

## E11

### Anodizing of pure Al foil for AAO as a Nanowire Template Al 양극산화에 의한 나노선재용 AAO template 제조

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AAO template having nano scale pores of high aspect ratio has been prepared through anodizing of aluminum foil in sulfuric acid electrolyte. The effect of anodizing parameters on the pore size and distribution was also examined to obtain the proper AAO as a template material of nanowire. The surface of AAO template prepared was observed by SEM to examine the mean size and distribution of pores generated by the anodizing and Fe nanowires obtained by AC electroforming using AAO template were also observed with TEM to determine the length and shape of them. From the results of work, it was found that the mean size or distribution of pores was influenced significantly by the anodizing parameters such as voltage and temperature of electrolyte. Mean length and aspect ratio of Fe nanowires prepared in the work were found to be 10  $\mu\text{m}$  and 300 to 1,000, respectively.

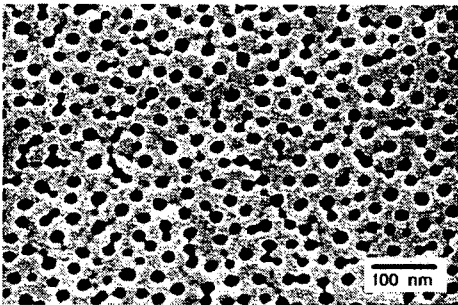


Fig. 1. SEM images of AAO surface.  
Anodizing was conducted in 1.2 M  $\text{H}_2\text{SO}_4$   
sulfuric acid at 20  $^\circ\text{C}$  and at 15 V.

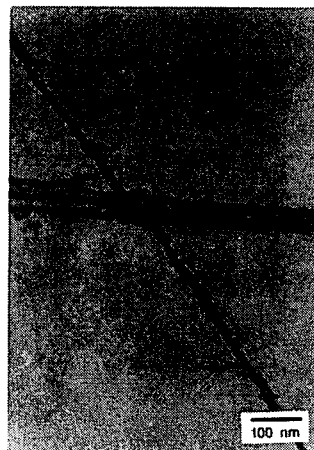


Fig. 2. TEM images of nanowire  
electroformed in the same AAO template as  
that in Fig. 1. The average diameters of the  
nanowires were 18 nm.