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**The hydrophilic properties of the etched SiO<sub>2</sub> glass using atmospheric dielectric barrier discharge plasma process**Seung-chun Oh<sup>1</sup>, Jung-uk Shin<sup>1</sup>, Sang-sik Kim<sup>1</sup><sup>1</sup>Institute for Advanced Engineering, Yongin-si, South Korea

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In this work, the SiO<sub>2</sub> glass was etched using atmospheric Dielectric Barrier Discharge plasma process with various R.F. power in the range of 100-800 W. The surface morphology of SiO<sub>2</sub> glass was analyzed by means of  $\alpha$ -step, AFM and FE-SEM. Hydrophilic property of SiO<sub>2</sub> glass was investigated with sessile drop contact angle meter. The surface morphology of etched SiO<sub>2</sub> glass was controlled by R.F. Power of plasma etching process. The average surface roughness of the SiO<sub>2</sub> glass changed from 1.55 nm to 24 nm as R.F. power increased from 0 to 800 W. It was found that the contact angle of SiO<sub>2</sub> glass decreased with decreasing RF power. At the optimized condition, SiO<sub>2</sub> glass shows super-hydrophilic property with under 6° of water sessile drop contact angle. The detailed experimental results will be presented.

**Keywords**

DBD plasma etching

Super-Hydrophilic

Contact angle

Surface roughness