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Effects of the surface roughness on the visible transmittance of the glass using atmospheric pressure plasma etching processJung-uk Shin¹, Seung-chun Oh¹, Sang-sik Kim¹¹Institute for Advanced Engineering, Yongin-si, South Korea

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In this study, the SiO₂ glass for the building materials or commercial greenhouse application was etched by atmospheric pressure plasma process in order to increase the visible transmittance. The surface morphology of the SiO₂ glass was evaluated by atomic force microscopy (AFM) and field emission scanning electron microscopy (FE-SEM). The optical properties were characterized using UV-Vis spectroscopy. The visible transmittance could be extensively improved with the surface roughness of the SiO₂ glass in the range of below 100nm. The results showed that visible transmittance increased with above 2% compared to bare SiO₂ glass.

Keywords

Atmospheric plasma etching
Visible transmittance
Surface roughness