

[III~25]

Surface Modification of Polytetrafluoroethylene (PTFE) Surface by Ion-Assisted Reaction (IAR) and Change of Adhesion and Conductivity of Cu deposited on Modified PTFE

Jun-Sik Cho, Ki Hyun Yoon*, Hyung-Jin Jung and Seok-Keun Koh

*Division of Ceramics, Korea Institute of Science and Technology, P.O. Box 131,
Cheongryang, Seoul 130-650, Korea*

**Department of Ceramic Engineering, Yonsei University, Seoul 120-149, Korea*

Surface of PTFE was modified in reactive gas environment of O₂ by ion-assisted reaction where Ar⁺ ion energy was fixed at 1 keV and ion dose was varied from 1×10^{15} - 1×10^{17} ion/cm². Flow rate of the reactive gas was changed from 0 to 6 ml/min. Cu was deposited on the modified PTFE by ion sputtering method. Deposition rate was 0.3 Å/sec. and thickness of Cu was 1000 Å. Contact angle was measured by Contact angle meter and change of surface morphology and functional group on surface were identified by SEM and XPS analysis. Contact angles of the modified PTFE to water increase from 100° to 120°. Through SEM analysis, it was identified that change of surface morphology and decrease of contact area of modified PTFE affect the increase of contact angle. Improvement of adhesion between modified PTFE and Cu was identified by scotch tape test and the increase of adhesion of modified PTFE to Cu may be due to interlocking caused by the change of the surface morphology and interaction between modified PTFE and Cu by new formed hydrophilic group. Change of conductivity of Cu will be investigated by four-point method.

본 연구는 KIST 와 삼양사(주)의 공동 연구과제로 수행되었음