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**Tunable morphology of aluminum oxide whiskers grown by hydrothermal  
method**

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**Abstract:** Hydrothermal method was used to grow  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> whiskers by using hydrated aluminum sulfate, urea and poly(ethylene glycol) as precursors. X-ray diffraction (XRD), selected area electron diffraction (SAED), and high resolution transmission electron microscope (HRTEM) were used to characterize morphology of the whiskers. By increasing the pH of the solution (by adding extra NaOH), the calcination time and atmosphere it was possible to tune the whiskers morphology and their aspect ratio. Aspect ratio as high as 25 was obtained after hydrothermal treatment of a solution having pH 3 followed by calcination in Ar or N<sub>2</sub> atmosphere at 1200°C for 6 hours.

**Keywords:** *Hydrothermal method;  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> Whiskers; Morphology; Atmosphere*

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