Abstract Submitted
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Supercritical Fluid Research Capabilities and Collaborations at Los Alamos National Laboratory[1] KIRK HOLLIS, JERRY BARTON, CRAIG TAYLOR, Los Alamos National Laboratory, LAURIE WILLIAMS, Fort Lewis College, MELVIN CARTER, DuPont EKC Technology — The supercritical fluids facility (SCRUB) at Los Alamos National Laboratory is a unique research center with a history of successful collaboration with the industrial sector. This presentation will focus on one of these collaborations with DuPont EKC Technology in the continuing development of Supercritical Carbon DiOxide Resist Removal (SCORR). This research has studied co-solvents that effectively remove photoresist from integrated circuit wafers. The technical capabilities of the SCRUB include small-scale equipment, 1-20 ml, up to industrialized pilot scale processes. Initial work focused on the phase behavior of binary mixtures using a small volume (20ml) view cell. A series of $SCCO_2$ /co-solvent phase diagrams were investigated over ranges of pressure, temperature and concentration variables. Mixtures of interest were scaled to a 500ml vessel to test removal effectiveness, keeping the conditions (pressure / temperature) within the single phase region during the pulsing process of SCORR. Results from these tests are used to finalize conditions for pilot scale test on 200mm wafers in a 10L vessel. Selected results from all steps will be presented to emphasize the R&D process.

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