

# Contents

<b>1</b>	<b>Introduction . . . . .</b>	<b>1-1</b>
1.1	General features of state behavior of binary liquid mixtures . . . . .	1-1
1.1.1	Basic relations . . . . .	1-1
1.1.2	Derived volumetric quantities . . . . .	1-2
1.1.3	Volumetric properties of ideal mixture . . . . .	1-3
1.1.4	Dependence of volumetric quantities on composition . . . . .	1-4
1.2	Experimental and derived quantities . . . . .	1-6
1.3	Characterization of main groups of experimental methods used for measurements of volumetric properties of liquid mixtures . . . . .	1-7
1.3.1	Pycnometers and dilatometers . . . . .	1-8
1.3.2	Mixing dilatometers . . . . .	1-8
1.3.3	Piezometers . . . . .	1-9
1.3.4	Vibrating-tube densimeters . . . . .	1-9
1.3.5	Buoyancy methods . . . . .	1-10
1.3.6	Speed-of-sound method . . . . .	1-10
1.3.7	Piezothermal method . . . . .	1-11
1.4	Analysis of experimental uncertainties . . . . .	1-11
1.4.1	Estimation of uncertainty of mixture density calculated from excess volume . . . . .	1-11
1.4.2	Estimation of uncertainty of excess volume calculated from mixture density . . . . .	1-12
1.4.3	Estimation of uncertainty of isentropic compressibility calculated from density and speed of sound . . . . .	1-13
1.5	Correlations . . . . .	1-13
1.5.1	Correlation of mixture density as a function of composition (constant $T, P$ ) . . . . .	1-14
1.5.2	Correlation of excess volume as a function of composition (constant $T, P$ ) . . . . .	1-14
1.5.3	Correlation of dependence on temperature (constant $P, x_1$ ) . . . . .	1-15
1.5.4	Correlation of dependence on pressure (constant $T, x_1$ ) . . . . .	1-15
<b>2</b>	<b>Tables on volumetric properties . . . . .</b>	<b>2-1</b>
2.1	Introduction . . . . .	2-1
2.1.1	Property types . . . . .	2-2
2.2	Organic systems . . . . .	2-7
2.3	Aqueous-organic systems . . . . .	2-389
2.4	Systems containing inorganic substances . . . . .	2-428
<b>3</b>	<b>Instructions on using the computer program ELBT . . . . .</b>	<b>3-1</b>
3.1	Introduction . . . . .	3-1
3.2	System requirements . . . . .	3-1
3.3	Installing the program . . . . .	3-1

3.4	To start . . . . .	3-2
3.5	Visualization of numerical data . . . . .	3-3
3.5.1	PDF display . . . . .	3-3
3.5.2	SELF (Standard Electronic File) display . . . . .	3-3
3.5.2.1	SELF structure. Identifiers . . . . .	3-4
3.5.2.2	Physical quantities and physico-chemical properties . . . . .	3-5
3.5.2.3	Independent variables and dependent variables . . . . .	3-6
3.5.2.4	Parameters . . . . .	3-6
3.5.2.5	Symbols, units and scales of physical quantities . . . . .	3-6
3.5.2.6	Numerical data and estimated uncertainties . . . . .	3-6
3.5.2.7	Two-phase liquid-liquid systems . . . . .	3-7
3.5.2.8	Linked data files . . . . .	3-7
3.5.3	ELDATA display . . . . .	3-8
3.5.3.1	Selection of units . . . . .	3-9
3.5.4	Graphical display . . . . .	3-9
3.5.5	Correlating experimental data . . . . .	3-10
3.5.6	Output of correlated experimental data . . . . .	3-11
3.6	Creating SpreadsheetML documents . . . . .	3-14
<b>4</b>	<b>Indexes . . . . .</b>	<b>4-1</b>
4.1	Formula index of substances . . . . .	4-2
4.2	Name index of substances . . . . .	4-7
4.3	Class index of organic substances . . . . .	4-24
4.4	Class index of organic systems . . . . .	4-27
4.5	Class index of aqueous-organic systems . . . . .	4-94
4.6	Index of systems containing inorganic substances . . . . .	4-97
<b>5</b>	<b>General References . . . . .</b>	<b>5-1</b>

Volumetric Properties of Mixtures and Solutions  
Subvolume A: Binary Liquid Systems of Nonelectrolytes  
Kehiaian, H.V. (Ed.)  
2009, X, 563 p. 864 illus., Hardcover  
ISBN: 978-3-540-73583-0