

Molar excess volumes of 1,3-dichlorobenzene with n-hexane, cyclohexane, 1,4-dioxane, benzene, toluene, and p-xylene

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The excess thermodynamic properties are the measure of non ideal behavior and of great importance to chemist to understand the nature of molecular interactions. Since a binary mixture is formed by the replacement of like contacts in the pure components by unlike contacts in the mixture, it may trigger inter or intra molecular changes in either one or both the components or this must be reflected in the excess molar volume.

In the present studies, molar excess volumes of 1,3-dichlorobenzene (i) with n-hexane, cyclohexane, 1,4-dioxane, benzene, toluene, and p-xylene (j) were measured with V-shaped dilatometer at 298.15 K over the entire range of composition. While VE values are negative for system containing toluene, p-xylene and n-hexane, these are positive for system containing cyclohexane and benzene. In case of 1,3-dichlorobenzene(i)+ 1,4-dioxane(j) these are positive for $x_i < 0.75$ and then change sign. At equimolar composition, VE values vary in the order:

cyclohexane > benzene > 1,4-dioxane > toluene > p-xylene > n-hexane.