Bubble Point Pressures of Eight Binary Mixture Refrigerant Candidates

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The bubble point pressures of eight binary mixtures (two compositions of each) have been measured from 290 K to 380 K. Six of the mixtures measured included pentane. The second components in those binary mixtures were: 1) 1,1,1,3,3-Pentafluoropropane (*R245fa*); 2) Methyl perfluoropropyl ether; 3) 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-3-pentanone; 4) 1,1-Dichloro-1-fluoroethane (R141b); 5) trans-1,3,3,3-Tetrafluoropropene (R1234ze); and 6) Dimethyl ether. The two remaining binary mixtures were 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-3-pentanone + Methyl perfluoropropyl ether and Butane + R245 fa. The binary mixtures studied in this work are being investigated as possible working fluids for a novel organic Rankine cycle. Measurements revealed azeotropes for several of the mixtures as well as liquid-liquid-vapor states at lower temperatures for some of the pairs. Results of the measurements will be presented along with comparison to preliminary equations of state for the mixtures.