

### Effect of Tilt on Operating a Large Scale Polymer Electrolyte Membrane Fuel Cell(PEMFC)

정지훈\*, 고백균, 한인수, 신현길, 허태욱<sup>1</sup>, 조성백<sup>1</sup>  
GS칼텍스; <sup>1</sup>국방과학연구소  
(stjjh@gscaltex.com\*)

In mobile applicaton like automobiles or water vehicles, the polymer electrolyte membrane fuel cell(PEMFC) stack is keep moving while their operation. Especially the tilting environment can take a effect to fuel cell stack performace, because this tilting condition can cause a bad effect to water exhaust of fuel cell stack.

In this study, a large scale stack(over 100kW power) is tilted upto 30 degree in lengthwise and crosswise using stack lift equipment. And the stack is operated in 10~100% load.

No significant change has appeared in crosswise tilting condition and lenthwise low tilt angle. But in lenthwise large angle tilting condition, the fuel cell performance has significantly decreased. And this performance decrease is aggravated in low load.

An active water exhaust device is applied to the stack to prevent the performance decrease. And in lenthwise large angle tilting condition, this device cause a good effect to fuel cell stack performance.