



Applied Materials and Applied Komatsu Technology Win R&D 100 Award for Remote Clean Technology

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Companies Honored for Innovative Process Technology with
Environmental Benefits

Applied Materials, Inc. and its joint venture company Applied Komatsu Technology, Inc. (AKT) have been honored with a prestigious R&D 100 Award. The award, sponsored by R&D Magazine, a Cahners publication, recognizes the two companies for their Remote Clean(TM) technology, a high-productivity, environmentally benign process for cleaning semiconductor and flat panel display process chambers.

Tim Studd, editor of R&D Magazine, said, "R&D 100 Awards have been given to technologically significant new products since 1963, including breakthroughs like the digital wristwatch, the liquid crystal display, the fax machine, the halogen lamp, and anti-lock brakes. The Remote Clean from AKT and Applied Materials has helped create a new paradigm for flat panel display (FPD) and semiconductor manufacturing that incorporates environmental impact considerations into the development of critical process technology."

"Receiving this award is an important honor from the scientific community," noted Dr. Kam Law, vice president of AKT and one of the principal inventors of the Remote Clean technology. "We are delighted to join such a roster of distinguished corporations, research organizations and universities from around the world."

Laura Mendicino, manager of environmental technology development in the Advanced Products Research and Development Lab at Motorola, said, "As part of our industry-leading commitment to reduce PFC gas emissions from our fabs, we recognize Applied Materials as a significant contributor to this effort. The Remote Clean is an example of sustainable technology development that combines environmental consciousness with real-world considerations of operating cost and enhanced process results. Besides benefiting our chipmaking operations, this technology ultimately benefits the community and the world."

The Remote Clean technology was originally developed and introduced by technologists at AKT, where the large-scale flat panel display process chambers were especially susceptible to contamination from residues. It is standard equipment on AKT's line of advanced chemical vapor deposition (CVD) systems used to make thin film transistor (TFT) liquid crystal displays, which are the standard flat panel displays used in laptop computers and recent FPD computer monitors. The technology was further developed at Applied Materials and has steadily expanded to all of Applied Materials' CVD products. Both companies are leading suppliers of CVD technology in their respective industries.

The R&D 100 Award congratulates the following principal developers of the Remote Clean technology: Sebastien Raoux, Tsutomu "Tom" Tanaka, Chien-teh Kao, Li-Qun Xia and Jay Pinson, all from Applied Materials, Inc.); and Quanyuan Shang and Kam Law from AKT.

Technology Background:

One of the main processes used to deposit dielectric (insulating) or metallic (conducting) thin films during fabrication of semiconductor chips and flat panel displays is called CVD, which takes place in the controlled environment of a reaction chamber. While depositing a layer of material on a silicon wafer or glass panel, residues from the process also accumulate on the chamber's walls. These must be periodically cleaned to prevent buildup and potential contamination to the wafer or display.

Conventional chamber cleaning methods use long-lived global warming gases, known as PFCs, to remove deposits from the chamber with low utilization efficiencies, thus resulting in significant PFC emissions. By contrast, the Remote Clean method employs NF₃ with a utilization efficiency of 99 percent or greater, virtually eliminating PFC emissions from chamber clean. The Remote Clean provides a very efficient clean and is not damaging to chamber parts because there is no plasma generation within the chamber; the plasma is created in the Remote Clean unit prior to introduction to the chamber. The process also contributes to increased uptime and shorter clean times, resulting in higher system output and a significant increase in overall tool productivity.

Applied Komatsu Technology, Inc., the joint venture between Applied Materials, Inc., headquartered in Santa Clara, California, and Komatsu Ltd. of Japan, is the world leader in CVD systems for flat panel display manufacturing.

Applied Materials, Inc. is a Fortune 500 global growth company and the world's largest supplier of wafer fabrication systems and services to the global semiconductor industry. Applied Materials is traded on the Nasdaq National Market System under the symbol, "AMAT." Applied Materials' web site is <http://www.appliedmaterials.com>.