Mineralogi dan Geokimia Endapan Skarn Logam Dasar (Pb-Zn)-Perak Ruwai Selatan dan Sekitarnya, Kabupaten Lamandau, Provinsi Kalimantan Tengah, Indonesia

Rima Wardhani

Departemen Teknik Geologi, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta

Abstrak

Mineralogi alterasi hidrotermal di daerah penelitian terbagi menjadi 2 subtipe, yaitu jenis alterasi prograde yang dicirikan dengan adanya mineral. Calc-silikat anhidrat seperti garnet, klinopyroxene, dan wollastonite, sedangkan bekas luka retrograde dicirikan oleh mineral hidrous seperti tremolit, epidote, klorit, serisit, kalsit, dan zeolit. Mineral bijih dicirikan oleh adanya galena (PbS), sfalerit (ZnS), kalkopirit (CuFeS2), pirit (FeS2), pirhotit (FeS2), markasit (FeS2), arsenopirit (FeAsS) dan magnetit (Fe3O4). Mineralisasi bijih di wilayah studi umumnya terbentuk selama tahap awal pengikisan retrograde. Studi karakterisasi geokimia batuan samping difokuskan pada batulanau dan batugamping. Karena proses alterasi hidrotermal, geokimia batulanau. Pembagian batuan menunjukkan penambahan massa batuan sebesar 66,67 ± 41,67%. Penambahan massa batuan berjalan seiring dengan penambahan beberapa unsur seperti SiO2, Fe2O3, CaO, MnO dan MgO, serta unsur logam seperti Cu, Pb, Zn dan Ag. Pada batu gamping Selain itu juga terjadi penambahan oksida utama seperti data di atas, hanya saja CaO berkurang karena kalsit diganti dengan kuarsa dan mineral kalk-silikat. Unsur logam Cu, Pb, Zn dan Ag mengalami peningkatan yang signifikan dibandingkan batuan prekursor, hal ini mencerminkan kalkopirit, sfalerit dan galena. Secara geokimia bijih menunjukkan korelasi positif (R2 = 0,715) antara kadar Pb + Zn (wt.%) Dan Ag (ppm) total, yang melimpah pada galena dan sfalerit, kandungan perak dalam bijih semakin tinggi. Sifat kimiawi mineral sfalerit memiliki kadar Fe yang tinggi antara 2,16 - 11,98% berat dengan rata-rata 8,71% berat (N = 6). Sphalerite juga menunjukkan bahwa rata-rata kadar Ga (gallium, N = 5) adalah 0,23 wt.% Dan level Ge (germanium, N = 3) adalah 0,635 wt.%. Kadar Ga dan Ge dalam sfalerit diaplikasikan dalam geothermometer sfalerit dan menghasilkan suhu mineralisasi bijih sekitar 155 -200 ° C. Galena mengandung sejumlah besar perak, yaitu sekitar 0,13% berat atau 1,300 ppm Ag. Model genetik pembentukan bijih logam dasar (Pb-Zn) -mineralisasi primer di daerah penelitian dibagi menjadi 6 (enam) tahapan pembentukan, yaitu, (1) pengendapan dan pembentukan batuan sedimen berupa batugamping dan batulanau sebagai batuan induk untuk mineralisasi, serta pembentukan satuan tufa, (2) pembentukan patahan kepercayaan sebagai saluran fluida hidrotermal, (3) intrusi metamorfosis diorit dan isokimia, (4) pembentukan bekas luka prograde, (5) pembentukan layar retrograde, (6) intrusi andesit sebagai intrusi pasca-mineralisasi.

Kata kunci : Mineralisasi, Skarn, Ruwai

Mineralogy and Geochemistry of Base Metal Scale Deposits (Pb-Zn) -Perak Ruwai Selatan and its surroundings, Lamandau Regency, Central Kalimantan Province, Indonesia

Rima Wardhani

Departemen Teknik Geologi, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta

Abstract

The hydrothermal alteration mineralogy in the study area is divided into 2 subtypes, namely the type of prograde alteration characterized by the presence of minerals. anhydrous calc-silicates such as garnet, clinopyroxene and wollastonite, whereas retrograde scars are characterized by hydrous minerals such as tremolite, epidote, chlorite, sericite, calcite and zeolite. Ore minerals are characterized by the presence of galena (PbS), sphalerite (ZnS), chalcopyrite (CuFeS2), pyrite (FeS2), pyrrhotite (FeS2), headquartersite (FeS2), arsenopyrite (FeAsS) and magnetite (Fe3O4). The ore mineralization in the study area is generally formed during the early retrograde scarn stage. The geochemical characterization study of side rock is focused on siltstone and limestone. Due to hydrothermal alteration processes, geochemistry of siltstone. The charsnation showed the addition of rock mass by $66.67 \pm 41.67\%$. The addition of the rock mass goes hand in hand with the addition of several elements such as SiO2, Fe2O3, CaO, MnO and MgO, as well as metal elements such as Cu, Pb, Zn and Ag. On limestone In addition, there is also the addition of the main oxide as the data above, except that CaO is reduced because calcite is replaced by quartz and calc-silicate minerals. The metal elements Cu, Pb, Zn and Ag have increased significantly compared to precursor rocks, this reflects the chalcopyrite, sphalerite and galena. The geochemistry of the ore shows a positive correlation ($R2 = 0.715$) between the total Pb + Zn (wt.%) And Ag (ppm) levels, which abundant in galena and sphalerite, the silver content in the ore is getting higher high. The chemical characteristics of sphalerite minerals have high Fe levels between 2.16 and 11.98 wt.% With an average of 8.71 wt.% ($N = 6$). Sphalerite too showed that the mean levels of Ga (gallium, $N = 5$) were 0.23 wt.% and Ge levels (germanium, $N = 3$) were 0.635 wt.%. Ga and Ge levels in sphalerite were applied in a sphalerite geothermometer and produced the temperature mineralization of ore around 155 -200 ° C. Galena contains a significant amount of silver, which is about 0.13 wt.% Or 1,300 ppm Ag. The genetic model for the formation of basic metal ore (Pb-Zn) -prim mineralization in the study area is divided into 6 (six) stages of formation, namely, (1) deposition and formation of sedimentary rocks in the form of limestone and siltstone as a host rock for mineralization, as well as the formation of unit of tuff, (2) formation of a trust fault as a hydrothermal fluid channelway, (3) intrusion of diorite and isochemical metamorphosis, (4) formation of prograde scars, (5) formation of retrograde screens, (6) andesite intrusion as post-mineralization intrusion

Keyword : Mineralization, Skarn, Ruwai