

Excess Molar Volumes and Excess Molar Enthalpies for the Binary Mixtures
 $\{x_1\text{CH}_3\text{CHClCH}_2\text{Cl} + x_2\text{CH}_3(\text{CH}_2)_n\text{COO-CH}_3\}$,
 where $n=0,1,2$, at $T = 298.15\text{ K}$

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The excess molar volumes V^E and excess molar enthalpies H^E have been measured as a function of 1,2-dichloropropane (1,2-DCP) composition at $T=298.15\text{ K}$ and atmospheric pressure of the following set of systems {1,2-DCP + methyl esters (methyl acetate, methyl propionate, and methyl butyrate)} from density and heat of mixing, respectively. The H^E values of all binary mixtures are negative while V^E values are positive over the whole composition range. Both V^E and H^E values decrease with an increase of molecular weight of methyl esters. The maximum negative values of H^E have been shown ranging from -202.3 Jmol^{-1} (methyl acetate) to -338.3 Jmol^{-1} (methyl butyrate) at $x = 0.45\sim 0.50$. Similarly, the maximum positive V^E values shift from $0.0592\text{ cm}^3\text{ mol}^{-1}$ for the mixture with methyl butyrate to $0.1615\text{ cm}^3\text{ mol}^{-1}$ for the mixture with methyl acetate at $x = 0.49\sim 0.64$. The experimental results of both V^E and H^E were fitted to Redlich-Kister equation to correlate the composition dependence. The experimental H^E data were also used to test the suitability of Wilson, NRTL, and UNIQUAC models.