

ARINEM GOLD AND BASEMETAL MINERALIZATION WEST JAVA – INDONESIA

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ABSTRACT

Arinem area is located at the south of Mt. Papandayan active volcano at western Java, Indonesia. The main mineralization in the area is represented by Arinem vein zone with total length about 5,900m, including unexposed vein zone at the south. The host rocks of mineralization consist of volcanic rock groups such as tuff, tuffaceous breccia and andesitic lava of Jampang Formation. The volcanic host rock suffered of propylitic and argillic alteration and they are characterized by the occurrences of chlorite, sericite, kaolinite, smectite and in place by carbonate. The mineralized quartz vein has colloform, crustiform, comb, vuggy, massive and brecciated textures and some of bladed quartz also observed. Outcrop and drill holes data indicate that the occurrences of gold-silver is intimately associated with base-metal minerals of copper, lead and zinc. Three stages of mineralization was recognized as vuggy-massive-crystalline quartz-sulfide, banded-brecciated sulphide-quartz and massive-crystalline barren quartz. The ore mineral assemblage of the deposit consists of sphalerite, galena, chalcopyrite, pyrite, marcasite, arsenopyrite with little amount of pyrrhotite, argentite, electrum, chalcocite, hematite, bornite, covellite, hessite, tetradymite, altaite, petzite, stutzite, enargite and tennantite. The results of measurements from primary fluid inclusions in quartz from different level indicate that homogenization temperatures at stage I is in range of 176.6-325.1°C, stage II is 156.9-311.8°C and stage III is 165.1-236.1°C. Measurement from sphalerite and calcite from substage IIA and IIIB give a results of 152.7-218.0°C and 140.4-217.1°C, respectively. The salinities of fluid inclusions in quartz, sphalerite and calcite determined by freezing point measurements are less than 4.34 wt% NaCl equiv.. So far, Raman spectroscopic analyses of CO₂, N₂, H₂S and CH₄ performed on selected fluid inclusions, detected no volatile component other than H₂O. Based on the K-Ar dating on hydrothermal sericite associated with quartz vein the age of mineralization is around 8.8 ± 0.3 Ma.

Keywords: Arinem, electrum, enargite, fluid inclusion, hessite, quartz vein, sulphide, tennantite

INTRODUCTION

Arinem area is located at the south of Mt. Papandayan active volcano at western Java, Indonesia. The main mineralization in the area is represented by Arinem vein zone with total length about 5,900m, including unexposed vein zone at the south. Gold exploration in the Arinem and its surrounding has been started since early 1980s by Antam, state mining company as a result of a

rigorous ground reconnaissance program to find other prospect of gold, targeting epithermal gold-silver mineralization. Since 1990 detail exploration is continue to define the gold and base-metal reserve and as well as its deposit characteristics. So far, no detail study was carried out from this deposit especially from underground data.