PIVOTAL SYSTEMS

Sensor X™ Application Note: Advanced Etch End Point

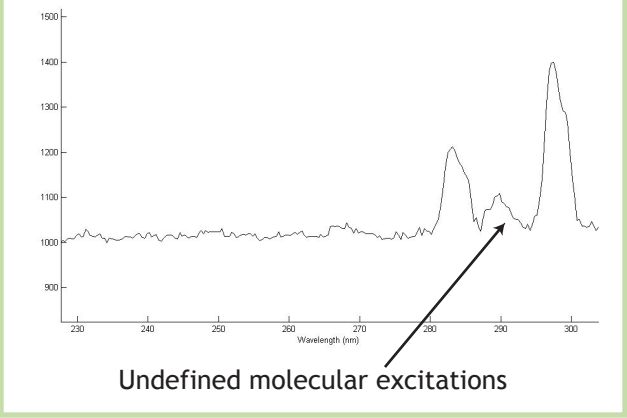
ETCH END POINT AT VERY LOW EXPOSED AREAS

Consistently and reliably calling end point on dielectric via or contact etches where the exposed area is less than 1% is an elusive goal for existing optical end-point systems. As device dimensions tighten, a fixed-time etch approach increasingly suffers from yield loss due to frequent over- or under-etching.

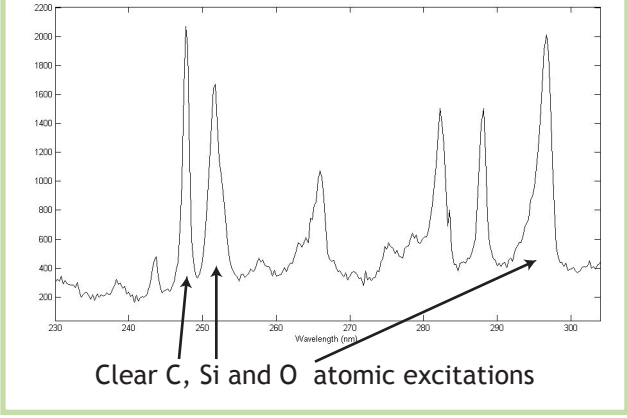
Pivotal's Sensor X Advanced Etch End Point system provides a breakthrough approach to reliably calling end point on low exposed areas by creating an atomic-based optical emission spectrum. Specifically, by focusing on silicon emission peaks, the SX-AEP system can enable existing optical end point systems to accurately catch end points during these etches. This results in increased device yield while maintaining critical via and contact etches within a very tight process control window.

PROVEN PRODUCTION RESULTS

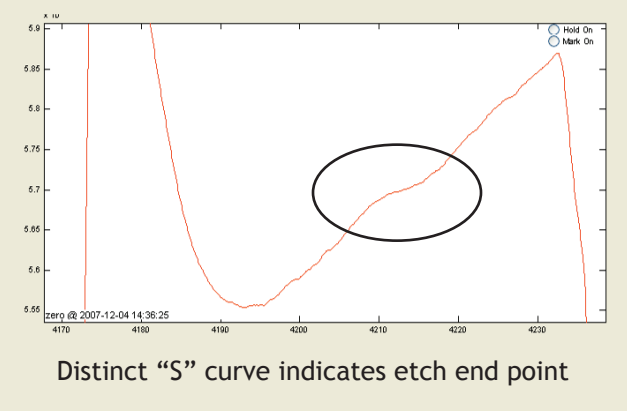
Conventional OES Spectrum During SiO2 Etch



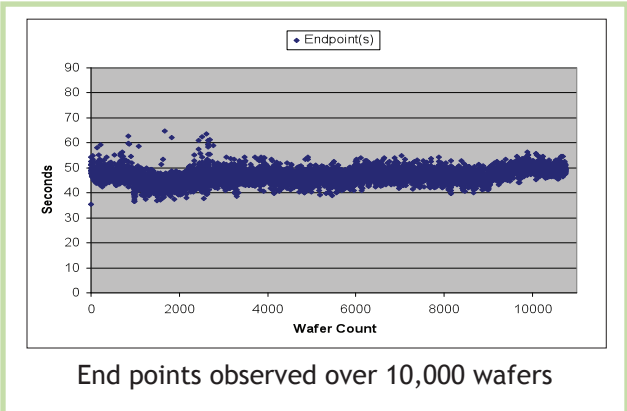
Pivotal Sensor X Spectrum During SiO2 Etch



Si Trace During 0.5% Exposed Area Contact Etch



Reliable End Point Distribution



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