

Abstract Submitted
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Development of High-speed and Environmentally Friendly Photoresist Removal Process using Pulsed Microwave Plasma in Water Vapor TATSUO ISHIJIMA, TAKUYA KITANO, TAKUYA ITO, HIROAKI SUZUKI, YASUNORI TANAKA, YOSHIHIKO UESUGI, Kanazawa University, TAKASHI NISHIYAMA, HIDEO HORIBE, Osaka City University — A novel photoresist removing technique using a pulsed microwave excited plasma produced in vaporized water bubble (MWBP) has remarkable properties such as environmentally-friendly and low temperature process. This photoresist removal method has been studied to apply a practical semiconductor manufacturing process. On the other hand, the minimal-fabrication system (minimal-fab) without using a clean room has been proposed and developed in order to adapt a high-variety low-volume semiconductor manufacturing process. Recently MOS device production has been succeeded using the minimal-fab. It is expected to evaluate the proposed MWBP ashing technology ability and clarify the possibility for a practical semiconductor manufacturing process to be incorporated in the minimal-fab. In order to apply MWBP for the minimal-fab, reduction of the input microwave power is necessary because the size of the minimal-fab is a compact and is highly standardized to maximize the convenience of the fabrication system utilization. In this study, we have investigated MWBP production methods to reduce the MWBP production power. We found that the decrease in the MWBP production power can be achieved by introducing a new bubble-control-structure to keep the bubble around the microwave antenna.

Tatsuo Ishijima
Kanazawa University

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