

Two New Tests for UPW – Meeting the Challenge for New Technologies

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Abstract

Smaller geometries and new technologies have driven some UPW specifications to lower levels. The 2005 International Technology Roadmap for Semiconductors (ITRS) UPW guideline for critical elements is 1 ppt and it is projected to be lowered to 0.5 ppt in 2008. Using preconcentration and ultraclean materials, an ICP-MS method was developed to achieve these levels of detection.

Immersion lithography may drive Total Oxidizable Carbon (TOC) specifications lower. TOC speciation becomes more critical as we evaluate whether specific organic compounds may or may not affect wafer processes. For example, urea has been implicated in some TOC excursions. Using selective ion Ion Chromatography – Mass Spectroscopy (IC-MS), a method was developed to detect urea to 2 ppb in UPW.