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Cu-Fe계 동합금의 강도 및 전기전도도에미치는 첨가 원소의 영향

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본 연구에서는 Sn과 Mg를 Cu-Fe-P 합금계에 첨가 하였을 때 합금의 미세조직과 물리적 특성에 미치는 영향을 조사하였다. Cu-Fe-P 합금에 Sn과 Mg를첨가 함으로써 생성된 석출상과 합금의 미세조직, 기계적 성질 및 전기전도도를 조사하였다. 합금성분은 OES로 분석하였으며SEM 및 EDX로 미세 석출상이생성됨을 확인하였다. 본연구를 통하여 Cu-Fe-P 합금계에 Sn과 Mg를 적절히 첨가 함으로써 고강도-고전도도의 동합금 제조가 가능함을 확인하였다.

Keywords: Cu-Fe-P alloy, tin, magnesium, high strength-high electrical conductivity

E-3

Dependence of cation ratio in Oxynitride Glasses on theplasma etching rate

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Polycrystalline materials suchas yttria and alumina have been applied as a plasma resisting material for theplasma processing chamber. However, polycrystalline material may easilygenerate particles and the particles are sources of contamination during theplasma enhanced process. Amorphous material can be suitable to prevent particlegeneration due to absence of grain-boundaries. We manufacturednitrogen-containing SiO_2-Al_2O_3-Y_2O_3 basedglasses with various contents of silicon and fixed nitrogen content. Thethermal properties, mechanical properties and plasma etching rate wereevaluated and compared for the different composition samples. The plasmaetching behavior was estimated using XPS with depth profiling. From the result, the plasma etching rate highly depends on the silicon content and it mayresults from very low volatile temperature of SiF4 generated during plasmaetching. The silicon concentration at the plasma etched surface was very lowbesides the concentration of yttrium and aluminum was relatively high than thatof silicon due to high volatile temperature of fluorine compounds whichconsisted with aluminum and yttrium. Therefore, we conclude that the sampleshaving low silicon content should be considered to obtain low plasma etchingrate for the plasma resisting material.

Keywords: Oxynitride glass, Plasmaetching, XPS