

## Formulasi deterjen berbasis tio<sub>2</sub> dan palm oil based alkyl sulfate dengan natrium karbonat untuk aplikasi air sadah = Formulation of detergent based on tio<sub>2</sub> and palm oil based alkyl sulfate with sodium carbonate for hard water application

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### Abstrak

Detergent with composition originated from renewable material are being widely developed to replace detergent that contains LAS (Linear Alkylbenzene Sulfonate), which is originated from oil and hard to decompose. This undergraduate thesis proposed a detergent based on natural ingredients TiO<sub>2</sub> and Palm PAS (Palm Oil- Based Primary Alkyl Sulfate). Palm PAS are able to remove dirt, TiO<sub>2</sub> are able to degrade dirt and leftover surfactant. After finding the stable and optimum composition of TiO<sub>2</sub> and Palm PAS in deionized water, sodium carbonate was added because in the previous research the formulated detergent has only been tested in deionized water. It is hypothesized that water hardness will decrease the performance of detergent. Hard water used in this research was CaCl<sub>2</sub> because it was found widely in the water used for washing. The initial characterization of the solution was done using PSA while most of the absorbance determination was done using Uv-vis spectrometer.