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Hitachi High-Technologies Launches Sales of New HS-9050 Dry Removing System

—Multilayer resist removal for 20 nm double-pattern processes and beyond—

Hitachi High-Technologies Corporation (TOKYO: 8036, Hitachi High-Tech) today announced the development of HS-9050, a new type of dry removing system compatible with the most advanced semiconductor device miniaturization processes. The new system will be officially unveiled at SEMICON Japan 2012 (December 5 to 7, 2012 at the Makuhari Messe International Convention Complex), which will mark the start of sales.

Ongoing miniaturization of semiconductor device is driving the practical application of argon fluoride (ArF) immersion lithography, as well as double patterning and other multi-pattern technologies that utilize this technique. Consequently, because conventional resist exposure patterns alone are unable to withstand subsequent processing in ultra-micro lithography of this kind, multilayer resists comprising both organic and inorganic films are used. Removing these multiple resist film layers with a high degree of selectivity and with minimal damage to the underlying layers has been a difficult challenge in the multilayer resist removal process. It has therefore become a major issue for 20-nanometer processes and beyond, which employ double patterning in wiring processes and other areas.

The newly developed HS-9050 is equipped with a gas system compatible with both organic and inorganic films. Processing can be flexibly set based on the structure of the film layers, enabling the entire removal process of multilayer resists in next-generation devices to be performed within the same chamber. Meanwhile, helical downflow plasma¹ has been newly adopted as the plasma source, resulting in a highly efficient, less damaging process.

For the transfer system, the HS-9050 is equipped with Hitachi's proprietary low-contaminant, high-speed transfer system. Other process chambers can also be mixed and matched thanks to adoption of the "9000" link-type platform, allowing the HS-9050 to offer high productivity and expandability.

Hitachi High-Tech will add the HS-9050 to its highly regarded lineup of plasma etching systems as a system compatible with advanced dry removal techniques. In this way, Hitachi High-Tech will meet wide-ranging processing technology needs for the 20-nanometer generation and beyond, as it continues to contribute to the future of semiconductor device miniaturization.

¹ Helical downflow plasma: A plasma type in which radicals generated by an induction field created by a helical coil are transported via gas flow.



HS-9050 Dry Removing System

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