











#### IV. CONCLUSION

Based on the research that has been done, it can be concluded that the results of the stabilization test of chitosan membrane modified with activated pinecone charcoal are as follows: The best morphology is found at a membrane concentration of 7 : 3 with an elastic, smooth and flat surface, Fourier Transform Infrared (FTIR) analysis revealed that NCH<sub>2</sub> is taken up by chitosan at a wave number of 2362 cm<sup>-1</sup>, activated pinecone charcoal at a wave number of 2636 cm<sup>-1</sup>, and the membrane at a wave number of 2350 cm<sup>-1</sup>. The double group (C=O) can be found at wave numbers of 1617 cm<sup>-1</sup>, 1634 cm<sup>-1</sup>, and 1647 cm<sup>-1</sup>, and is the main group of amide or primary amide, The chemical resistance test on the membrane reveals that it is resistant to salt but not to acids and bases, resulting in an average weight loss of 45-55%, The free fatty acid content of used cooking oil purified using a membrane resulted in the greatest decrease in ALB levels, which was 0.442% using a K2 membrane. The tensile strength of the membrane at break, which is 2.25 and high porosity pine charcoal chitosan membrane has a 27%. The concentration of active charcoal in the membrane affects the water content of used cooking oil as a result of purification, the more active charcoal concentration in the membrane, the more water content absorbed by the membrane due to the adsorbent properties of the activated charcoal.

#### ACKNOWLEDGMENT

The authors would like to express gratitude towards the Department of Chemical Engineering Faculty of Engineering Universitas Bosowa for providing the analytical support. This work was funded by the Yayasan Universitas Bosowa

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