

ABSTRAK

HUBUNGAN TINGKAT SERPENTINISASI BATUAN DASAR TERHADAP UNSUR NIKEL PADA ENDAPAN NIKEL LATERIT DAERAH PAKA INDAH, OHEO, KONAWE UTARA

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Endapan nikel laterit daerah Paka Indah, kecamatan Oheo, Konawe Utara terbentuk di atas batuan ultramafik sebagai batuan dasar. Batuan ultramafik tersebut telah mengalami proses pelapukan intensif dan serpentinisasi dengan tingkat yang bervariasi, sehingga menghasilkan profil laterit yang terdiri atas *horizon bedrock*, *rocky saprolite*, *earthy saprolite*, dan limonit. Variasi tingkat serpentinisasi diduga berperan dalam mengontrol distribusi kadar nikel, sehingga diperlukan kajian untuk mengetahui hubungan antara tingkat serpentinisasi dengan kadar nikel pada zona saprolit dan *bedrock*. Metode penelitian yang digunakan meliputi pemetaan geologi dan laterit, analisis morfologi, serta pengambilan data lapangan berupa titik pengamatan dan data pemboran. Analisis laboratorium dilakukan untuk mengetahui kadar unsur, khususnya nikel (Ni) dengan metode XRF, serta identifikasi mineralogi dan tekstur serpentinisasi menggunakan analisis petrografi. Tingkat serpentinisasi diklasifikasikan menjadi rendah, sedang, dan tinggi berdasarkan persentase alterasi dan karakter tekstur seperti mesh, bastit, dan vein. Selain itu, dilakukan analisis statistik menggunakan boxplot untuk mengevaluasi hubungan antara tingkat serpentinisasi dan kadar nikel. Hasil penelitian menunjukkan bahwa tingkat serpentinisasi pada batuan ultramafik di daerah penelitian terbagi menjadi tiga kategori, yaitu rendah (5–40%), sedang (40–60%), dan tinggi (60–90%) dengan karakter mineralogi yang didominasi oleh lizardit dan krisotil pada tingkat rendah-sedang, serta antigorit dan lizardit pada tingkat tinggi. Analisis kadar nikel pada zona saprolit dan bedrock menunjukkan adanya korelasi negatif antara tingkat serpentinisasi dengan kadar Ni, di mana peningkatan derajat serpentinisasi cenderung diikuti oleh penurunan kadar nikel.

Kata kunci: Kadar Nikel, Laterit, Serpentinisasi, Saprolit, Ultramafik

ABSTRACT

THE RELATIONSHIP BETWEEN THE DEGREE OF SERPENTINIZATION OF BEDROCK AND NICKEL CONTENT IN LATERITE DEPOSITS, PAKA INDAH AREA, OHEO, NORTH KONAWA

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The laterite nickel deposit in Paka Indah area, Oheo District, North Konawe, was formed on ultramafic rocks as the bedrock. These ultramafic rocks have undergone intensive weathering and serpentinization with varying degrees, resulting in a laterite profile consisting of bedrock, rocky saprolite, earthy saprolite, and limonite horizons. Variations in the degree of serpentinization are thought to play a role in controlling nickel grade distribution, thus a study is required to determine the relationship between the degree of serpentinization and nickel grade in the saprolite and bedrock zones. The research methods used include geological and laterite mapping, morphological analysis, and field data collection in the form of observation points and drilling data. Laboratory analyses were conducted to determine elemental concentrations, particularly nickel (Ni), using the XRF method, as well as to identify mineralogy and serpentinization textures through petrographic analysis. The degree of serpentinization was classified into low, moderate, and high categories based on the percentage of alteration and textural characteristics such as mesh, bastite, and vein. In addition, statistical analysis using boxplots was carried out to evaluate the relationship between the degree of serpentinization and nickel grade. The results show that the degree of serpentinization in the ultramafic rocks of the study area is divided into three categories, namely low (5–40%), moderate (40–60%), and high (60–90%), with mineralogical characteristics dominated by lizardite and chrysotile at low to moderate degrees, and antigorite and lizardite at high degrees. Nickel grade analysis in the saprolite and bedrock zones indicates a negative correlation between the degree of serpentinization and Ni grade, where an increase in the degree of serpentinization tends to be followed by a decrease in nickel grade.

Keywords: *Laterite, Nickel Content, Saprolite, Serpentinization, Ultramafic*