ABSTRAK

Berdasarkan data Sistem Informasi Pengelolaan Sampah Nasional (SIPSN) Kementerian Lingkungan Hidup dan Kehutanan (KLHK), volume timbulan sampah di Indonesia pada tahun 2022 mencapai 36,22 juta ton. Sampah plastik menempati posisi kedua setelah sampah organik dari sumber timbulan sampah dengan proporsi jumlah sampah plastik di Indonesia sebesar 18,1% atau sekitar 6,55 juta ton sampah plastik. Tujuan penelitian ini, agar mengetahui jenis mutu bata plastik komposit yang dihasilkan dan dapat menjadi produk yang ramah lingkungan. Jenis penelitian ini merupakan eksperimental skala laboratorium dengan menggunakan metode deskriptif kuantitatif, analisis data menggunakan Rancangan Acak Lengkap (RAL), dan uji lanjut Beda Nyata Terkecil / Least Significant Difference (LSD). Presentase komposisi rasio fly ash terhadap limbah multilayer packaging yang digunakan dalam penelitian ini adalah bata plastik komposit 1 (0%), bata plastik komposit 2 (10%), bata plastik komposit 3 (20%), bata plastik komposit 4 (30%), bata plastik komposit 5 (40%) dan bata plastik komposit 6 (50%). Pengujian densitas, kekerasan, kuat tekan dan daya serap air dilakukan setelah umur 24 jam. Hasil pengujian bata plastik komposit tertinggi pada variasi fly ash 50% berat nilai densitas tertinggi bata plastik komposit sebesar 1,5109 g/cm3

. Hasil pengujian kekerasan tertinggi bata plastik komposit 6 (50%) sebesar 61,4. Hasil penelitian pengujian kuat tekan didapat nilai rata-rata tertinggi

pada variasi bata plastik komposit 6 (50%) sebesar 22,8430 MPa. Hasil pengujian daya serap air didapat nilai rata-rata terbaik pada variasi bata plastik komposit 6 (50%) sebesar 0,15%. Hasil Rancangan Acak Lengkap (RAL) densitas, kekerasan, kuat tekan dan daya serap air (F Hitung > F Tabel) sehingga perlakuan berpengaruh signifikan dan hasil uji Beda Nyata Terkecil / Least Significant Difference (LSD) densitas, kekerasan, kuat tekan dan daya serap air diperoleh hasil optimal pada interaksi komposisi bata plastik komposit MLP 50%, FA 50%.

Kata Kunci: Bata Plastik Komposit, Kuat Tekan, Densitas, Fly Ash, kekerasan, Limbah Multilayer Packaging, Daya Serap Air.

ABSTRACT

Based on data from the Ministry of Environment and Forestry's National Waste Management Information System (SIPSN), the volume of waste generated in Indonesia in 2022 will reach 36,22 million tons. Plastic waste occupies the second position after organic waste from sources of waste generation with a proportion of total plastic waste in Indonesia of 18,1% or around 6,55 million tons of plastic waste. The purpose of this study was to determine the type of quality of the composite bricks produced and it can also be an environmentally friendly product. This type of research is an experimental laboratory scale using quantitative descriptive methods, data analysis using Rancangan Acak Lengkap or Completely

Randomized Design (RAL) and further testing Least Significant Difference (LSD). The percentage composition used in this research is composite plastic bricks 1 (0%), composite plastic bricks 2 (10%), composite plastic bricks 3 (20%), composite plastic bricks 4 (30%), composite plastic bricks 5 (40%), and composite plastic bricks 6 (50%). Tests for density, hardness, compressive strength and water absorption were carried out after 24 hour of age. The highest average value in the variation of composite plastic bricks (50%). The results of the research on density 1,5109 g/cm3 composite plastic bricks 50%. The results of the research on hardness 6,14. The results of the research on compressive strength testing obtained the highest average value in the variation of composite plastic bricks (50%) of 22,8430 MPa. The results of the water absorption test obtained the best average value on the variation of composite plastic bricks (50%) of 0,15%. The results of the Completely Randomized Design (RAL) for hardness, density, compressive strength and water absorption (F Count > F Table) so that the treatment had a significant effect and the results of the Least Significant Difference (LSD) test for density, hardness, compressive strength and water absorption obtained optimal results on the interaction of composite bricks MLP 50%, FA 50%.
Key Words: Composite Plastic Bricks, Compressive Strength, Density, Fly Ash, Multilayer Packaging Waste, Water Absorption.