Production of Environment-Friendly Refrigerant 1,1,1,2-Tetrafluoropropene (HFO-1234yf) using Cr-based Catalysts

임서연, 송광호[1], 김홍곤, 안병성, 하정명†
한국과학기술연구원; [1]고려대학교
(jmha@kist.re.kr†)

The use of refrigerant hydrofluorocarbons (HFCs) causes the global warming by 1300 times more compared to carbon dioxide, which initiated the strict environmental regulation in the automobile industry. Hydrofluoroolefin 1234yf (HFO-1234yf) exhibits good thermal properties with the low global warming potential (GWP), which is perfect for the replacement of current high GWP refrigerant HFC-134a. We studied the dehydrofluorination of 1,1,1,2,3-pentafluoropropane (HFC-245eb) to 1,1,1,2-tetrafluoropropene (HFO-1234yf) using the surface-modified metal oxide catalysts which were prepared by modified sol-gel method and verified as highly dispersed porous catalytic materials. The structures of catalysts were observed using XPS, XRD, and TG. The optimum method to form the pelletized catalysts was studied and the properties of formed catalysts were investigated.