Novyka®

Family Surface Treatment and Interface Treatment Systems

Enabling Technology in High Performance Semiconductor Fabrication

Novyka® family surface treatment, interface treatment and radical enhanced thermal treatment (RETT™) systems provide unique solutions for critical surface treatment, interface control and materials modification capabilities, including damage free surface clean, selective surface treatment, and precise materials modification.

As part of Atomic Surface Engineering™ and Atomic Interface Engineering™ product portfolio, Novyka® family technologies address specific process integration requirements across advanced lithography, etch, clean, thin film and diffusion unit processes, and enable cutting-edge memory and logic semiconductor device scaling and specialty semiconductor device manufacturing.

Product Features and Advantages

Technology Versatility

- Vacuum-based surface clean, surface treatment, materials modification and thermal treatment
- Chemical and radical based processes, proprietary inorganic and organic precursors
- Precise ion energy tuning for depth control in materials modification
- Low temperature, short time, thermal budget reduction

Engineering Capability

High productivity system architecture

- Twin-wafer vacuum chamber
- Multi-chamber platform

Inductively coupled plasma (ICP) source with patented fully grounded Faraday shield design

- Radical source suitable for oxidation, reducing, water, halogen and organic chemistries
- Ion source with wide range ion energy tunability

Applications

Logic/Memory

- Critical surface clean
- Surface smoothing
- Selective silicon surface oxidation
- Selective silicon nitride surface oxidation
- Metal surface corrosion protection
- Surface hydrophilic treatment
- Surface hydrophobic treatment
- BARC and photoresist coating preparation
- Silicon surface oxidation suppression
- Dielectrics surface passivation
- Low k materials restoration
- Metal nitride surface treatment
- Metal (Cu, Co) anneal
- Precision energy silicon nitridation

Power/Analog IC

- Silicon surface passivation
- Silicon oxide surface protection
- Silicon nitride surface protection
- Photoresist coating preparation