

평판형 고밀도 유도결합 건식 식각시 Optical Emission Spectroscopy를
이용한 BCl_3 와 BCl_3/Ar 플라즈마의 분석
(Diagnosis of BCl_3 and BCl_3/Ar Plasmas with
an Optical Emission Spectroscopy during High Density
Planar Inductively Coupled Dry Etching)

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Optical Emission Spectroscopy(OES) is a very important technology for real-time monitoring of plasma in a reactor during dry etching process. OES technology is non-invasive to the plasma process. It can be used to collect information on excitation and recombination between electrons and ions in the plasma. It also helps easily diagnose plasma intensity and monitor end-point during plasma etch processing. We studied high density planar inductively coupled BCl_3 and BCl_3/Ar plasma with an OES as a function of processing pressure, RIE chuck power, ICP source power and gas composition. The scan range of wavelength used was from 400 nm to 1000 nm. It was found that OES peak intensity was a strong function of ICP source power and processing pressure, while it was almost independent on RIE chuck power in BCl_3 -based planar ICP processes. It was also worthwhile to note that increase of processing pressure reduced negatively self-induced dc bias. The case was reverse for RIE chuck power. ICP power and gas composition hardly had influence on dc bias. We will report OES results of high density planar inductively coupled BCl_3 and BCl_3/Ar plasma in detail in this presentation.