

SARI

GEOLOGI DAN LINGKUNGAN PENGENDAPAN BATUBARA DAERAH TANJUNG AGUNG, KABUPATEN MUARA ENIM, SUMATERA SELATAN

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Penelitian yang berlokasi di daerah Tanjung Agung, Kecamatan Tanjung Agung, Kabupaten Muara Enim, Sumatera Selatan memiliki keunikan geologi dari segi sumber daya alam. Sumber daya alam yang terdapat di daerah penelitian berupa batubara. Batubara tersebut terbentuk pada Formasi Muara Enim. Formasi Muara Enim yang terletak di bagian selatan Cekungan Sumatera, terbentuk oleh batuan tersier. Batuan tersier yang menyusun Formasi Muara Enim berupa batulempung, batupasir dan batubara. Batulempung umumnya berwarna abu-abu sampai abu-abu kehitaman dengan sifat lanauan. Lapisan batupasir umumnya berwarna abu-abu, berbutir sedang hingga kasar dengan ukuran butir pasir sedang hingga pasir kasar. Batubara pada Formasi Muara Enim merupakan batubara dengan warna kusam dan menunjukkan kenampakan pecahan-pecahan yang kasar. Pada batubara formasi ini umumnya memiliki kualitas rendah berupa lignit. Namun, pada lokasi tertentu (dekat intrusi andesit) lignit tersebut mengalami perubahan menjadi batubara berkualitas tinggi. Di daerah penelitian dilakukan analisis proksimat untuk menentukan kualitas batubara menurut *Classification of Inseam Coal* (UN-ECE, 1998). Hasil analisis berturut-turut terhadap dua sampel batubara A2 dan C di laboratorium yaitu analisis proksimat dengan nilai untuk *moisture in air dried* 14,8% dan 16,7%, *Ash Content* 4,6% dan 3,7%, *Volatile Matter* 40,7% dan 39,7%, *Fixed Carbon* 39,9% dan 39,9%, *Total Sulfur* 0,15% dan 0,37% dalam *air dried basis* (adb). Selain itu untuk nilai kalor berturut-turut 5446 dan 5324 kal/gram dalam basis *air dried basis* (adb). Basis adb pada *ash content* dikonversi ke dalam basis db secara berturut-turut bernilai 5,4% dan 4,4% (db). Nilai kalor dikonversi ke dalam basis daf secara berturut-turut bernilai 28,5 Mj/Kg dan 28,3 Mj/Kg (daf). Dari hasil tersebut dapat disimpulkan bahwa kedua batubara yang tersingkap di daerah penelitian termasuk dalam *high grade coal* berdasarkan *ash content* (% db) dan *rank* kedua batubara tersebut termasuk dalam *subbituminous rank low rank* berdasarkan nilai kalor menurut *Classification of In Seam Coal* (UN-ECE, 1998). Selain itu dilakukan analisis petrografi material organik yang memiliki tujuan untuk menentukan lingkungan pengendapan batubara di daerah penelitian. Metode yang dilakukan dengan analisis maseral dan mineral, *plotting Tissue Preservation Index* (TPI) terhadap *Gelification Index* (GI). Komposisi batubara di daerah penelitian secara berturut-turut tersusun dari dominasi huminit (39,6% - 68,4%). Plot *Tissue Preservation Index* (TPI) dan *Gelification Index* (GI) terhadap kedua sampel batubara menunjukkan bahwa peristiwa penggabutan atau pembatubaraan terjadi pada lingkungan *lower delta plain*.

Kata kunci: Geologi, Lingkungan Pengendapan, Batubara, Muara Enim, *Lower Delta Plain*.

ABSTRACT

GEOLOGY AND ENVIRONMENT OF COAL DEPOSITION IN TANJUNG AGUNG, MUARA ENIM REGENCY, SOUTH SUMATERA

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The research is located in the area of Tanjung Agung, District Tanjung Agung, Muara Enim Regency, South Sumatra has unique geology in terms of natural resources. Natural resources contained in the research area in the form of coal. The coal was formed in the Muara Enim Formation. Muara Enim formation located in the southern part of Sumatra Basin, formed by tertiary rocks. Tertiary rocks that make up Muara Enim Formation in the form of claystone, sandstone, and coal. Claystone is generally gray to blackish gray with silt properties. The layer of sandstone is generally gray, medium to rough grain with the size of a grain of medium sand to coarse sand. Coal in Muara Enim Formation is coal with dull color and shows the appearance of rough fragments. In coal, these formations generally have low quality in the form of lignite. However, in certain locations (near andesite intrusion) the lignite is transformed into high-quality coal. In the research area, a proximate analysis was conducted to determine the quality of coal according to the Classification of Inseam Coal (UN-ECE, 1998). The results of successive analysis of two A2 and C coal samples in the laboratory, namely proximate analysis with values for moisture in water dried 14.8% and 16.7%, Ash Content 4.6% and 3.7%, Volatile Matter 40.7% and 39.7%, Fixed Carbon 39.9% and 39.9%, Total Sulfur 0.15% and 0.37% in air-dried base (ADB). In addition to the consecutive calorific values of 5446 and 5324 cal/gram in the air-dried base (ADB). The ADB base on ash content converted to DB base is 5.4% and 4.4% (DB) respectively. The calorific value converted into daf base is 28.5 Mj/Kg and 28.3 Mj/Kg (daf) respectively. From these results, it can be concluded that the two coals uncovered in the research area are included in the high-grade coal based on ash content (% DB) and the rank of both coals is included in the sub-bituminous rank low rank) based on calorific value according to the Classification of In-Seam Coal (UN-ECE, 1998). Besides, organic material petrography analysis is carried out that aims to determine the environment of coal deposition in the research area. The method is done by maceral and mineral analysis, plotting Tissue Preservation Index (TPI) against Gelification Index (GI). The composition of coal in successive research areas is composed of huminite dominance (39.6% - 68.4%). Plot Tissue Preservation Index (TPI) and Gelification Index (GI) of both coal samples show that netting or logging events occur in the lower delta plain environment.

Keywords: Geology, Depositional Environment, Coal, Muara Enim, Lower Delta Plain.