

Water Quality Assessment of Akkarena Beach: A Local Case for Global Coastal Sustainability

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Abstract. This study investigated the production of coal briquettes from raw coal waste using a non-carbonization method at SMK-SMAK Makassar. The objective was to determine the manufacturing procedure and evaluate the briquette quality based on Indonesian National Standard (SNI) 13-4931-2010 parameters: ash, moisture, volatile matter, total sulfur, and calorific value. Laboratory analyses met the ash content ($\leq 20\%$ SNI) and Sulphur content ($\leq 1\%$ SNI) limits, with measured value 9.41 % and 0.375 %. Moisture ($\leq 17\%$ SNI) was 9.65 % and calorific value ($4000-5000 \text{ cal g}^{-1}$) was $5,376 \text{ cal g}^{-1}$, also within limits. However, volatile matter ($< 22\%$ SNI) measured 36.59 % exceeded the SNI limit indicating potential combustion inefficiency. Despite this, the briquettes demonstrated favorable ignition characteristics (initial flame 9 min, total burn 32 min) and a high energy density, suggesting they can serve as an alternative solid fuel for households and small-scale industry. Further research, supported by educational institutions and government agencies, is recommended to reduce volatile matter content and promote broader adoption of coal briquette technology.

Keywords: Coal, Briquettes, Non-Carbonization Method