INDONESIAN MINING JOURNAL

ISSN 0854 - 9931 **Volume 18, No. 3, October 2015**

Abstract Index

DDC 622.3

Zulfahmi and Pulungan, Zulkifli (R&D Centre for Mineral and Coal Technology)

Assessment for Data Correlation of the Downhole Seismic Measurement Results on Underground Coal Gasification Location Using Multivariate Analysis

***Penilaian terhadap Korelasi Data Hasil Pengukuran Seismik Lubang Bor pada Lokasi* Underground Coal Gasification *Menggunakan* Multivariate Analysis**

IMJ, Vol. 18, No. 3, October 2015,
P. 109 - 120

One of the risk potentials that must be alerted for underground coal gasification(UCG) technology is surface subsidence, although such a technology is potential to be developed in Indonesia. Therefore, the characteristics of rock strata above the coal seam needs to be deliberately considered. Downhole seismic data is one of the data that is needed to determine the geotechnical characteristics of the rock layers near the surface. Previously, it is considered that physical, mechanical and dynamic properties of the rocks at same geological formation have equal characteristics although they come from different locations. However, based on correlation test to downhole seismic data using multivariate analysis showed that no significant correlation between the measured data from Macangsakti-1 and Macangsakti-2 with those of Mahayung from different location, although they are in the same geological formation. This fact is shown by the analysis result which shows a significance value of <0.05. Macangsakti-1 and Macangsakti 2, which are located closely, showed a significant value of >0.05. It means that there are no significant data differences between the two locations. It is very likely since there are a lot of factors that affect such conditions, especially the influence of tectonics at each location. In addition, factors of the surface condition such as infiltrations of ground water from the surface towards the unsaturated zone also affect the difference of wave propagation velocity at each location. Thus, it should be noted that the condition of rock layers are site specific to determine the characteristics of the sites it should be measured at the sites and can not be generalized with other locations, although they are in the same geological formation.

Keywords: underground coal gasification, downhole seismic, multivariate analysis

DDC 553.2 : 662.9

Monika, Ika; Suganal and Sulistyohadi, Fahmi (R&D Centre for Mineral and Coal Technology)

Utilization of Coal Activated Carbon as Adsorbent Ammonium with the High Concentration

Percobaan Pemanfaatan Karbon Aktif Batubara sebagai Penyerap Amonium dengan Kadar Tinggi

IMJ, Vol. 18, No. 3, October 2015,
P. 121 - 131

Ammonium adsorption process carried out by batch system, with making 208-233 mg/L concentration of ammonium solution. In the adsorption batch systems, particle size of activated carbon -8 + 12 mesh and -16 + 20 mesh was added into 200 ml ammonium solution with the weight of 20, 40, 60 and 80 g, and a contact time respectively 30, 60, 120, 180 and 1440 minutes (24 hours). During the adsorption, stirring to optimize adsorption is conducted regularly. The activated carbon used in this research consist of two types are coal based activated carbon and coconut shell activated carbon. Coal activated carbon has a surface area 196.7 m^2/g and 643.0 m^2/g. While coconut shell activated carbon has a surface area of 59.6 m^2/g and 985.9 m^2/g. Results of the adsorption process showed that coal activated carbon with a surface area of 643, 0 m2/g have the same capability ammonium adsorption with coconut shell activated carbon with a surface area of 985.9 m^2/g. These results showed that a both types of activated carbon can be used optimally for the removal ammonium with percentage of adsorption reaches more than 90%.

Keywords: activated carbon, ammonium, adsorption

DDC 669.0283

Suratman (R&D Centre for Mineral and Coal Technology)

Removal of Metallic Impurities from Quartz Sand Using Oxalic Acid

Penghilangan Logam Pengotor dari Pasir Kuarsa Menggunakan Asam Oksalat

IMJ, Vol. 18, No. 3, October 2015,
P. 133 - 141

Quartz sand of Mojosari deposit from Rembang, Central Java has been beneficiated using oxalic acid to enhance its purity, especially that is associated with the removal

of iron oxide impurities. The removal of metallic impurities has been studied under experimental conditions to optimize the process parameters such as oxalate concentration (0.1-0.5M), leaching temperature (25-50°C) and pH of solution (1-5). The optimum leaching process removed iron from originally 1.44% to reach a level of 0.243% (82% removal of iron) with the SiO_2 content increases from 95.50 up to 97.77%. The obtained beneficiated quartz sand matches the required Fe level for glass insulating fibers industry, which is less than 0.3%. The best result was yielded under experimental condition using oxalic acid at concentration of 0.3M, pH 1, temperature of 40°C for 4 hours of leaching process. The experimental results of this study have opened up a practically significant and technically viable approach for the production of quartz sand suitable for glass insulating fiber industry.

