Contribution ID: **275** Type: **Poster**

Phase Transition and Electrical Properties of CaCO3 Prepare by Precipitation Method.

Thursday 25 May 2017 17:45 (15 minutes)

This report studied the necessary condition to obtain different phase of synthesized $CaCO_3$ and their corresponding electrical properties. The precipitation with varied reaction temperature was performed, and the structure of product was determined by using x-ray diffraction and scanning electron microscope. The micrograph of derived $CaCO_3$ was observed as rice-grain structure as reaction temperature was raised up to 80^oC, while the XRD pattern of 80^oC sample was perfectly matched with pure vaterite (JCPDS no.00-024-0030). According to a complex impedance analyzer investigation in the frequency range of 1.0-10^5 Hz, a decrease in the electrical conductivity with increasing reaction temperature was observed. Therefore, the results suggested that the purified vaterite $CaCO_3$ which is the most primitive structure can be obtain as reaction temperature is increased up to 80^oC. In this study shows that, the electrical properties and phase transition of $CaCO_3$ powder are depend on the reaction temperature.

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Session Classification: Poster Presentation II

Track Classification: Material Physics and Functional Materials