

Operation and characteristics of direct alcohol fuel cell utilized bio-ethanol

바이오 에탄올을 연료로 사용한 직접 알코올 연료전지의 작동 특성

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This study describes the performance test of direct alcohol fuel cell utilized three types alcohol fuels (commercial methanol, ethanol and bio-ethanol made by fermentation of fruit residue). In performance test, it was revealed that the cell performance of direct methanol fuel cell was much higher than that of direct ethanol fuel cell because the ohmic loss and activation loss of direct ethanol fuel cell were smaller than those of direct ethanol fuel cell. However, methanol show the higher crossover current than ethanol. By contrast, the performance of using bio-ethanol was lower than another two types. $4\text{mg}/\text{cm}^2$ of Pt-Ru and $4\text{mg}/\text{cm}^2$ of Pt-black were used as anode and cathode catalysts, respectively. Crossover current density was measured by power supply. Polarization curves were achieved by fuel cell test station.