SARI

Batugamping banyak digunakan dalam berbagai macam industri sebagai bahan baku seperti industri kertas, industri semen, pembuatan karbid, industri kaca, industri besi dan baja, pembuatan soda abu, industri makanan dan obat, industri keramik, serta digunakan sebagai batu dimensi dalam pekerjaan konstruksi. Dalam penggunaannya, batugamping perlu memenuhi persyaratan karakteristik batuan baik secara geokimia ataupun secara keteknikannya. Tujuan penelitian ini adalah untuk mengetahui persebaran, karakteristik, dan rekomendasi pemanfaatan batugamping yang berada pada IUP 50,5 PT. Solusi Bangun Indonesia di daerah Mliwang, Kecamatan Kerek, Kabupaten Tuban, Provinsi Jawa Timur. Metode yang digunakan dalam penelitian yaitu observasi lapangan, analisis petrografi, analisis geokimia menggunakan *X-Ray Fluorescence*, serta analisis keteknikan batuan berupa berat jenis, kuat tekan, ketahanan aus, dan daya serap air. Persebaran batugamping lokasi penelitian berupa *wackestone* sisipan *floatstone* di bagian timur laut lokasi penelitian yang memiliki kandungan SiO_2, Fe_2O_3, dan Al_2O_3 relatif rendah - sedang dengan kuat tekan rendah, perselingan *packstone-wackestone* di bagian barat laut hingga tenggara lokasi penelitian yang memiliki kandungan SiO_2, Fe_2O_3, dan Al_2O_3 relatif rendah - tinggi dengan kuat tekan sedang - tinggi, dan *packstone* sisipan *floatstone* di bagian barat lokasi penelitian yang memiliki kandungan SiO_2, Fe_2O_3, dan Al_2O_3 relatif sedang - tinggi dengan kuat tekan rendah. Berdasarkan karakteristik geokimianya, batugamping di lokasi penelitian memiliki kandungan CaO yang tinggi (54,58% - 55,87%) dengan kandungan MgO yang rendah (0,09% - 0,23%). Berdasarkan karakteristik keteknikannya, batugamping di lokasi penelitian memiliki berat jenis sebesar 1644 kg/m^3 - 2475 kg/m^3, kuat tekan sebesar 70,260 kgf/cm^2 - 601,260 kgf/cm^2, ketahanan aus sebesar 0,125 mm/menit - 0,037 mm/menit, dan daya serap air sebesar 0,9% - 7%. Dari karakteristik geokimia dan keteknikan batuan, batugamping di lokasi penelitian direkomendasikan untuk industri semen, pemurnian besi dan baja, serta pembuatan soda abu. Batugamping di lokasi penelitian juga direkomendasikan untuk pemanfaatan lainnya namun secara selektif dalam pemilihan batugampingnya yaitu untuk industri kertas, industri makanan dan obat, serta pembuatan karbid.

Kata kunci: batugamping, karakteristik geokimia, karakteristik keteknikan, rekomendasi pemanfaatan

ABSTRACT

Limestone is a commonly used raw material in various industries, including the paper, cement, glass, iron and steel, soda ash, food, medicine, and ceramic industries. It is also used as dimension stone in construction. To ensure its suitability for use, limestone must meet both geochemical and technical rock characteristic requirements. The aim of this study was to investigate the distribution, characteristics, and recommended utilization of limestone found in IUP 50.5 PT. Solusi Bangun Indonesia in the Mliwang area, Kerek District, Tuban Regency, East Java Province. The research employed field observation, petrographic analysis, geochemical analysis using X-Ray Fluorescence, and rock engineering analysis in the form of specific gravity, compressive strength, wear resistance, and water absorption. The limestone in the research location is distributed as wackestone with floatstone inserts in the northeast. It has relatively low to medium SiO_2, Fe_2O_3, and $Al2O_3$ content, and low compressive strength. There is a packstone-wackestone intersection in the northwest to southeast part of the research location. This intersection has relatively low to high SiO_2, Fe_2O_3, and Al_2O_3 content with medium to high compressive strength. In the western part of the research location, there is packstone with floatstone inserts. This unit has relatively medium to high SiO_2, Fe_2O_3, and Al_2O_3 content with low compressive strength. The limestone at the study site has a high CaO content ranging from 54.58% to 55.87% and a low MgO content ranging from 0.09% to 0.23% based on its geochemical characteristics. In terms of engineering characteristics, it has a specific gravity ranging from 1644 kg/m3 to 2475 kg/m3, a compressive strength ranging from 70.260 kgf/cm2 to 601.260 kgf/cm2, a wear resistance ranging from 0.125 mm/min to 0.037 mm/min, and a water absorption ranging from 0.9% to 7%. Based on the geochemical and engineering characteristics of the rock, the limestone at the study site is suitable for use in the cement industry, iron and steel refining, and soda ash production. While it may also be suitable for other industries, such as the paper, food, and medicine industries, it should be selected carefully. Additionally, it can be used in the manufacture of carbides.

Keywords: limestone, geochemical characteristics, engineering characteristics, utilization recommendations