ICP-MS Uses in Semiconductor Process Control

Agilent
Trusted Answers

01 Raw Materials

Silicon wafers
Detects trace metal impurities in ultra-pure silicon to prevent manufacturing defects

Vapor phase decomposition
Compatible with all leading VPD systems

High-purity chemicals and gases
Ensures acids and gases used in wafer processing are free from metal contamination

02 Cleaning and Surface Preparation

Ultrapure water
Monitors water purity at sub-ppt levels to improve yields

Surface cleaning chemicals
Tests acids, solvents, and stripping solutions to avoid contaminant deposition

Particle analysis
Quantifies residual nanoparticle size and concentration to ensure wafer purity

Agilent ICP-MS

04 Automation and Compliance

Agilent integrated autosampler
Minimizes contamination risk with ultratrace, inert sample handling

Automated online monitoring systems
Integrates with real-time monitoring for process chemicals

SEMI S2
Meets SEMI safety standards with an optional compliance kit

03 Etching, Deposition, and Lithography

Photolithography
Identifies elemental impurities and nanoparticles in photoresists to prevent defective circuit patterns

Etching and deposition
Verifies purity of process gases like argon and nitrogen

Chemical mechanical planarization
Detects contaminants in slurries and deionized water to improve yields

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