

On-line Monitoring of Silicon in Hot Phosphoric Solutions

QualiSurf® QSF-500 Series

Control Etch Rate and Selectivity



Selective Silicon Nitride Etch is critical to logic manufacturing in **Trench Isolation** and **Spacer Thinning** process steps. Silicon level determines both selectivity and etch rate while enabling using reclaim mode for a significant reduction in operation cost and waste.

With the advent of NAND and DRAM devices, Silicon Nitride Etch has become a core process in memory manufacturing. Selective etching of Silicon Nitride out of many alternating layers **requires highly precise online process control**. Excessive Silicon in the chemistry can cause particle redeposition effect while Silicon deficiency compromises selectivity.

QUALISURF has become the **Process of Record** for leading manufacturers. The **QSF-500** series is designed to accurately measure ppm levels of Silicon. This online system provides fast results and interfaces seamlessly with Nitride Wet Etch tools.

QualiSurf QSF-500 Series Wet Process Monitoring System



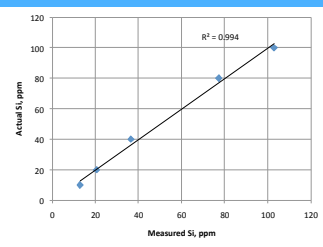
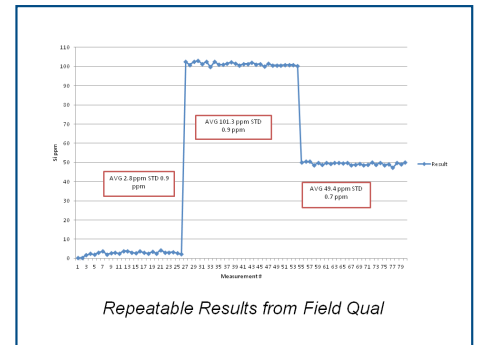
We Keep the Chemistry Right.™



Control Your Nitride Etch Selectivity

Features

- * Fast, Continuous, and Reliable results
- * Supports all leading process tools
- * Supreme accuracy and repeatability
- * Temperature controlled analysis
- * Automatic Reagent Generator (ARG)
- * Automatic validation of results
- * Closed-loop control option
- * Minimal footprint
- * S2-S8, CE compliant
- * Communication 4-20mA, RS-232, TCP/IP
- * Ultra-low CoO



Analysis Results

Typical Applications*

- * Phosphoric Acid: 40-90 wt. %
- * Temperature: Up to 200°C
- * Silicon: Up to 1300 ppm
- * Analysis time: 4 minutes
- * Si Accuracy: 1.5 ppm
- * Si Repeatability: 0.5 ppm
- * H₃PO₄ Accuracy: 0.3 wt. %
- * H₃PO₄ Repeatability: 0.05 wt. %

*chemistry dependent

Backed by ECI Global and Local Support

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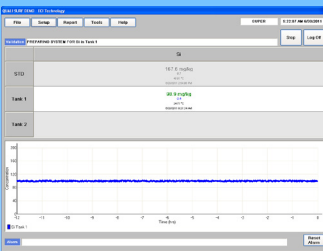
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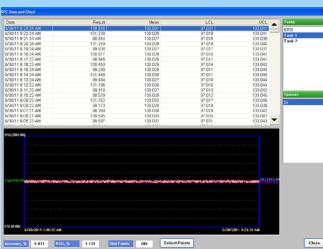
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Analyzer Screen



SPC Report

