

DESCRIPTIVE MODEL OF VOLCANIC-HOSTED Cu-As-Sb

By Dennis P. Cox

APPROXIMATE SYNONYM Enargite massive sulfide (Sillitoe, 1983)DESCRIPTION Stratabound to pipelike massive copper sulfosalt deposits in volcanic flows, breccias, and tuffs near porphyry systems.GENERAL REFERENCES Sillitoe (1983), Ashley (1982).GEOLOGICAL ENVIRONMENTRock Types Andesite, dacite, flows, breccias, and tuffs.Textures Fine grained, porphyritic, brecciated.Age Range Mainly Tertiary.Depositional Environment Volcanic terrane, uppermost levels of intrusive systems.Tectonic Setting(s) Continental margins and island arcs.Associated Deposit Types Porphyry Cu-Mo, porphyry Mo low-F.DEPOSIT DESCRIPTIONMineralogy All contain pyrite. In addition, enargite + luzonite + tennantite (Lepanto), enargite + covellite + chalcocite + bornite + chalcopyrite (Bor), enargite + luzonite + tetrahedrite (Resck), tetrahedrite + sphalerite + chalcopyrite + arsenopyrite (Sam Goosly). Most contain a few parts per million Au; Sam Goosly is Ag-rich.Texture/Structure Massive ore, breccia filling, replacement of clasts by sulfides.Alteration Chalcedony plus high-alumina assemblages containing alunite, pyrophyllite, diaspore, dickite, andalusite. Dumortierite, tourmaline, barite, and scorzalite may be present.Ore Controls Tuff-breccias or breccia pipes are the channelways for ore solutions originating from younger porphyry copper systems. Known deposits are separated from typical porphyry type mineralization by 500 to 700 m.Geochemical Signature As, Sb, Cu, Zn, Ag, Au, ± minor Sn (Lepanto), and W (Sam Goosly).EXAMPLES

Lepanto, PLPN	(Gonzales, 1956)
Recsk, HUNG; Bor, YUGO	(Sillitoe, 1983)
Sam Goosly (Equity Silver), CNBC	(Cyr and others, 1984)