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(54) **Title:** METHODS OF INSERTING OR REMOVING A SPECIES FROM A SEMICONDUCTOR SUBSTRATE

(57) **Abstract:** Methods of inserting and removing species from substrates utilizing pressure-vent cycling are revealed in embodiments of the invention. Various embodiments introduce a fluid to a vessel containing the substrate while setting pressure at an elevated level. The pressure is maintained at the elevated level for a predetermined period of time, the lowered by removing fluid from the vessel. The steps of introducing fluid, maintaining pressure, and lowering pressure are repeated at least once. Embodiments of the invention may allow a species to be removed from the voids of a substrate, or allow a new species to be inserted into the voids. Particular embodiments also have special application to preconditioning, activating, and/or regenerating gas purification substrates, or removing and/or delivering species with respect to semiconductor substrates. Embodiments of the invention allow faster transport of species to and from substrates with less use of purging or filling fluids.

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