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Characteristics and Genesis of Laterite Bauxite in Sompak District and Surrounding Areas, Landak Regency, West Kalimantan

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Abstract - West Kalimantan has very large bauxite resources, reaching 2.07 billion tons, equivalent to 57.32% of the total bauxite resources in Indonesia with bauxite reserves of 0.84 billion tons or equivalent to 66.77% of the total national mineral reserves. The researched area covers Sompak District and surrounding areas, Landak Regency, West Kalimantan. This research aims to determine geological conditions, laterization, and characteristics of laterite bauxite in the studied area. Methods used in this research are geological mapping, lateritic mapping, and petrographic and geochemical analyses. The lithology of the researched area is composed of granodiorite, porphyry quartz diorite, granite, porphyry andesite, porphyry basalt, alluvial, and swamp deposits. Laterite profiles in the researched area generally consist of topsoil, latosol, bauxite, and clay zone. The laterite bauxite derived from granodiorite is classified as a medium grade, laterite bauxite from porphyry quartz diorite is classified as high-grade bauxite, laterite bauxite from andesite porphyry is classified as low-medium grade bauxite, and laterite bauxite from porphyry basalt in the studied area is classified as high grade bauxite. Laterite bauxites in the researched area were formed from weathered parent rocks which were intermediate - alkaline igneous rock.

Keywords: laterite bauxite, laterite profile, igneous rocks, Landak Regency

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INTRODUCTION

Background

Bauxite which is the basic material for producing aluminum, is named after Les Baux Province, a village where the first deposits were discovered. Bauxite contains hydrated alumina equivalent to as much as 40-60% Al_2O_3 , and is free of the other siliceous materials leached out over time (Hocking, 2005). Aluminium (Al) is the most widely distributed metal in the environment occurring naturally in the trivalent state (Al^{+3}) as silicates, oxides, and hydroxides, but may combine with

other elements such as chlorine, sulphur, fluorine, and form complexes with organic matter (Igbokwe *et al.*, 2019). Aluminum is a metal that is soft in its pure form, but hard when solid, light, resistant to corrosion, and is a good conductor. This makes aluminum widely used as a raw material in the automotive industry, construction materials, and household appliances (Surdia and Saito, 1992).

Globally, of all the world bauxite deposits, more than 80% are laterite bauxite deposits (Gow and Lozej, 1993; Robb, 2005). According to Bardossy (1982), about 14% of the world bauxite production comes from karst bauxite,