

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As elongated, flattened crystals in radial spherulites or dense concentric nodules to 0.15 mm.

**Physical Properties:** *Cleavage:* Distinct on {001}, by analogy with tsumcorite.  
*Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = ~ 4 *D(meas.)* = n.d. *D(calc.)* = 5.02

**Optical Properties:** Transparent. *Color:* Yellow, brownish yellow, light brown or brown.  
*Streak:* Yellow. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-).  $\alpha = 1.82(2)$   $\beta = 1.87(1)$   $\gamma = 1.90(1)$   $2V(\text{meas.}) = \text{Large}$ .  
 $2V(\text{calc.}) = 74^\circ$

**Cell Data:** *Space Group:* C2/m.  $a = 9.124(8)$   $b = 6.339(3)$   $c = 7.567(7)$   $\beta = 115.19(6)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Km-3 mine, Lavrion mining district, Attikí Prefecture, Greece.  
4.64 (100), 3.238 (82), 2.545 (79), 2.505 (61), 3.008 (60), 4.47 (41), 2.859 (41)

<b>Chemistry:</b>	(1)
CaO	2.79
PbO	28.12
MgO	0.30
CoO	0.15
NiO	17.39
ZnO	0.76
Mn <sub>2</sub> O <sub>3</sub>	0.57
Fe <sub>2</sub> O <sub>3</sub>	6.83
As <sub>2</sub> O <sub>5</sub>	38.17
<u>H<sub>2</sub>O</u>	<u>[4.92]</u>
Total	100.00

(1) Km-3 mine, Lavrion mining district, Attikí Prefecture, Greece; average of 6 electron microprobe analyses supplemented by IR spectroscopy, H<sub>2</sub>O calculated; corresponds to  $(\text{Pb}_{0.76}\text{Ca}_{0.30})_{\Sigma=1.06}(\text{Ni}_{1.39}\text{Fe}^{3+}_{0.51}\text{Zn}_{0.06}\text{Mn}^{3+}_{0.04}\text{Mg}_{0.04}\text{Co}_{0.01})_{\Sigma=2.05}\text{As}_{1.99}\text{O}_{7.97}[(\text{H}_2\text{O})_{1.25}(\text{OH})_{0.78}]$ .

**Mineral Group:** Tsumcorite-group.

**Occurrence:** A secondary mineral in the oxidized zone of a hydrothermal deposit containing gersdorffite and galena.

**Association:** Annabergite, nickellotharmeyerite, nickelaustinite, gaspéite, a Ni-dominant serpentine group member (presumably pecoraite), calcite, dolomite, aragonite, quartz, goethite, cerussite, arseniosiderite, mimetite, oxyplumboroméite (bindheimite), a Ca-rich roméite-group mineral (hydroxycalcioroméite?), unspecified manganese oxides/hydroxides.

**Distribution:** From the dumps of the Km-3 mine, Lavrion mining district, Attikí Prefecture, Greece.

**Name:** The Ni-dominant analog of tsumcorite.

**Type Material:** A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (94317).

**References:** (1) Pekov, I.V., N.V. Chukanov, D.A. Varlamov, D.I. Belakovskiy, A.G. Turchkova, P. Voudouris, A. Katerinopoulos, and A. Magganas (2016) Nickeltsumcorite,  $\text{Pb}(\text{Ni}, \text{Fe}^{3+})_2(\text{AsO}_4)_2(\text{H}_2\text{O}, \text{OH})_2$ , a new tsumcorite-group mineral from Lavrion, Greece. *Mineral. Mag.*, 80(2), 337-346. (2) (2016) *Amer. Mineral.*, 101, 2782 (abs. ref. 1).