DESCRIPTIVE MODEL OF Sn-POLYMETALLIC VEINS

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APPROXIMATE SYNONYMS Polymetallic xenothermal (Imai and others, 1978), Bolivian subvolcanic multistage.

DESCRIPTION Multistage Cu-Zn-Sn-Ag-bearing veins associated with felsic ignimbrites and subvolcanic intrusions.

GENERAL REFERENCES Nakamura and Hunahashi (1970), Grant and others (1977).

GEOLOGICAL ENVIRONMENT

Rock Types Rhyolitic tuff, welded tuff and tuff breccia. Rhyolitic to basaltic dikes. Sandstone, slate, chert, and basic tuff.

Textures Welded and airfall tuff. Porphyritic-aphanitic intrusive.

Age Range Late Cretaceus to Miocene in Japan, Miocene in Bolivia, but may be any age.

Depositional Environment Fissures in and around felsic ignimbrite.

Tectonic Setting(s) Continental margin. Syn-late orogenic.

Associated Deposit Types Polymetallic replacement, epithermal Ag veins, porphyry Sn.

DEPOSIT DESCRIPTION

Mineralogy Cassiterite, chalcopyrite, sphalerite, pyrhotite, pyrite, galena, scheelite, wolframite, arsenopyrite, native bismuth, bismuthinite, argentite, native gold, magnetite, molybdenite, and complex sulfosalt minerals including teallite, frankeite, cylindrite, and stannite.

Texture/Structure Multistage composite veins with Sn, Cu, Zn, and Ag minerals occurring in the same vein.

Alteration Minor quartz-chlorite-sericite alteration close to veins. Tourmaline, fluorite, or siderite may be present.

Ore Controls Veins, breccia veins, and breccia pipes. Metal zoning sequence is Sn + W to Cu + Sn, Cu + Zn, Pb + Zn, Pb + Ag, Au + Ag from center to periphery, or from depths to shallow levels. Zones are commonly superimposed or “telescoped" to produce complex veins,

Weathering Limonitization. Cassiterite in soils and gossans.

Geochemical Signature Cu, Zn, Sn, Pb, W, Au, Ag, Bi, As.

EXAMPLES

Ashio, Akenobe, Ikuno, Kishu, JAPN	(Nakamura, 1970)
Potosi, BLVA	(Turneaure, 1971)