

# OPTIMALISASI PROSES DESULFURISASI BATUBARA ASAL SULAWESI SELATAN DENGAN MENGGUNAKAN PENAMBAHAN MINYAK NABATI

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Coal in future will become a prospective candidate for alternative energy source. However, South Sulawesi coal still contains high concentration of sulphur which becoming a disadvantage for being used as an alternative energy. So far we need to develop such desulphurisation methods that not only practice and efficient but also environmental friendly. The use of vegetable oil, which in oxidized form produces hydroperoxide, a powerful oxidizing agents, in desulphurisation process can oxidized the organic and inorganic sulphur of coal. The goal of this research will be, (1) to find out the NaOH optimum time and concentration for the initial treatment to efficiently desulfurized the coal, (2) to process, (3) to discover the maximum ratio of coal-oil in which can give the maximum loss of sulphur (4) to justify maximum calories values of coal after the coal being desulfurized with vegetable oils. The research was carried out first with crushing the coal into about 200-mesh size following by analyzing the sulphur contents, which gave a result of 2,86% before desulfurized. In the initial treatment for desulphurisation, 75 mL of NaOH 1% and 5% was added to the coal for 1,3,5, and 7 hours respectively. After that coal was dried in temperature of 100°C. The maximum result from of this treatment was found 5% NaOH for 5 hour treatment, which reducing the content of sulphur about 2,239% or can desulfurized the coal until 22,035%. Furthermore, variation of coal-vegetables oil ratio from (2:1), (1:1), (1:2), (1:3) and to the ratio with the constant absorbance values justified that the maximum ratio of (1:1) gave the maximum percentage of sulphur loss about 74,24% for traditional oils and 66,61% for crude palm oil respectively. These treatment also increasing the coal calories values 6176,80 to 6449,74 – 7767,09 kilocalories. Based on these result it can be concluded that the vegetable oil can effectively used in coal desulphurisation.