NICO NANOBUBBLE USA

NICO NANOBUBBLE GENERATOR FOR SEMI CONDUCTOR CLEANING

REVOLUTIONIZING SEMICONDUCTOR CLEANING WITH NANOBUBBLES

In semiconductor manufacturing, even the tiniest contaminant can affect chip performance and yield. Traditional cleaning methods rely heavily on chemicals and large volumes of water, often with high costs and environmental impact.

NICO NANOBUBBLES: A SMARTER SOLUTION

Nanobubbles bring unique physical and chemical properties that transform the cleaning process:

Deep Surface Penetration: Tiny, charged bubbles reach microscopic crevices, lifting hard-to-remove particles.

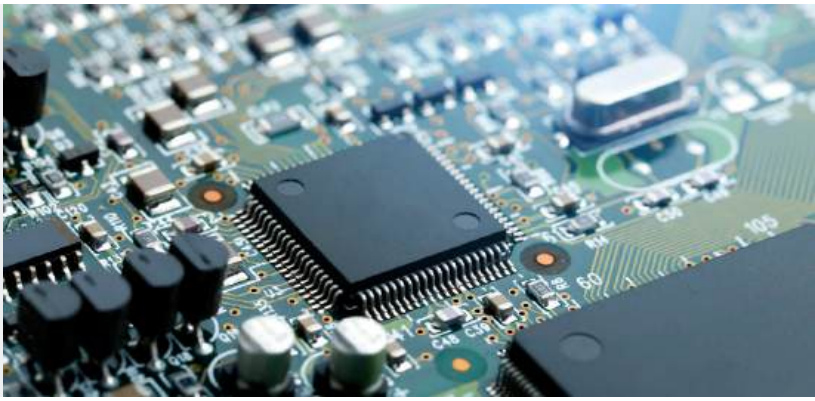
Chemical Reduction: Ozone nanobubbles break down organic residues naturally, reducing harsh chemical use.

Gentle on Surfaces: Minimal cavitation risk compared to ultrasonic cleaning, preserving wafer integrity.

Enhanced Rinsing & Drying: Reduced surface tension leads to faster drying and fewer watermarks.

APPLICATIONS IN SEMICONDUCTOR MANUFACTURING

- Wafer Cleaning (pre- and post-process)
- Substrate & Equipment Maintenance
- Chemical Reduction in Clean Rooms
- Oxidative Cleaning with Ozone Nanobubbles



Tel: +1 (949) 269-1472 | E-mail: nicosales.usa@niconanobubbles.com | Website: www.niconanobubbles.com

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ECONOMIC & ENVIRONMENTAL BENEFITS

The adoption of nanobubbles in semiconductor cleaning provides multiple benefits, from cost savings to environmental sustainability:

Lower Chemical Waste and Disposal Costs: By reducing the need for chemical agents, nanobubble technology lowers hazardous waste output, minimizing disposal costs and the environmental impact associated with chemical waste.

Reduced Water Consumption: Semiconductor manufacturing is water-intensive, especially with the use of ultrapure water. Nanobubbles enhance the cleaning power of water, allowing facilities to achieve high levels of cleanliness with less water, contributing to cost savings and water conservation.

Increased Production Yield: Cleaner wafers mean higher production yields and fewer defective units, leading to greater profitability for semiconductor manufacturers. The reduction in particle contamination through nanobubbles directly supports yield improvements.

Energy Savings: With less reliance on energy-intensive cleaning methods, nanobubbles help facilities lower their energy consumption. This energy efficiency is especially beneficial in high-volume manufacturing facilities, where small savings add up significantly over time.

FUTURE INNOVATIONS

- **Targeted Nanobubble Infusion:** Customized gas composition for different contaminants
- **Automated Systems:** Ensure precise, consistent cleaning with minimal human intervention
- **Enhanced Monitoring:** Real-time cleanliness measurement and feedback for quality control

NICO NANOBUBBLE GENERATOR

Upgrade your semiconductor cleaning process with NICO Nanobubble Technology. Experience precision, efficiency, and sustainability all in one solution.

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Office: 13217 Jamboree Road, Suite 482
Tustin, California 92782, USA

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