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**ABSTRACT**

Disclosed are a substrate processing apparatus and method in which in a heat-treatment process such as a baking process, a surrounding humidity environment may be precisely controlled based on photoresist for extreme ultraviolet (EUV) applied on the substrate. The substrate processing apparatus includes a housing having a treatment space defined therein; a support unit for supporting, thereon, a substrate received in the treatment space; and a gas supply unit configured to alternately supply a first gas and a second gas into the treatment space in response to photoresist (PR) for extreme ultraviolet (EUV) applied onto the substrate.

