

Crystal Data: Isometric. *Point Group:* $\bar{4}3m$. Crystals resemble rhombododecahedra or octahedra, commonly as rounded grains to 150 μm or as rims on colusite or zones in ovamboite.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* = n.d. VHN = 275-345 (30 g load). *D(meas.):* = n.d. *D(calc.):* = 4.54

Optical Properties: Opaque. *Color:* Yellow; bright yellow to grayish yellow in reflected light. *Streak:* n.d. *Luster:* Metallic.

Optical Class: Isotropic.

R: (460) 23.4, (546) 25.5, (589) 25.7, (650) 25.6

Cell Data: *Space Group:* $P\bar{4}3n$. By analogy with the germanite group. $a = 10.64$ $Z = 1$

X-ray Powder Pattern: Maikain deposit, Kazakhstan.

3.07 (100), 2.66 (20), 1.884 (80), 1.603 (40), 1.220 (20), 1.331 (10), 1.190 (10)

Chemistry:	(1)
Cu	42.55
Fe	6.35
Zn	0.56
Mo	5.21
W	1.24
V	0.12
Ge	10.86
Ga	0.15
As	2.28
<u>S</u>	<u>31.40</u>
Total	100.72

(1) Maikain deposit, Kazakhstan; electron microprobe analysis; corresponding to $(\text{Cu}_{21.91}\text{Fe}_{3.72}\text{Zn}_{0.28})_{\Sigma=25.91}(\text{Mo}_{1.79}\text{W}_{0.22}\text{V}_{0.08})_{\Sigma=2.09}(\text{Ge}_{4.90}\text{Ga}_{0.07}\text{As}_{0.99})_{\Sigma=5.96}\text{S}_{32.04}$.

Mineral Group: Germanite group.

Occurrence: In a gold-bearing, base-metal, massive-sulfide deposit (Maikain); in a germanium-bearing, base-metal, massive-sulfide deposit (Tsumeb).

Association: Germanite, ovamboite, germanocolusite, sphalerite, bornite, tennantite, gallite, galena, barite (Maikain); ovamboite, germanite and germanocolusite (Tsumeb).

Distribution: From the Maikain deposit, Kazakhstan, and the Tsumeb deposit, Ovamboland, Namibia.

Name: For the locality, the *Maikain* deposit, that produced the first specimens studied.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, and in the Mining Museum, St. Petersburg, Russia.

References: (1) Spiridonov, E.M. (2003) Maikainite $\text{Cu}_{20}(\text{Fe,Cu})_6\text{Mo}_2\text{Ge}_6\text{S}_{32}$ and ovamboite $\text{Cu}_{20}(\text{Fe,Cu,Zn})_6\text{W}_2\text{Ge}_6\text{S}_{32}$: New minerals in massive sulfide base metal ores. *Doklady Earth Sci.*, 393A, 1329-1332. (2) (2004) *Amer. Mineral.*, 89, 1830 (abs. ref. 1).