

ICP-MS Uses in Semiconductor Process Control



Raw Materials

01

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

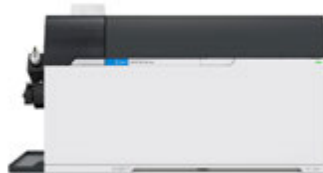
Monitors water purity at sub-ppt levels to improve yields

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

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

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



Automation and Compliance

04

03

Etching, Deposition, and Lithography

