Estimation of the Refrigeration Performance for New Ternary Mixtures Evaluated as R-502 Alternatives Candidates

호광누, 이병권*, 임종성, 유계상
한국과학기술연구원
(bglee@kist.re.kr*)

R-502- a binary mixture of HCFC-22 (48.8 %) and CFC-115 (51.2 % by mass)- has become one of the main refrigerants in industrial and commercial mid- and low-temperature refrigerating facilities, conditioners and heat pumps from 1960s. Unfortunately, production of R-502 was halted by the clean air act on January 1, 1996 due to its high Ozone Depletion Potentials. In consequence, much effort has been made to find suitable replacements for it.
In previous part, six ternary mixtures composed of well-known HFCs or (HFCs + Hydrocarbon) that were primarily evaluated with refrigeration cycle simulation program and selected as R-502 alternative candidates were introduced. In this work, the testing of refrigeration performance for these mixtures and R-502 as well as its Alternatives (R-404a, R-407a, R-507) at same conditions was carried out by using a refrigerant compressor calorimeter. The comparison of performance test results indicated that several mixtures could be suggested as R-502 alternatives