AU AND AG BEHAVIOR DURING SUPERGENE WEATHERING OF THE EPITHERMAL PONGKOR DEPOSIT (WEST JAVA, INDONESIA)

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Microscopic studies have been made in order to investigate the remobilization processes of silver and gold in the oxidation zone of the 2.05Ma low sulfidation Au-Ag epithermal Pongkor deposit (West Java, Indonesia).The primary polymetallic assemblage consists of chalcopyrite, pyrite, sphalerite, galena, polybasite/pearceite, electrum associated with Quartz and Adularia. In the deep part of the deposit, polybasite-pearceite minerals are partially replaced by acanthite (Ag2S) - aguilarite (Ag2SeS). Within the oxidation zone, acanthite is largely dominant over the other sulfides, filling cracks and cavities. It is found together with native silver, barite, covellite and iron oxides as replacements of the primary sulfides. It also occurs in rhythmic layers with iron oxides developed around sulfides relics (galena, chalcopyrite, pyrite, sphalerite). Primary electrum grains (60 wt % Au) are also corroded, being replaced by acanthite, gold rich electrum rims (up to 80 wt% Au) and Au-Ag sulfides close to the composition of uytenboogardtite. Those associations are interpreted as the result of oxidation processes. The supergene origin of argentiferous species such as acanthite is proposed and is supported by the high Ag grades which characterize the most superficial parts of the Pongkor deposit. Therefore the corrosive effect of Ag2S species has to be taken in account when studying secondary redistribution of base and precious metals within weathering profiles developed over polymetallic mineralized veins.