

ABSTRACT

TESTING OF LOCAL BENTONITE (PACITAN AND BOYOLALI) AS BASE MATERIAL OF DRILLING MUD ACCORDING TO API 13A STANDARD

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Indonesia has various bentonite deposits, local bentonite such as in the Pacitan and Boyolali areas may have the potential to be used as a base for drilling mud production. The requirements for using bentonite are that it contains the main mineral smectite and must meet API 13A standards. To find out, further testing is needed.

The research methodology involved taking bentonite samples and then grinding and sieving to obtain 75 μm bentonite powder (according to API) which will be used for further testing. Tests to be carried out include XRD testing to determine mineral content and testing of the physical properties of the mud such as density, rheology (plastic viscosity, yield point and gel strength), filtration loss, mud cake thickness and CEC value.

The results of XRD analysis of API spec bentonite, Boyolali bentonite and Pacitan bentonite show that the main constituent is sodium smectite which is mixed with other minerals such as quartz, feldspar, calcite, etc. Bentonite with the largest Na content is Boyolali bentonite. In addition, the use of bentonite material must also meet API (American Petroleum Institute) standards. The results of the research on the physical properties of mud, API spec bentonite, Boyolali bentonite and Pacitan bentonite are in accordance with API 13A standards. However, for the use of Boyolali bentonite and Pacitan bentonite, several additives must be added in order to meet API 13A standards. This shows that API spec bentonite is better than Boyolali bentonite and Pacitan bentonite. Based on the CEC values, the three samples showed the type of montmorillonite clay content.

Keywords: API, Bentonite, Drilling Mud, Mud physical properties, XRD.