

Nanocomposites and nanomaterials

Preparation of Al Nanomesh from Aluminum Thin Films

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Aluminum nanomesh can combine high optical transparency with low sheet resistance. Recently Al nanomesh have been studied extensively because of their potential application for next-generation devices such as liquid crystal displays, thin film solar cells, touch screens, and flexible displays .

In this paper we will describe how to get a transparent conductive Al nanomesh films (Fig. 1) on a glass substrate using non-lithography low cost anodizing technology.

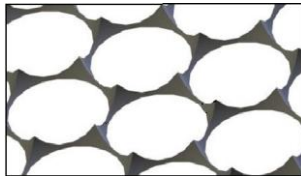


Fig. 1. Image of Al nanomesh prepared by anodic oxidation and chemical etching.

The technology includes the following processes: DC-sputtering of an adhesive niobium film and an aluminum film thickness of 1000 nm onto polished glass slide, two-stage anodic oxidation of an aluminum film to form a nanostructured porous anodic alumina (PAA) [3], removal of PAA by selective wet chemical etching. To study the surface of samples at different stages of manufacturing the SEM method was used.

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3. *Lebyedveva T., Kryvyi S., Lytvyn P., Skoryk M. and Shpylovyy P.* Formation of Nanoporous Anodic Alumina by Anodization of Aluminum Films on Glass Substrates// *Nanoscale Res. Let.*–2014.–11:203