

**ACID MINE WATER NEUTRALIZATION ANALYSIS
USING CaO AND FLY ASH AT
PT. ALAMJAYA BARA PRATAMA KUTAI KARTANEGARA
DISTRICT, EAST KALIMANTAN PROVINCE**

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Abstract

The handling of Acid Mine Water which is done at PT. Alamjaya Bara Pratama utilizes Cao and from prior research, fly ash can be used as an adsorbent in neutralizing Acid Mine Water. Hence the resarcher conducted the research to compare the effectiveness of Cao and fly ash in neutralizing Acid Mine Water. The usage of CaO and fly ash uses a laboratorium scale with an Acid Mine Water volume of 1000 ml with a CaO mass variation of 0,4, 0,5 and 0,6 gram whereas with a fly ash mass variation of 50, 55 and 60 gram and a stirring speed of 50 and 100 rpm. Results shows that the addition of CaO and fly ash mass and stirring speed increases the pH and reduces the concentration of the metals Fe and Mn. The adsorbtion of the metals Fe and Mn by CaO and coal fly ash can occurs as most CaO contains the mineral compund Epistilbite ($\text{CaAl}_2\text{Si}_6\text{O}_{16}\cdot 5\text{H}_2\text{O}$), for the fly ash before conducting the experiment shows that most of the fly ash contains the mineral compund Quartz (SiO_2) and mullite ($\text{Al}_6\text{Si}_2\text{O}_{13}$). Silica and Alumina has a polar side with an active hydroxyl group (-OH) which acts in the adsorbtion process between heavy metals and adsorbents in a solution containing water. Based the results of analysis, the mass effectiveness of CaO towards the changes of pH level averaged 51,17% and the effectiveness of fly ash towards the changes of pH level averaged 76,34%. Hereinafter the mass effectiveness of CaO towards the changes in Fe concentration averaged 76,34% and the effectiveness of fly ash towards the changes in Fe concentration averaged 67,78%, whereas the mass effectiveness of CaO towards the changes in Mn averaged 63% and the effectiveness of fly ash towards the changes in Mn averaged 52,22%.

Keyword: *CaO, Fly Ash, Acid Mine Water, Adsorbent*