

## ABSTRACT

In Indonesia, there are so many a tall buildings, there's like an a office buildings and high-rise houses wich one have big glasses or big walls which one still cleaning manually. With tropical weather can cause stains to stick and develop on the glass or walls. Therefore, new innovation and alternatives are needed in clean the glass or walls of the building. One of innovations is to coat TiO<sub>2</sub> material on the glass or wall so that dirt does not easily stick to the glass or wall (self-cleaning). Self-cleaning can be produced by utilizing the photocatalyst properties of TiO<sub>2</sub> which is active when exposed to sunlight. The measurements used are photocatalyst measurements and contact angles. Contact angle measurement aims to determine the properties of self-cleaning obtained hydrophilic or hydrophobic. Coating of TiO<sub>2</sub>-PEG solution and aquades on a glass substrate with a size of 2 cm x 2 cm and a glass thickness of 5 mm is carried out by the spray method. The research that has been done has obtained the best TiO<sub>2</sub> layer composition, namely the composition of the TiO<sub>2</sub> layer as much as 6-grams, both with the TiO<sub>2</sub>-PEG layer and the TiO<sub>2</sub>-without PEG layer. The composition of 6-gram TiO<sub>2</sub> which degrades and removes impurities faster 5 to 10 minutes compared to the composition of 2-gram and 4-gram TiO<sub>2</sub> layers with an average value of the percentage of loss of methylene blue impurities on the surface of the TiO<sub>2</sub>-PEG layer is 37% and the average light intensity is 99498 lux. Then the self-cleaning properties obtained are hydrophilic properties because they have a contact angle of less than 90 degrees.

**Keywords:** Photocatalyst, PEG, Self Cleaning, TiO<sub>2</sub>.