Teknipure

Innovative
Contamination
Solutions

- Industry Growth
- Understanding Yield Loss
- Choosing the Right Tools

SEMICONDUCTOR MANUFACTURING

Contamination Control Solutions

Teknipure's Guide
to Micro-Contamination Control Systems

Visit the Website

Extraordinary Growth is Creating New Challenges

The Race to Produce is On

Unprecedented growth across global and domestic markets has resulted in a global shortage of chips creating an exceptionally positive outlook for the Semicon industry over the next 3-5 years. The ramp up to meet new demand is creating immense pressure on the industry and driving critical need to maximize yield.

Even more concerning, **the ability to meet demand is expected to become more problematic** as the industry moves to 10nm/7nm and beyond, according to www.semi.org (SCIS)

For example, to fabricate an advanced logic chip, a wafer can now require transitions from one piece of equipment to another in what amount to **1,000 or more process steps.** Any glitch in the equipment, the process, or originating with the humans working nearby can cause costly defects and impact yield.

Industry analysis reports **over 50% of yield loss** can be attributed to **micro-contamination.**

50% of the yield loss
in semiconductor manufacturing is caused by ***micro-contamination***

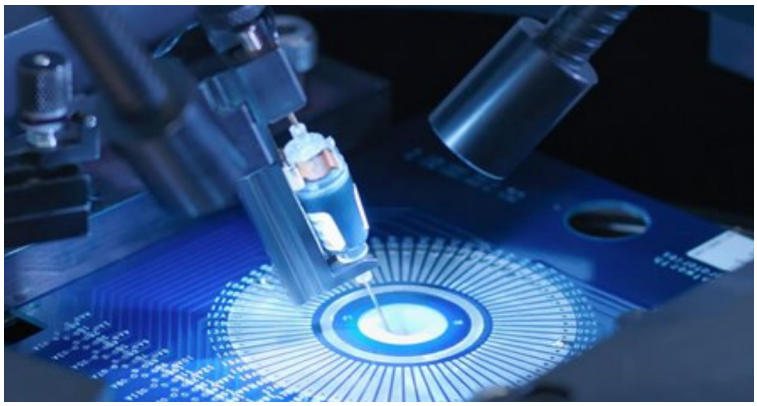
High Demand = New Challenges

Achieving target yield has become more difficult as rising complexity from new technologies is implemented in older fabs. Delivering yield when undergoing complex structural and process changes is a monumental challenge but critical in today's market.

Even if your facility is not currently managing significant process or structural changes, **yield optimization remains critical to meeting market demand and maximizing profit.**

Yield optimization has long been regarded as one of the most critical, yet difficult to attain goals—and thus a competitive advantage in semiconductor operations. **Managing micro-contamination more effectively is a key lever** to achieving higher yield.

Yield Optimization is Essential to Achieving Competitive Advantage



Attacking Micro-Contamination In Your Process

Winning the ongoing battle against yield-loss has never been more important and the role of surface cleaning choices in removing micro-contamination plays never more critical in any **Yield Improvement Program.**

Micro-contamination 1,000+ times smaller than human hair, can be introduced from many sources. Humans shed cells continuously, residues "ride in" on supplies at gowning & pass-through areas, and processing chemical residuals and outgassing, all create the potential for micro-contamination that needs to be proactively managed.

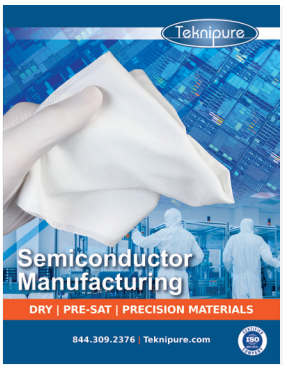
Industry estimates suggest that micro-contamination accounts for approximately 50% of all yield loss.

Removing micro-contamination from the Semi-conductor cleanroom environment is a proven method to increase yield and meet production goals. **Choosing the right wiper to achieve the best surface cleanliness is more critical than ever.**