Keywords: beneficiation, quartz, leaching, oxalic acid

DDC 330.0285

Saleh, Ridwan[1]; Pranoto, Eko[2] and Jafril[1] ([1]R&D Centre for Mineral and Coal Technology; [2]Pusat Penelitian Teh dan Kina - PPTK Gambung)

Market Study of Compound Fertilizer-Based Mineral at Tea Plantation in Bandung Regency

Kajian Pasar Pupuk Majemuk Berbasis Mineral pada Perkebunan Teh di Kabupaten Bandung

IMJ, Vol. 18, No. 3, October 2015,
P. 143 - 163

The study of this research is to identify the market possibility of compound mineral fertilizer in Bandung Regency. The methodology used is survey method by using analysis model of market measurements. From the analysis and discussion, it can be identified the estimate of substantial potential of fertilizer market on tea plantation in Bandung Regency of IDR 111,070,309,152 with minimum market is IDR 74,742,993,050 or 67.29% from the total potential of fertilizer market as market penetration index. Meanwhile, the remains of 32.71% is market sensitivity area towards fertilizer demand. The estimate of the fertilizer demand is IDR 50,391,725,914 or 67.42% to a minimum market or 45.37% to potential market, and the remains of 54.63% is the market development opportunities in the future. Meanwhile its fertilizer competitor's are Urea, SP 36, KCL, Kieserite, NPK (sodium, phosphate and potassium), MOP (muriate of potash) and ZK (zheng and potassium). Based on the questionnaire results to 97 respondents about the characteristics and perceptions of fertilizer consumers, it is formulated mix marketing of product aspects such as the physical form of mineral fertilizers is granulees. There are 2 types of packaging, 25 kgs and 50 kgs, and its long shelf life is between 3-6 months. The selling price of end consumers is under IDR 5,000 with payment system can be used in credit. Meanwhile, promotion is carried out directly at the experimental garden, by conducting distribution through two channels, namely cooperatives and agents/distributors. According to overall analysis results, it can be concluded that by reviewing market and competition aspects, research and development of manufacture technology of compound fertilizer-based mineral is reasonable to be continued to the next stage in the commercialization process of technology.

Keywords: mineral fertilizer, market analysis, tea plant, productivity

DDC 330.0285

Suherman, Ijang and Saleh, Ridwan (R&D Centre for Mineral and Coal Technology)

The Local Contents of Indonesia's Nickel Mining Companies

Muatan Lokal pada Perusahaan Pertambangan Nikel di Indonesia

IMJ, Vol. 18, No. 3, October 2015,
P. 165 - 182

Analysis on the local content of Indonesia mineral mining company is intended to provide input in compiling draft regulation of the Minister of Energy and Mineral Resources regarding the use of domestic goods and services in mineral and coal mining activities, as a follow up the implementation of Government Regulation Number 23/2010 Article 88. A direct sampling survey was conducted to several nickel mining companies. The results showed that the local content for groups of goods and services at PT Vale Indonesia were 51.04% and 46.06% respectively, while at PT Antam Tbk. was 100% (groups of goods) and 99.6% (services). Based on national labour aspect, the local contents of five companies were relatively high, namely 98.63%, however, those came from province and regency areas were only 67,97% and 39.20% respectively. PT Vale Indonesia empowered 84.41% local manpowers from Sorowako area with the measured local content of nickel matte around 43.59%. The measure local content indicated that there was a big opportunity to increase the local content. Some factors that inhibited the effort to increase the use of domestic products included not smoothly the information flow, opportunities and transparency of product testing, the requirements of the Indonesia National Standard, the price preference in the tender process, tax issues, permit dangerous products as well as human resources issues.

Keywords: regulation draft of MEMR, local content, goods, services, labor, product