Low Calorific Gasturbine 매립지 적용 및 유리온실 운용기술 설계

*허 광범, 박 정극, 이 정빈, 임 상규

Design for Landfill Gas Appliation by Low Calorific Gas Turbine and Green House Optimization Technology

*Kwang-beom Hur, Jung-keuk Park, Jung-bin Lee, Sang-gyu Rhim

Bio energy development by using Low Calorific Gas Turbine(LCGT) has been developed for New & Renewable energy source for next generation power system, low fuel and operating cost method by using the renewable energy source in landfill gas (LFG), Food Waste, water waste and Livestock biogas. Low calorific fuel purification by pretreatment system and carbon dioxide fixation by green house system are very important design target for evaluate optimum applications for bio energy. Main problems and accidents of Low Calorific Gas Turbine system was derived from bio fuel condition such as hydro sulfide concentration, siloxane level, moisture concentration and so on. Even if the quality of the bio fuel is not better than natural gas, LCGT system has the various fuel range and environmental friendly power system. The mechanical characterisitics of LCGT system is a high total efficiency (>70%), wide range of output power (30kW - 30MW class) and very clean emmission from power system (low NOx). Also, we can use co-generation system. A green house designed for four different carbon dioxide concentration from ambient air to 2000 ppm by utilizing the exhaust gas and hot water from LCGT system. We look forward to contribute the policy for Renewable Portfolio Standards(RPS) by using LCGT power system.

Key words : Bio Gas(바이오 가스), Low Calorific Gas Turbine(저발열량 연료사용 가스터빈, LCGT), Green House (유리온실), Design development(설계 개발), Renewable Portfolio Standards(신재생에너지 의무할당제)

E-mail : * kbhur5798@hanmail.net

combined severity를 이용한 유체대의 묽은 산 전처리

*정 태수, **오 경근

Dilute-acid pretreatment of rapeseed straw of using the combined severity

*Tae-Su Jeong, **Kyeong-Keun Oh

Biological conversion of biomass into fuels and chemicals requires hydrolysis of the polysaccharide into monomeric sugars. In this study, dilute sulfuric acid used as a catalyst for the pretreatment of rapeseed straw. Hydrolysis can be performed enzymatically, and with dilute or concentrate mineral acids. Dilute-acid hydrolysis of rapeseed straw was optimized through the utilization of combined severity. Evaluation criteria for optimization of the pretreatment conditions were based on high xylose recovery and low inhibitor contents in the hydrolyzates. In addition, this paper reports the compositional analysis of hydrolyzate liquors and solid residues, xylose and glucose mass balance closures, and digestibility results of the acid pretreated rapeseed straw.

Key words : severity index, pretreatment, dilute-acid

E-mail : ** kkoh@dankook.ac.kr