Choosing Wipers to Remove Micro-Contamination Wisely

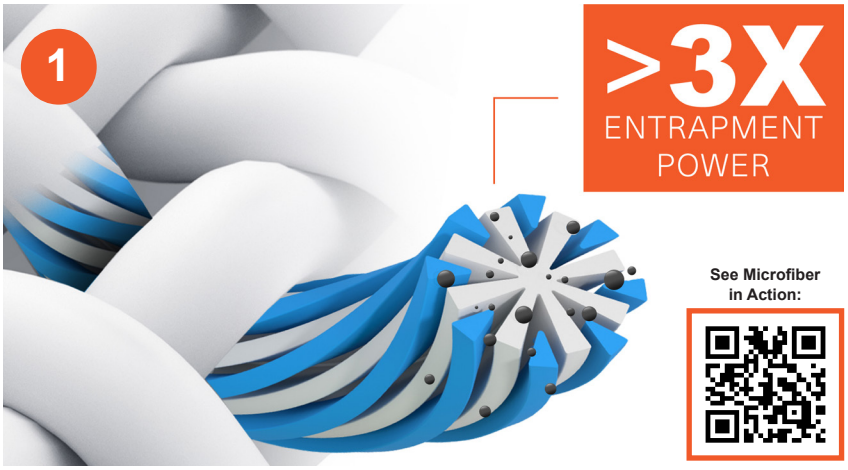
Three easy ways to maximize yield now:

1. Choose engineered materials that most effectively remove the surface contamination from your process.
2. Select the wiper performance features that enhance contamination control: engineered edges, low ionic residuals, and ultra-low in-use shedding.
3. Choose the ideal delivery system that aligns process effectiveness with human productivity, such as pre-saturated solutions or high-capacity delivery systems.



Semiconductor Wiping Applications Guide

FOR MORE INFORMATION



See Microfiber in Action:

Cleaner Surface = Reduced Yield Loss

Microfiber Engineered Material

Work smarter, not harder by choosing wiping materials that reduce surface contamination more effectively. Engineered microfibers have **3X more fiber surface area** to capture contaminants. **Up to 93% of residues are encapsulated** in the split microfiber structure on the first wiping pass compared to standard wiping materials that remove **≤30%**.

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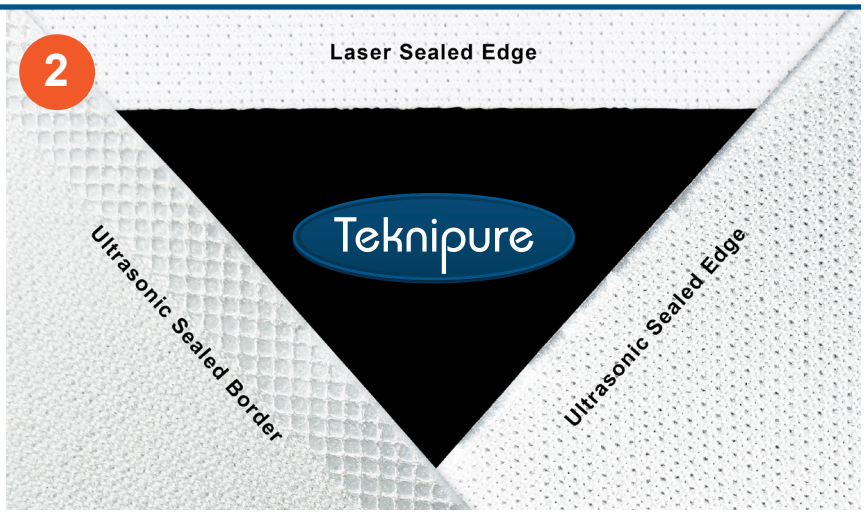
Toll Free: 844.309.2376 Info@Teknipure.com www.Teknipure.com

Innovative Micro-Contamination Solutions

Micro-Engineered Edging

Choosing a higher level of edge finishing will help prevent yield loss due to fiber contamination even when a wiper is used on uneven, irregular or rough surfaces. Unanchored fibers can detach and shed unnoticed during surface cleaning.



Edges as Tough as Your Tools

- **Superior Fiber Control: Ultasonic sealed border** provides a band of welded fibers around the border that enhances a solid fiber edge, which welds all fiber ends together. Even in the most aggressive wiping uses, fibers will not escape.
- **Enhanced Fiber Control: Ultrasonic edge sealing** provides a welded edge finish that melts all fiber ends together at the cut edge of the wiper.
- **Standard Fiber Control: Laser edge sealing** melts fiber ends together as the wiper is cut. A good choice for fiber shedding control in less demanding wiper uses.
- **Cut Edges** are standard knife cut material edges that do not bind the fibers ends. These are typical of wipers used in less critical applications.

Precision Pre-Saturated Solutions

Cleanroom Studies show optimal saturation levels achieve maximum micro-contamination pick-up. Wiper studies show that limited area wetting of a wiper results in inefficiency micro-contamination capture, while an over-saturated wiper redeposits solvent contamination and leave chemical residues on the surface.

Precision saturation delivers the right amount of fluid necessary to dislodge, pull, and capture contaminates, while leaving near zero residuals behind on first pass.

Precision saturation also minimizes chemical use & lowers worker environmental exposure to VOC's.

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