

Table of Contents

LB IV/15: Diffusion in Gases, Liquids and Electrolytes

Part A: Gases in Gases, Liquids and their Mixtures

1	Introduction	1
1.1	Selection of data	1
1.2	Definitions and units	2
1.2.1	Diffusion coefficients	2
1.2.2	Temperature, pressure and density, concentration	5
1.3	Arrangement of data	6
1.4	Substances and nomenclature.....	6
1.5	Data reduction and correlations.....	6
1.6	References for 1.....	8
2	Measurement Methods	9
2.1	NMR spin echo techniques.....	10
2.2	Optical methods.....	11
2.2.1	Interferometry.....	11
2.2.2	Holographic interferometry	11
2.2.3	Light scattering	12
2.3	Capillary diffusion methods	12
2.3.1	Closed tube (<i>Loschmidt</i> cell)	12
2.3.2	Two-bulb method	13
2.3.3	Evaporation tube (<i>Stefan</i> cell)	13
2.3.4	Open ended capillary.....	14
2.4	Chromatographic methods.....	14
2.4.1	Gas chromatography.....	15
2.4.2	Taylor dispersion method	15
2.4.3	Arrested and reversed flow methods	15
2.5	Diffusion in diaphragm cells and through a porous barrier.....	16
2.6	Steady-state methods	16
2.7	Gas absorption methods	17
2.7.1	Wetted wall and wetted sphere absorber	17
2.7.2	Laminar liquid jet	17
2.7.3	Bubble collapse and bubble solution	17
2.7.4	N_2O -analogy	18
2.8	Recommended data sets for calibration	18
2.9	References for 2.....	19
3	Diffusion in Pure Gases.....	20
3.1	Data	20
3.2	References for 3.....	37
4	Diffusion in Gaseous Mixtures.....	39
4.1	Data	39
4.1.1	Diffusion in Binary Mixtures	39
4.1.1.1	Diffusion in Binary Gaseous Mixtures	39
4.1.1.2	Diffusion of Gas/Vapor in Supercritical Fluid Systems.....	104
4.1.1.3	Diffusion of Gas/Vapor in Liquid.....	106

4.1.2 Diffusion in Binary Mixtures at Infinite Dilution	111
4.1.3 Diffusion in Ternary and Quaternary Mixtures.....	139
4.2 References for 4.....	142
5 Diffusion of Gas/Vapor in Gas or Liquid.....	145
5.1 Data	145
5.1.1 Diffusion of Gas/Vapor in Gas.....	145
5.1.2 Diffusion in Supercritical Fluid Systems.....	276
5.1.3 Diffusion of Gas/Vapor in Liquid	314
5.2 References for 5.....	365
6 Diffusion of Gas in Solution	374
6.1 Data	374
6.1.1 Diffusion of Gas in Solution	374
6.1.2 Diffusion of Gas in Electrolyte Solution	396
6.2 References for 6.....	408