



SEPARATION OF MINERAL MATTER FROM SEYITÖMER-KÜTAHYA LOW RANK LIGNITE

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It is well known that minerals in coal inhibit the effective utilization of coals. If the ash-free coal can be produced in a reasonable price, it will contribute not only to solve the ash problems, but also to bring the high efficiency utilization of coal energy. In this study, the removal of mineral matter from the Seyitömer-Kütahya low rank lignite was investigated under various extraction conditions. Determination of ash, moisture and volatile matter was performed according to ASTM Standards. Lignite sample was analyzed to determine its elemental composition and calorific value. The functional group compositional analysis of lignite sample was investigated using FT-IR spectrophotometry. Experimental investigation for removal of mineral matter from Seyitömer-Kütahya low rank lignite by using inorganic and organic solvents such as HCl, NaOH and CH₃OH. In this experimental studies; it was examined that the effect of the extraction temperature (25, 50, 75 and 100 °C), the extraction time (1, 3 and 5 hour) and solvent concentration (10, 15, 20 % acid; 2, 4, 8 % NaOH; 5, 10, 20% CH₃OH) on the removal of mineral. At the end of demineralization, 80-95 % of the original mineral content of the low rank lignite was removed. Demineralization has affected the calorific value positively according to the calorific value determination results.

Keywords: Low rank lignite, hyper-coal, extraction, demineralization, desulfurization.



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