

SARI

Manfaat mineral lempung saat ini sangatlah banyak, oleh karena itu penelitian ini bertujuan untuk mengetahui karakteristik mineral lempung pada material lumpur yang nantinya akan direkomendasikan pemanfaatannya untuk industri keramik dan kosmetik. Penelitian ini berlokasi di Bledug Kuwu yang merupakan sebuah fenomena gunung lumpur (*mud volcano*) yang terletak di Desa Kuwu, Kecamatan Kradenan, Kabupaten Grobogan, Provinsi Jawa Tengah, yang menghasilkan material semburan lumpur berupa kerikil, pasir, lanau serta lempung plastis dan air. Observasi lapangan dan pengambilan sampel dilakukan pada setiap perbedaan morfologi gunung lumpur yang ada yaitu berupa kawah aktif dan *gryphon* aktif dengan rata-rata luas area sebaran material lumpur nya sekitar 0,8 – 5 meter. Sampel dipreparasi untuk dilakukan analisis *X-ray diffraction* (XRD), *cation exchange capacity* (CEC), pH, analisis distribusi ukuran butir, uji plastisitas, uji *swelling*, uji batas susut, serta *specific gravity*. Dari hasil analisis dan pengolahan data tersebut, didapatkan hasil bahwa mineral lempung dominan berjenis smektit, diikuti dengan mineral kaolinit dan ilit, dengan ukuran butir dominan *clay* hingga *silt*, tingkat plastisitas 24,78% hingga 55,48 %, persentase *swelling* 7,8% hingga 12,5%, dengan batas susut sebesar 9,36% hingga 14,83%, nilai *specific gravity* sebesar 2,50 – 2,84, nilai *cation exchange capacity* (CEC) sebesar 9,96 – 20,47 meq/100g dan nilai pH menunjukkan angka 8,01 – 8,40. Dari karakteristik tersebut, dapat direkomendasikan pemanfaatan mineral lempung sebagai bahan baku pembuatan kosmetik dan pembuatan keramik.

Kata kunci : mineral lempung, *X-ray diffraction*, *cation exchange capacity*, pemanfaatan, Gunung Lumpur Kuwu

ABSTRACT

The benefits of clay minerals are very much now, therefore this research aims to determine the characteristics of clay minerals in mud material which will be recommended for industrial use. This research is located in Bledug Kuwu which is a phenomenon of mud volcano that located in Kuwu Village, Kradenan District, Grobogan Regency, Central Java Province, which produces mudflow material in the form of gravel, sand, silt and plastic clay and water. Field observations and sampling were carried out on each morphological difference in the existing mud volcano in the form of active craters and active gryphons with an average area of mud material distribution around 0.8 - 5 meters. Samples were prepared for X-ray diffraction (XRD) analysis, cation exchange capacity (CEC), pH, grain size distribution analysis, plasticity test, swelling test, shrinkage test, and specific gravity. From the results of the analysis and processing of these data, it was found that the dominant clay minerals were smectite type, followed by kaolinite and illite minerals, with clay grain size from silt to silt, plasticity levels of 24.78% to 55.48%, swelling percentage of 7.8% up to 12.5%, with a shrinkage limit of 9.36% to 14.83%, specific gravity values of 2.50 - 2.84, cation exchange capacity (CEC) values of 9.96 - 20.47 meq / 100g and the pH value shows the number 8.01 - 8.40. From these characteristics, it can be recommended the use of clay minerals as raw material for cosmetics and ceramics.

Keywords: clay minerals, X-ray diffraction, cation exchange capacity, utilization, Kuwu Mud Volcano.