

Diffusion coefficient of benzene into cyclohexane and hexane at infinite dilution

3 Diffusion in Liquid Mixtures

3.1. Data

3.1.4. Diffusion in Ternary Mixtures at Infinite Dilution

C ₆ H ₆	(1)	benzene	71-43-2
C ₆ H ₁₂	(2)	cyclohexane	110-82-7
C ₆ H ₁₄	(3)	hexane	110-54-3
Diffusion coefficient at infinite dilution: $D_{1(23)}^{\circ}(x_i)$; Method: TAYLOR			Ref.: [2007S5]
$T = 298.15 \text{ K}; p = 101.325 \text{ kPa}$			
x_2	x_1	$D_{1(23)}^{\circ} \cdot 10^9 \text{ [m}^2/\text{s]}$	
0.0000		$4.70 \pm 3\%$	
0.1884		$4.26 \pm 3\%$	
0.3882		$3.78 \pm 3\%$	
0.4918		$3.46 \pm 3\%$	
0.5857		$3.18 \pm 3\%$	
0.6988		$2.85 \pm 3\%$	
0.7914		$2.50 \pm 3\%$	
0.8977		$2.21 \pm 3\%$	
1.0000		$1.92 \pm 3\%$	
Diffusion coefficient at infinite dilution: $D_{1(23)}^{\circ}(x_i)$; Method: TAYLOR			Ref.: [1990H10]
$T = 295.15 \text{ K}; p = 101.325 \text{ kPa}$			
x_3	x_1	$D_{1(23)}^{\circ} \cdot 10^9 \text{ [m}^2/\text{s]}$	
0.0		$1.90 \pm 1\%$	
0.254		$2.75 \pm 1\%$	
0.502		$3.43 \pm 1\%$	
0.733		$4.19 \pm 1\%$	
1.00		$4.76 \pm 1\%$	

Symbols and Abbreviations

Short Form	Full Form
x_i	mole fraction
D	diffusion coefficient
p	pressure
T	temperature
TAYLOR	Taylor dispersion technique

References

- [1990H10] Huss, V., Chevalier, J. L., Siouffi, A. M.: J. Chromatogr. **500** (1990) 241–255.
 [2007S5] Safi A., Nicolas, C., Neau, E., Chevalier, J. L.: J. Chem. Eng. Data **52** (2007) 977–981.