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(54) **Title**: ENHANCEMENT OF DRY ETCH OF HIGH ASPECT RATIO FEATURES USING FLUORINE

(57) **Abstract**: The standard Bosch and non-Bosch processes for forming high aspect ratio vias in silicon substrates have several disadvantages, including slow and costly processing and use of significant amounts of SF6, a global warming gas, as the etching gas. The present invention addresses these disadvantages by adding F2 gas to the etch chamber. The F2 can be added in either the molecular state or a dissociated state and serves to increase etch rates without degrading the quality of the via holes. This allows for shorter overall process times and lower costs without sacrifice of the integrity of the via being formed. In addition, use of F_2 allows for a reduction or elimination of the use of SF_6.