in-Brannel, Cornwall, England.

Name: From the Greek for *yellow* and *sulfur*, in allusion to its distinctive sulfur-yellow color.

Type Material: The Natural History Museum, London, England, 32590 and 1907,103.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 870. (2) Davis, R.J., M.H. Hey, and A.W.G. Kingsbury (1965) Xanthiosite and aerugite. Mineral. Mag., 35, 72–83.