



**WINNER**

## **2001 R&D 100 Awards Winner**

### **SCORR: Supercritical CO<sub>2</sub> Resist Remover**

#### **Features**

Short for supercritical CO<sub>2</sub> resist remover, SCORR is a new technology that could revolutionize photolithography processes in industry. SCORR is based upon the physical properties of supercritical fluids (SCFs). These special properties enable SCFs to remove coatings, residues, and particles from very small features in integrated circuits (ICs), which are used in applications that range from cellular phones and electronic equipment to computers and household appliances. SCORR also eliminates rinsing and drying steps presently used in IC manufacture, thereby eliminating the generation of millions of gallons of water per fab per day.

#### **Applications**

SCORR applies to any manufacturing process that requires photoresist removal. For example, SCORR

- removes photoresists, residues, and particulates from ICs;
- removes photoresists from flat-panel displays, thus increasing reliability while decreasing pixel size;
- increases information density in optical storage media (for example, CDs, DVDs, and CD-ROMS); and
- eliminates stiction (surface adherence) in MEMS (micro-electromechanical systems).

#### **Benefits**

- Provides a unique cleaning process compatible with the latest low-k materials and smaller (<0.18 μm) dimensions necessary to advance the industry in the future.
- Removes photoresists, post-ash, -etch, and -CMP (chemical-mechanical polishing particulates) residues from metallized, nonmetallized, and ion-implanted semiconductor wafers.
- Costs much less than existing photoresist-stripping solvent systems.
- Strips resists in roughly half the time required by current technologies by eliminating both rinse and dry steps.
- Reduces or eliminates the use of water as a final rinse step of the removal process.
- Reduces or eliminates the use of inorganic acids, organic photoresist strippers, and associated organic solvents presently used to dry wafers.