

Geology and mineralization of the Sangilo epithermal gold deposit, Baguio Mineral District, Philippines

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Baguio Mineral District

The Baguio Mineral District is host to several world-class mineralization, such as the Santo Tomas porphyry copper, and the Acupan and Antamok epithermal deposits. This study focuses on the Sangilo epithermal gold deposit and describes the host rock geology, alteration, vein textures, ore mineralogy, and fluid inclusion properties in order to understand the epithermal mineralization processes in the Baguio Mineral District.

Geology and Mineralization Characteristics

The Sangilo deposit is part of the Acupan-Sangilo northwest-trending epithermal vein system, which is a continuous vein system although mined separately and reported to have different host rock lithologies. Mineralization in Sangilo is hosted in hornblende quartz diorite, identified to be part of the Middle Miocene Itogon Quartz Diorite. It is dominantly composed of hornblende, plagioclase, biotite and augite with minor apatite and quartz. Disseminations of pyrite and chalcopyrite are abundant, along with intense argillic alteration near faults and veins and silicic alteration in several portions. Mineralization occurs as 1-m to 10-m, steeply-dipping quartz-calcite veins with colloform-crustiform to massive milky quartz textures in the central portion and hydrothermal breccia near the host rock. Adularia occurs as thin bands within the massive quartz zone. Sulfide minerals are sparsely distributed within the veins, and dominantly consist of pyrite, chalcopyrite and sphalerite associated with native gold and calaverite. The two-phased liquid-rich inclusions in quartz reveal homogenization temperatures of 170-193° C with salinities of 0.35-2.07 wt.% NaCl. Based on field observation and results of laboratory analyses, the Sangilo gold deposit mineralization characteristics indicate a low sulfidation epithermal system.