

## Contents

<i>Dedication</i>	v
<i>List of Contributors</i>	xi
1. Introduction: Physical Gels from Synthetic and Biological Macromolecules W. BURCHARD AND S. B. ROSS-MURPHY	1
2. Viscoelastic Properties of Thermoreversible Gels K. TE NIJENHUIS	15
3. Amorphous Thermoreversible Gels of Solutions of Atactic Polystyrene J. ARNAUTS AND H. BERGHMANS	35
4. Ionomer Stars and End-Linked Ionomer Gels M. MÖLLER, E. MÜHLEISEN AND J. OMEIS	45
5. Scattering Studies from Physically Associating Ionomer Solutions A. M. PEDLEY, J. S. HIGGINS AND D. G. PEIFFER	65
6. Structure and Relaxation Behaviour of Physical Networks Based on Segmented Polyurethane S. SCHRADER, G. POHL, H.-E. CARIUS AND H. GOERING	77

7. Complex Formation and Dynamics in Polymer Melts R. STADLER AND L. DE LUCCA FREITAS	91
8. The Dynamics of Networks S. F. EDWARDS	103
9. Dynamics in Semidilute Solutions W. BROWN AND P. ŠTĚPÁNEK	111
10. Entanglement Effects in Polymer Networks and Melts S. HVIDT	125
11. Comparison of the Formation and Properties of Physical and Chemical Networks Prepared in the Swollen State L. Z. ROGOVINA	133
12. On the Structure of Poly( $\gamma$ -Benzyl-L-Glutamate) (PBLG) Gels Y. COHEN, Y. TALMON AND E. L. THOMAS	147
13. Behaviour of Poly( $\gamma$ -Benzyl- $\alpha$ , L-Glutamate) in Benzyl Alcohol Gels J. C. HORTON AND A. M. DONALD	159
14. Atypical Gels: Examples of Polymer Networks in Microemulsions H.-F. EICKE, C. QUELLET, GU XU AND G. RIESS	169
15. A 'Reel-Chain' Model for the Elasticity of Biopolymer Gels, and its Relationship to Slip-Link Treatments of Entanglements P. G. HIGGS AND R. C. BALL	185
16. Viscoelastic Properties of Biological Networks and Gels S. HVIDT AND K. HELLER	195
17. Shear Modulus — Concentration Relationships for Biopolymer Gels. Comparison of Independent and Cooperative Crosslink Descriptions A. H. CLARK, S. B. ROSS-MURPHY, K. NISHINARI AND M. WATASE	209

18. Scattering from a Biopolymer Solution in the Sol and Gel States: The Gelatin Example . . . . .	231
I. PEZRON, T. HERNING, M. DJABOUROV AND J. LEBLOND	
19. A Light-Scattering and Optical Rotation Study of Gelatin Gelation . . . . .	253
H.-U. TER MEER, A. LIPS AND J.-P. BUSNEL	
20. Structure and Rheological Properties of Kappa-Carrageenan Gels . . . . .	271
A.-M. HERMANSSON	
21. Physical Gelation Induced by Ionic Complexation: Pectin-Calcium Systems . . . . .	283
D. DURAND, C. BERTRAND, J.-P. BUSNEL, J. R. EMERY, M. A. V. AXELOS, J. F. THIBAULT, J. LEFEBVRE, J. L. DOUBLIER, A. H. CLARK AND A. LIPS	
22. Light Scattering from Xanthan Solution. Effect of Postfermentation Treatment . . . . .	301
A. K. WEHRHAHN, G. MULLER AND J. LE COURTIER	
23. Influence of Acetyl and Pyruvate Substituents on the Solution Properties of Xanthan Polysaccharide . . . . .	315
K. P. SHATWELL, I. W. SUTHERLAND AND S. B. ROSS-MURPHY	
24. Rheological Properties of Xanthan/Carob Mixtures in the Diluted and Semidiluted Concentration Regimes . . . . .	335
C. TONON, G. CUVELIER AND B. LAUNAY	
25. The Cytoplasm of Living Cells as a Reversible Gel Network . . . . .	345
K. LUBY-PHELPS	
26. Actin Filaments as a Model for Rigid Polymer Networks . . . . .	359
P. A. JANMEY, S. HVIDT, J. D. FERRY AND T. P. STOSSEL	
27. A Multiple Lumped Resonator (MLR) Viscoelastometer Study of Spectrin Molecular Dynamics . . . . .	371
M. L. SANDVOLD, A. MIKKELSEN AND A. ELGSAETER	

28. Gels from Epithelial Secretions . . . . .	379
A. SILBERBERG	
29. The Effects of Hydration on the Dynamic Mechanical Properties of Elastin . . . . .	391
M. A. LILLIE AND J. M. GOSLINE	
<i>Index</i> . . . . .	403