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Fault Detection with OES and Impedance at Capacitive Coupled Plasmas

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This study was evaluated on etcher of capacitive coupled plasmas with OES (Optical Emission Spectroscopy) and impedance by VI probe that are widely used for process control and monitoring at semiconductor industry. The experiment was operated at conventional Ar and C4F8 plasma with variable change such as pressure and addition of gas (Atmospheric Leak: N2 and O2), RF, pressure, that are highly possible to impact wafer yield during wafer process, in order to observe OES and VI Probe signals. The sensitivity change on OES and Impedance by Vi probe was analyzed by statistical method to determine healthy of process. The main goal of this study is to understand unwanted tool performance to eventually improve productive capability. It is important for process engineers to actively adjust tool parameter before any serious problem occurs.

Keywords: Fault Detection, Etching, Plasma, CCP, OES, Vi Probe