

**EFFECT OF SODIUM HYDROXIDE CONCENTRATION ON THE PHYSICO-CHEMICAL CHARACTERISTIC OF  $\alpha$ -Bi<sub>2</sub>O<sub>3</sub> NANOCRYSTALS**

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**ABSTRACT**

The effect of different concentration of precipitating agent on the characteristic of bismuth oxide was investigated by precipitating bismuth salt solution with sodium hydroxide. The solids obtained were oven dried at 353 K to form a mixed phases precursors. Upon calcination in air at 723 K for 5h has transformed the precursors into a highly pure  $\alpha$ -Bi<sub>2</sub>O<sub>3</sub> nanocrystals. The particles were in the nanometer range between 42 to 58 nm. The oxides were further characterized by means of XRD, SEM and FTIR. On the reduction activity study, bismuth oxide which was prepared using low concentration of NaOH has led to a better reduced activity characteristic. The oxygen removed was of chemically bonded species as reckoned by the high reduction activation energy displayed.

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