

디젤기관에서 다양한 합산소연료 적용 변화에 따른 성능 및 배기배출물 특성 비교 연구

최승훈[†] · 오영택* · 김건희*(전북대) · 권규식**(전주대)

A Study on Comparison of Power and Emissions for Change of Various Oxygenates Application in a Diesel Engine

Seunghun Choi, Youngtaig Oh, Gunhoi Kim and Kyusik Kwon

Key Words: Oxygenates(합산소제), Diesel Engine(디젤기관), Exhaust Emission(배기배출물)

Abstract : In this paper, the effects of oxygen component in oxygenated blended fuels on the exhaust emissions have been investigated for a diesel engine. It tested to estimate changes of engine performance and exhaust emission characteristics for the commercial diesel fuel and oxygenated blended fuels which have four kinds of fuel on DGM, MTBE, DMC and EGBE various mixed rates. And, the effects of exhaust gas recirculation(EGR) on the characteristics of NOx emission and brake specific fuel consumption rate also have been investigated. The results of this study show that simultaneous reduction of smoke and NOx emission was achieved with oxygenated blended fuels and cooled EGR method.

혼합냉매를 이용한 한냉지형 열펌프 시스템 특성 연구

김욱중[†] · 이공훈* · 김유일* · 서정균*(한국기계연구원)

A Study on the Characteristics of a Heat Pump System for Cold Climate Using Non-azeotropic Refrigerant Mixture

Ook Joong Kim, Kong Hoon Lee, Yoo Yil Kim and Jeong-Kyun Seo

Key Words: Refrigerant Mixture(혼합냉매), Heat Pump(열펌프), Heating Capacity(난방능력), EER(에너지 효율)

Abstract : An air source heat pump using non-azeotropic refrigerant mixture has been simulated to examine the performance characteristics according to design parameters. The simulation method has been validated by comparing the results with the published data of a maker. The effects of design parameters, such as condenser, air flow rate, compressor efficiency and refrigerant mixture ratio, on the performance of heat pump system using the fixed volume compressor are investigated in detail. Compressor efficiency and refrigerant mixture ratio are very important design parameters to get the sufficient heating capacity and high EER. Liquid injection rate with appropriate injection pressure is recommended to get moderate discharge refrigerant temperature when the heat pump is operated at very low outdoor temperature condition.