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Abstract Index

Wahyudi, Tatang (R&D Centre for Mineral and Coal Technology)
Mineralogical Characters of Karang Paningal Epithermal Vein Deposits, West Java
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P. 54 - 62

Karang Paningal gold-ore deposits belong to the epithermal deposits. As hydrothermal deposits, the alteration that occurs in this area comprises argillitization, sericitization and silicification. The gold is included within several veins that perform three texture types, namely chalcedony, comb and vuggy. Based on its mineral contents and vein deposit types, mineralization at Karang Paningal took place in two stages that was early epithermal process producing comb-vuggy vein deposit and final epithermal deposit retaining chalcedony vein deposit. Zone of prospective mineralization takes place within vein and rocks beneath and above veins.

Keywords: gold-ore deposits, hydrothermal, epithermal, chalcedony, comb, vuggy, mineralization

Santoso, Binarko (R&D Centre for Mineral and Coal Technology)
Geological Aspects Controlling Maceral and Mineral Matter Content of Satui Coals-South Kalimantan
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P. 63 - 73

Coal deposits were formed in Tertiary sequences in Satui area of Asem-Asem Basin, South Kalimantan. The coals were deposited in paralic to neritic environments. Lithotype of Satui coals is dominated by bright-banded and banded. Petrographically, vitrinite and liptinite are the dominant macerals in the Eocene coals. Inertinite is a minor component. Mineral content is relatively high in most of the coals. There is a significant relationship between lithotype and petrographic observations; the brighter coal is in association with the vitrinite-rich coal. The differences in the coal type are due to the interaction of geologic factors. There is a good correlation among lithotype, petrographic composition and geologic aspects that clearly influence the characteristics of the coals. The ranks of the Eocene coals ranging from brown coal to high volatile bituminous indicate a normal regional coalification.

Keywords: maceral, mineral matter, coal, geologic aspects

Ningrum, Nining S.; Huda, Miftahul and Prijono, Hermanu (R&D Centre for Mineral and Coal Technology)
The Effect of Hydrogen Pressure on the Preparation of Artificial Caking Coal for Coke Binder
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P. 74 - 81

Binder of carbon compounds can be made through hydrogenation process and/or coal extraction. Hydrogenation of coal converts the steam coal into caking one which functions as a binder or additive in the making of coke while the extraction of coal produces good quality pitch. Some coals from Tanito Harum, Baramarta and Bukit Asam were used as raw materials for binder making. Observations included effect of hydrogen pressure on the total carbon and ash contents and free swelling index as well. Coal hydrogenation was performed in a 5-litre batch type autoclave at reaction temperature of 400^{o}C. The initial hydrogen pressure varies from 5 to 30 bars and to 1 hour reaction time. The next stage was the distillation of hydrogen product. It can be concluded that all non-caking coals used in the experiments can be converted into caking coal to be used as a binder in the coke making. The ash content within coal considerably affects the resulting binder product; binder that has low ash content is preferred.

Keywords: artificial caking coal, hydrogenation, coke binder

Wahyudi, Agus; Amalia, Dessy and Purnomo, Hadi (R&D Centre for Mineral and Coal Technology)
Extraction of Potassium from Feldspar and Leucite by Two Different Activation Methods: Mechanical Activation (Milling) and High Temperature Activation (Roasting)
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P. 82 - 93

One of the most important elements in fertilizers is potassium that can be devided from felsdpar and leucite minerals. Both are composed of various minerals and need to be separated from its impurities to get the desired minerals. In this research, test of mineral activation was performed using two different methods, namely mechanical activation (milling) and activation that used high temperature (roasting). The results were followed by potassium extraction process through leaching using sulfuric acid 6 N, 20% solids for 2 hours without heating. The best result was obtained from a

60-hour mechanically, activated leucite in leaching condition and conducted without heating. To evaluate potassium dissolution with soil when applied as fertilizer, the test of solubility in citric acid-the analogy of acid humus within soil-was conducted. The product with the best solubility was obtained from a 60-hour milling process. The results show that leucite, activated by milling process, was more easily extracted its potassium. However, further research is still needed to optimize the leachability of potassium extraction.

Keywords: potassium, feldspar, leucite, extraction, activation method, milling, roasting

Pramusanto; Saleh, Nuryadi and Supriyanto, Syoni (R&D Centre for Mineral and Coal Technology)
Structural Changes of Pomalaa Lateritic Ore due to Coal-Based Magnetizing Roasting
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P. 94 - 100

Overburden of Indonesia's laterite ore at Pomalaa is considered as an iron cap. It performs low iron grade (41.88%) and high silica and aluminum oxide contents (18.47% and 9.46%, respectively). Around 54.74% of size distribution belong to -325 mesh fraction. Limonite iron mineral dominates in the ore in the range of 80-90% with water content of about 40%. Proven deposits of laterite iron ore are about 222 million tons. As a significant resources iron ore to be used as raw material for iron and steel industries, the iron content must be upgraded to meet the requirement of iron making industry.

Magnetizing roasting technique can be conducted to change the paramagnetic iron mineral (such as hematite, goethite, limonite or siderite) into magnetite one that has high magnetic intensity. Therefore, the changed iron mineral can be concentrated using low-intensity, magnetic separator. Coal, mixed in ore composite may also enhance the development of coal-based magnetizing roasting processes in order to reach the desired temperature. Recently, reduced iron products from many different processes have been used as the main feed mixed with steel scrap. On the other hand, iron ore resources is getting dominated by low grade lateritic iron ore with specific content of water crystal. The abundant deposits of low grade lateritic iron ore and low rank coal in Indonesia can be used as suitable resources for raw materials in the iron and steel-making industry.

Iron structural changes during magnetizing roasting process using coal as reductant agent was observed. The result showed that the non-magnetic limonite ore has been changed in to metallic iron and the iron recovery in the magnetic product depended on the coal ratio in the pellet composite. The magnetic product can be used for the development of lateritic iron ore as one of the alternatives to metallized iron feed for iron making industry.

Keywords: reduction, iron ores, limonitic ores, magnetizing roasting