ABSTRACT

THE EFFECT OF ADDING SULFURIC ACID ON BENTONIT (H\textsubscript{2}SO\textsubscript{4}) FOR DECREASING THE VALUE OF GROUNDING RESISTANCE

by

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Grounding system is one of the important parts which must be considered to ensure the safety and reliability of electric operating systems. When the disruption happened in electric power systems, grounding systems can divert the uncontrolled current from disruption quickly into the ground and spread it everywhere. The resistance of good grounding which according the regulation, must not be more than 5 \( \Omega \) (PUIL 2000).

The condition of ground that will be planted with grounding systems, sometimes does not fit the expectation. To solve this problem, we need to fix the resistance's value by adding an addictive substance that is bentonit in ground. Grounding is tested on the type of clay and fields. Bentonit that is used by us, has been activated with sulfuric acid (H\textsubscript{2}SO\textsubscript{4}) 0.8M, 1M, dan 1.2M. Earthing resistance values measured using earth resistance tester for 14 days in row.

The result of testing in clay without bentonit, we got the average value of grounding is 329.89 \( \Omega \), bentonit without activation, we got 122.54 \( \Omega \), 0.8M Activated Bentonit changed the resistance to 101.64 \( \Omega \), 1M Activated Bentonit changed the resistance to 96.71 \( \Omega \). Meanwhile, in the fields without bentonit, we got 124.89 \( \Omega \), Non-activated bentonit changed the resistance to 70.24 \( \Omega \), 0.8 M activated bentonit changed the resistance to 37.96 \( \Omega \), 1M activated bentonit changed the resistance to 28.07 \( \Omega \), and 1.2 M activated bentonit changed the resistance to 85.5 \( \Omega \). From the observation, we can conclude that the best concentration for activating bentonit is 1.2 M.

Keyword: Grounding Resistance, Activated Bentonit, Sulfuric acid.