

## Synthesis of Nanoporous Anodic Alumina (NAA) by Single Step Anodization in Oxalic Acid

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**Abstract**—Nanoporous anodic alumina (NAA) were synthesized by single step anodization method in 0.25M oxalic acid. The potential difference between high purity, electro polished aluminum foil (anode) and graphite foil (cathode) was chosen at optimized value of 45V under constant magnetic stirring at 5<sup>0</sup>C. Scanning Electron Microscopy (SEM) and X-ray diffraction (XRD) were used to investigate the surface morphology and to study the phase and crystal structure of nanopores of aluminum oxide, respectively. The average pore size and average interpore distance of 35 nm and 94 nm, respectively were obtained. XRD spectra indicates that on fabrication of nanoporous anodic alumina (NAA) the aluminum sample didn't experience any phase transformation, however the intensity of peaks gets reduced by two step mild anodization

**Keywords:** Alumina nanopores; oxalic acid; single step anodization.