

### Geometrical Effects of the Interconnect(IC) in the Tubular SOFC on the cell Performance

황지원, 조동현, 이정용, 정현욱\*, 김성현  
고려대학교  
(hwjung@grtrkr.korea.ac.kr\*)

In this study, three-dimensional numerical simulation has been carried out to investigate the effect of current collector geometry on the cell dynamics in anode-supported tubular SOFC. Current collector plays an important role in determining the resistance during the current flow. To evaluate the effect of thickness and width of IC, the structural factor has been controlled before the numerical calculations. First, the thickness of IC was set to 1.0mm or 0.5mm under the fixed width. The polarization curves have been estimated when the electrical conductivities of IC are 5S/cm, 10S/cm and 50S/cm respectively. As results, thin IC can reduce the ohmic resistance. However, when the electrical conductivity is significantly high, the thickness of IC does not affect the cell performance. The upper limit values of the electrical conductivity of IC at 0.6V for the maximum cell performance are 40S/cm for 0.5mm IC and 57S/cm for 1.0mm IC, respectively. Second, 1mm and 2mm width of IC were selected under the fixed thickness to evaluate the effect of width of IC. Although the width of IC does not effectively alter the current path, 2mm width of IC provides a good performance.