

### 1.1kW급 고체산화물 연료전지 시스템의 화학공정 모사를 통한 촉매 연소기 작동 조건 도출 및 최적 촉매 사용량에 관한 연구

이석배<sup>1,2</sup>, 김기석<sup>3,\*</sup>

<sup>1</sup>영남대학교 응용화학공학과; <sup>2</sup>STX메탈 기술연구소;

<sup>3</sup>영남대학교 디스플레이화학공학부

(kimks@ynu.ac.kr\*)

The chemical process simulation was conducted by Aspen plus, to acquire operation condition of 1.1kW solid oxide fuel cell (SOFC) systems. In the input of reformer, the CH<sub>4</sub>(10.18mol/h) and H<sub>2</sub>O(25.44mol/h) are used to generate the power of 1.1kW from chemical process simulation using Aspen plus, and then the output of reformer produces the fuel of 38.8mol/h at that condition. Catalytic combustor of stack off gas from solid oxide fuel cell was studied by measuring the conversion rate of combustible component in the operation condition from the results of Aspen plus. Compared with higher GHSV, the lower GHSV exhibited better conversion rate of combustible component. The optimum condition for the catalytic combustor was lower GHSV due to the complete conversion rate of CH<sub>4</sub>.