Demonstration of a hydrogen power-pack fueled by ammonia borane and its application for Unmanned aerial vehicle

히엔, 서정은[1], 남석우[1], 윤창원[1,*]
과학기술연합대학원대학교(UST); [1]한국과학기술연구원
(cwyoon@kist.re.kr*)

A hydrogen power-pack powered by ammonia borane (AB) is created to operate a 200-We polymer electrolyte membrane fuel cell (PEMFC) in an Unmanned aerial vehicle (UAV) application. This power-pack employed tetraethylene glycol dimethylether (T4EGDE) as a promoter, and generated hydrogen by autothermal H2-release from AB. The flight test of the UAV was performed to release the stable H2 generation for 57min. Gaseous byproducts were analyzed by in situ Fourier transform infrared (FT-IR) spectroscopy during AB dehydrogenation. A promising reactor concept for long-term fuel cell applications is proposed based on the results.