

## **ABSTRACT**

### **CHARACTERISTIC OF Na<sub>2</sub>O FROM Na<sub>2</sub>CO<sub>3</sub> PRODUCED FROM COCONUT SHELL COMBUSTION**

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This research was carried out to study the production of Na<sub>2</sub>CO<sub>3</sub> from CO<sub>2</sub> released from coconut shell combustion and NaOH solution with the concentration of 11 and 12 M, and conversion of Na<sub>2</sub>CO<sub>3</sub> into Na<sub>2</sub>O. The conversion was investigated by subjecting the sample to sintering treatment at 800, 825, and 850°C. Characterization of the sample using FTIR confirmed the production of Na<sub>2</sub>CO<sub>3</sub>. The XRD results indicated that complete transformation of Na<sub>2</sub>CO<sub>3</sub> was achieved at 850°C. As revealed by SEM, the surface morphology of the sample is characterized by the existence of particle with different sizes and shapes. DSC/TGA analysis showed a melting point of Na<sub>2</sub>CO<sub>3</sub> to Na<sub>2</sub>O occurs at 845.30°C, and melting point Na<sub>2</sub>O at 1119,98°C.

Keywords: Na<sub>2</sub>O, Na<sub>2</sub>CO<sub>3</sub>, coconut shell, combustion.