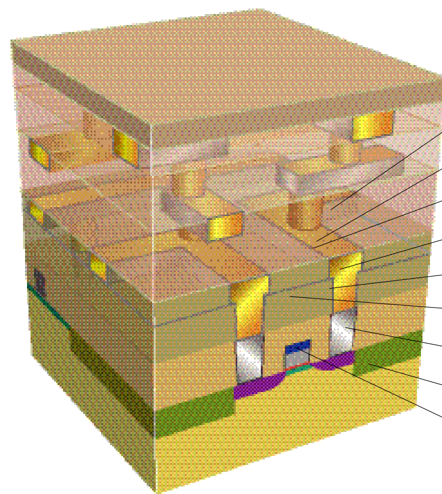
PARTICLE REMOVAL
YIELD IMPROVEMENT

ANTARES® CX Advanced Cleaning System Improves Yield on New Technology Nodes

FSI's CryoKinetic Technology — benefiting customers since 1996
- Unique all dry, nonreactive, brushless technology leads to exceptional benefits
- Diverse application points: Cu, low-k, gate, pellicle-free mask
- Production installations worldwide



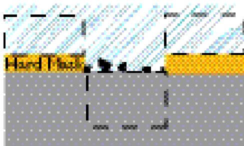
Select Applications

- Anti-Reflective Coating Deposition Clean
- Inline E Test Clean
- Post-Copper CMP Clean
- Post-Barrier Deposition Clean
- Post-Hard Mask Etch Clean
- Post-Etch Stop Deposition Clean
- Post-Tungsten CMP Clean
- Post-STI Etch Clean
- Post-Nitride Cap Deposition Clean

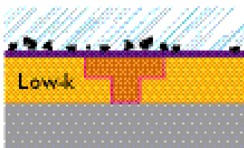
SELECT CUSTOMER CASE STUDIES

Customer A

- Up to 13% yield improvement and higher particle removal efficiency compared to scrubbers
- Applies ANTARES® System in three fabs
  - Logic wireless and logic foundry facilities
  - 100-130nm dual damascene Cu/low-k process on 200mm and 300mm wafers



Post-Hard Mask Etch (Pre-Trench Etch) Clean
- Removes post-ash defects after solvent clean



Post-Etch Stop Deposition (Pre-Low-k Deposition) Clean
- Removes deposition particles caused by CVD reactor

Post-Barrier Deposition (Pre-Cu Seed Deposition) Clean
- Removes deposition particles caused by PVD reactor

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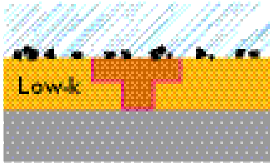
Customer B

- 2-4% yield improvement
- Applies ANTARES® System in four fabs
    - 130-180nm dual damascene Cu/low-k process on 200mm and 300mm wafers

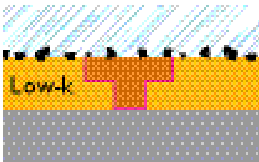


Post-Copper CMP Clean
- Removes residual particles after Cu CMP slurry removal process

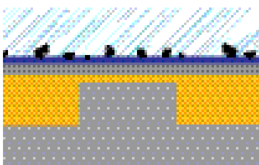
Lot Recovery from Random Contamination
- Eliminates and/or controls random defect excursions

Customer C

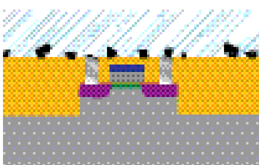
- 0.5% yield increase per level, 15% higher particle removal efficiency compared to scrubbers and no scrubber damage
- Applies ANTARES® System in one fab
    - 130nm dual damascene Cu/low-k process on 200mm wafers

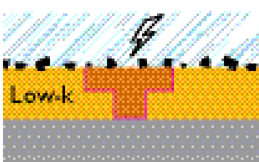


Post-Copper CMP Clean
- Removes residual particles after Cu CMP slurry removal process



Post-Nitride Cap Deposition Clean
- Removes deposition particles caused by CVD reactor





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