

Contents

A reappraisal of the role of water in promoting amphiphilic assembly and structure	1
D. FENNELL EVANS and DAVID D. MILLER, <i>University of Minnesota, Minneapolis, USA</i>	
1. Introduction	1
2. Solvent-amphiphilic interactions that drive self-assembly	2
2.1. General comments	2
2.2. Nonaqueous solvents	4
2.3. Water	9
2.4. Compensation	13
3. Structure of amphiphilic assemblies	15
3.1. Thermodynamic theories of aggregation	15
4. Water mediated interactions between amphiphilic aggregates	27
4.1. Force measurements	27
4.2. Nonamphiphilic systems	29
4.3. Amphiphilic systems	32
5. Conclusion	36
References	37
 Solution properties of water-soluble polymers	 40
D. EAGLAND, <i>University of Bradford, Bradford</i>	
1. Introduction	40
2. Thermodynamic behaviour	50
3. Solution behaviour of nonionic polymers	60
4. Aqueous solution behaviour of polyelectrolytes	73
5. Interpolymer complex formation	94
5.1. Polyelectrolyte complexes	95
5.2. Complex formation involving hydrogen bond formation	98
6. Sorption behaviour of water-soluble polymers	106
7. Conclusion	119
Appendix	120
References	121

Hydration of surfaces with particular attention to micron-sized particles	127
KENNETH E. NEWMAN, <i>University of Sherbrooke, Sherbrooke, Quebec, Canada</i>	
1. Preamble	127
2. Experimental methods	128
2.1. Adsorption isotherms	128
2.2. Heats of immersion	131
2.3. Computer simulations	133
2.4. Dielectric studies	137
2.5. Vibrational spectroscopy	139
2.6. Optical spectroscopy	142
2.7. Magnetic resonance	143
2.8. X-ray, neutron and electron scattering	150
2.9. Other methods	152
3. Pore water	154
4. Metals	157
5. Oxides	158
5.1. Silicon dioxide	159
5.2. Others	160
6. Insoluble salts	161
7. Geological materials	162
7.1. Clays	163
7.2. Zeolites	166
8. Concluding remarks	167
References	167