

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As sprays of prismatic crystals to 2 mm.

Physical Properties: *Cleavage:* Perfect on (010), imperfect on (101). *Tenacity:* Brittle.
Fracture: Conchoidal. Hardness = 3.5 D(meas.) = 4.34(15) D(calc.) = 4.330

Optical Properties: Translucent. *Color:* Green or greenish blue. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (-). $\alpha = 1.736(2)$ $\beta = 1.784(2)$ $\gamma = 1.788(2)$ $2V(\text{meas.}) = 30(5)^\circ$
 $2V(\text{calc.}) = 31.5^\circ$ *Orientation:* $X = b, Y = a, Z = c$. *Pleochroism:* Very weak, $X =$ light bluish green, $Y = Z =$ light blue. *Dispersion:* Very strong, $r > v$. Parallel extinction.

Cell Data: *Space Group:* Pnnm. $a = 8.5839(13)$ $b = 8.5290(13)$ $c = 5.9696(9)$ $Z = 4$

X-Ray Diffraction Pattern: Kamariza dump, Lavrion deposit, Attika Prefecture, Greece.
3.002 (100), 2.456 (94), 2.437 (86), 2.690 (67), 4.860 (64), 6.00 (54), 2.662 (53)

Chemistry:	(1)
CuO	26.33
ZnO	29.62
FeO	0.55
As ₂ O ₅	39.94
P ₂ O ₅	0.41
<u>H₂O</u>	<u>3.83</u>
Total	100.68

(1) Kamariza dump, Lavrion deposit, Attika Prefecture, Greece; average electron microprobe analysis supplemented by IR spectroscopy, H₂O by the Alimarin method; corresponds to Cu_{0.94}Zn_{1.03}Fe_{0.02}[(AsO₄)_{0.98}(PO₄)_{0.02}](OH)_{0.98}(H₂O)_{0.10}.

Polymorphism & Series: Solid solution series with adamite.

Mineral Group: Adamite group.

Occurrence: Secondary in weathered tennantite deposits.

Association: Jarosite, conichalcite, alumopharmacosiderite, arseniosiderite, scorodite, 'limonite' (Lavrion); azurite, tyrolite (Dolyhir quarry); philipsburgite, zálesiite (Potts Gill mine); azurite, duftite, mimetite, baryte, tennantite (Stennerskeugh Clouds mine).

Distribution: From the Kamariza dump, Lavrion deposit, Attika Prefecture, Greece. At Penberthy Croft mine and Wheal Phoenix, Cornwall; at Dolyhir quarry, Powys; at Ecton Hill, Staffordshire; at Potts Gill, Sandbed and Driggith mines (and several smaller trials) in the Caldbeck Fells, Cumbria; at High Longrigg mine and Stennerskeugh Clouds mine, Kirkby Stephen, Cumbria, Britain; and at Tynagh mine, Co. Galway, Ireland.

Name: The prefix identifies the *zinc*-dominant analogue of *olivenite*. Formerly 'cuproadamite'.

Type Material: Mining and Technology University, Freiberg, Germany (81475).

References: (1) Chukanov, N.V., D.Y. Pushcharovsky, N.V. Zubkova, I.V. Pekov, M. Pasero, S. Merlino, S. Möckel, M.Kh. Rabadanov, and D.I. Belakovskiy (2007) Zincolivenite CuZn(AsO₄)(OH): a new adamite-group mineral with ordered distribution of Cu and Zn. *Doklady Earth Sciences*, 415A, 841-845. (2) Braithwaite, R.S.W., D.I. Green, and A.G. Tindle (2009) The distribution and composition of adamite and zincolivenite in Britain and Ireland. *J. Russell Society*, 12, 3-9.