

Abstract Submitted  
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**On finding low Global Warming Potential (GWP) precursor for SiO<sub>2</sub> etching through plasma radical measurement** CHUL HEE CHO, Chungnam National University, SIJUN KIM, Chungnam National University, Nanotech Optoelectronics Research Center, JANGJAE LEE, YEONGSEOK LEE, SANGHO LEE, INHO SEONG, SHINJAE YOU<sup>1</sup>, Chungnam National University — C<sub>4</sub>F<sub>8</sub>, and CF<sub>4</sub> are precursor for etching SiO<sub>2</sub>, but they have high Global Warming Potential (GWP), so many researches to find low GWP precursors were investigated. However, the problem is that if the low GWP precursors were found, SiO<sub>2</sub> etching characteristics with those precursors should be researched by SiO<sub>2</sub> etching process, so it takes too much time. In this research, we proposed a new mechanism to forecast SiO<sub>2</sub> etch rate, and Si/SiO<sub>2</sub> selectivity by diagnostics of plasma radical density. The radical diagnostics data shows that C<sub>4</sub>F<sub>9</sub>I has similar selectivity and SiO<sub>2</sub> etch rate with C<sub>4</sub>F<sub>8</sub>, and C<sub>6</sub>F<sub>12</sub>O has better selectivity and SiO<sub>2</sub> etch rate than C<sub>4</sub>F<sub>8</sub>. To verify this mechanism, SiO<sub>2</sub> etch data were analyzed by Scanning Electron Microscope (SEM) and it confirmed well with this mechanism. This research contributes plasma diagnostics in etching process.

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