

ABSTRAK

KUALITAS ENDAPAN BAUKSIT LATERIT BERDASARKAN KONTROL BATUAN INDUK DI DAERAH NANGA TAYAP, KABUPATEN KETAPANG, KALIMANTAN BARAT

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Endapan bauksit laterit merupakan sumber daya mineral penting sebagai bahan baku utama industri aluminium. Kualitas bauksit dipengaruhi oleh faktor geologi, terutama karakteristik batuan yang umumnya terdiri dari kelompok batuan beku granitoid. Penelitian ini bertujuan untuk menganalisis hubungan antara batuan induk dengan kualitas endapan bauksit laterit di daerah Nanga Tayap, Kabupaten Ketapang, Kalimantan Barat, serta mengetahui kondisi geologi, geomorfologi, dan persebaran kualitas bauksit. Metode penelitian meliputi pengumpulan data primer berupa pemetaan geologi serta data sekunder berupa data bor sejumlah 68 titik yang berisi data 198 sampel geokimia hasil uji (XRF). Berdasarkan interpretasi dari citra DEM dan pengamatan lapangan, didapatkan satuan geomorfologi pada daerah penelitian berupa bentuk asal Denudasional dan bentuk asal Fluvial, dengan jenis pola aliran Dendritik, Subdendritik, dan Subpararel. Berdasarkan hasil analisis petrografi, batuan induk di daerah penelitian tersusun atas Basalt, syenit, dan syenit kuarsa. Hasil analisis geokimia yang mengacu pada diagram ternary Schellmann (1986) dan Aleva (1994), menunjukkan satuan Basalt dan syenit kuarsa memiliki tingkat lateritisasi *medium – high lateritization* dengan tipe bijih *bauxite*, *ferritic bauxite*, dan *kaolinitic bauxite*. Sementara, endapan bauksit dengan batuan induk syenit mengalami tingkat lateritisasi *weak – high lateritization* dengan tipe bijih yang ditemukan *bauxite*, *ferritic bauxite*, *kaolinitic bauxite*, *bauxitic kaolinite*, dan *kaolinite*. Berdasarkan data geokimia dan klasifikasi kualitas bijih menurut PT Cita Mineral Investindo Tbk, bauksit pada batuan induk Basalt memiliki rata-rata kadar Al_2O_3 45,63%, SiO_2 20,80%, R- SiO_2 4,33%, Fe_2O_3 7,72%, dan TiO_2 1,14% dengan kualitas aluminium berkisar *High grade–Low grade* berada pada timur laut blok penelitian. Pada batuan induk syenit, diperoleh rata-rata Al_2O_3 42,42%, SiO_2 26,77%, R- SiO_2 5,65%, Fe_2O_3 8,44%, dan TiO_2 0,89% dengan kualitas *High grade–Unprospect* yang tersebar pada selatan, timur, dan tengah blok penelitian. Sementara itu, batuan induk syenit kuarsa menunjukkan rata-rata Al_2O_3 46,06%, SiO_2 13,86%, R- SiO_2 4,48%, Fe_2O_3 14,09%, dan TiO_2 1,31% dengan kualitas *High grade–Unprospect* pada bagian barat laut blok penelitian.

Kata kunci: Bauksit laterit, Batuan induk, Kualitas, Nanga Tayap

ABSTRACT

Quality of Lateritic Bauxite Deposits Based on Source Rock Control in the Nanga Tayap Area, Ketapang Regency, West Kalimantan

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Lateritic bauxite deposits represent an important mineral resource, serving as the primary raw material for the aluminum industry. The quality of bauxite is influenced by geological factors, particularly the characteristics of the parent rock, which generally consist of granitoid igneous rocks. This study aims to analyze the relationship between parent rock composition and the quality of lateritic bauxite deposits in the Nanga Tayap area, Ketapang Regency, West Kalimantan, as well as to examine the geological and geomorphological conditions and the spatial distribution of bauxite quality. The research methods included the collection of primary data through geological mapping and secondary data derived from 68 drilling results, comprising 198 geochemical samples analyzed using XRF. Based on interpretations of Digital Elevation Model imagery and field observations, the geomorphological units in the study area consist of denudational and fluvial landforms, with drainage patterns classified as dendritic, sub-dendritic, and sub-parallel. Petrographic analysis revealed that the parent rocks in the study area comprise Basalte, syenite, and quartz syenite. Geochemical analysis, interpreted using the ternary diagrams of Schellmann (1986) and Aleva (1994), indicates that Basalte and quartz syenite units exhibit medium to high degrees of lateritization, producing bauxite ore types such as bauxite, ferritic bauxite, and kaolinitic bauxite. In contrast, syenite-derived deposits display weak to high degrees of lateritization, producing ore types including bauxite, ferritic bauxite, kaolinitic bauxite, bauxitic kaolinite, and kaolinite. According to geochemical data and ore quality classifications established by PT Cita Mineral Investindo Tbk, bauxite derived from Basalte exhibits average concentrations of Al_2O_3 at 45.63%, SiO_2 at 20.80%, reactive SiO_2 at 4.33%, Fe_2O_3 at 7.72%, and TiO_2 at 1.14%. The aluminum quality ranges from high-grade to low-grade, located in the northeastern part of the study area. Bauxite associated with syenite shows average values of Al_2O_3 at 42.42%, SiO_2 at 26.77%, reactive SiO_2 at 5.65%, Fe_2O_3 at 8.44%, and TiO_2 at 0.89%, with quality ranging from high-grade to unprospect, distributed across the southern, eastern, and central portions of the study area. Meanwhile, quartz syenite-derived bauxite records average concentrations of Al_2O_3 at 46.06%, SiO_2 at 13.86%, reactive SiO_2 at 4.48%, Fe_2O_3 at 14.09%, and TiO_2 at 1.31%, with quality ranging from high-grade to unprospect, concentrated in the northwest part of the study area.

Keywords: Lateritic bauxite, Nanga Tayap, Quality, Parent rock.