

## 반도체 베이킹 공정시 내부유동이 웨이퍼 온도와 입자거동에 미치는 영향

이진성<sup>†</sup> · 김태규\* · 이동우\*(삼성종합기술원) · 신동화\*\* · 임종길\*\*(삼성전자)**Effect of Flow Pattern on Wafer Temperature and Particle Behavior in the Baking Process of Manufacturing Semiconductors**

Jin Sung Lee, Tae Gyu Kim, Dong Woo Lee, Dong Hwa Shin and Jong Kill Lim

**Key Words:** Photo Resist Film(감광막), Bake Unit(베이킹 장치), Critical Dimension(회로선폭)

**Abstract :** In the Baking process during photolithography, a temperature change of wafer on each bake unit induces CD(Critical Dimension) variation and reduces productivity. Thus, maintaining the wafer at a desired temperature, for a desired period of time, may enable uniformity in photo resist hardening and increase the quality of the underlying integrated circuit being manufactured. In the present research, we have performed thermal and fluid flow analysis in the bake chamber. Computational simulation has been used to understand the effect of purging gas flow pattern on the temperature distributions of wafer and particle behavior. As a result of this, we understand the problems of present bake chamber and propose new design for bake cover to improve the temperature uniformity of wafer and reduce the particle contamination problems.

**A Computational Study of the Gas Flow in a Coanda Ejector**

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## 코안다 이젝터내에서 발생하는 기체 유동에 관한 수치해석적 연구

G. Rajesh<sup>†</sup> · J. H. Lee\* · Y. K. Lee\*(안동대 원) · 김희동\*\*(안동대)**Key Words:** Coanda Ejector(코안다 이젝터), Mixing Flow(혼합 유동), Flow Chocking(유동 초킹), Mixing Layer(혼합층), Compressible Flow(압축성 유동)

**Abstract :** The Coanda effect has been used extensively in various aerodynamic applications to improve the system performance. The primary flow in Coanda ejectors is attached to the ejector wall and is expanded inducing a secondary flow. This will probably lead to the mixing of both primary and secondary flows at a down stream section. Very few works have been reported based on the optimization on such devices. The main objective of the present study is to numerically investigate the flow field on a typical Coanda ejector and validate the results with the available experimental data. Many configurations of the Coanda ejector have been analysed. The effect of various geometric parameters of the device on the expanding mixing layer has also been obtained. The computed data agree fairly well with the experimental data available.