

**HANDBOOK
OF
LIPID BILAYERS**

SECOND EDITION

Derek Marsh



CRC Press
Taylor & Francis Group

HANDBOOK OF LIPID BILAYERS

SECOND EDITION

Derek Marsh



CRC Press

Taylor & Francis Group

Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business

CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

© 2013 by Taylor & Francis Group, LLC
CRC Press is an imprint of Taylor & Francis Group, an Informa business

No claim to original U.S. Government works

Printed on acid-free paper
Version Date: 20121214

International Standard Book Number: 978-1-4200-8832-8 (Hardback)

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the author and publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The authors and publishers have attempted to trace the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission to publish in this form has not been obtained. If any copyright material has not been acknowledged please write and let us know so we may rectify in any future reprint.

Except as permitted under U.S. Copyright Law, no part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

For permission to photocopy or use material electronically from this work, please access www.copyright.com (<http://www.copyright.com/>) or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of users. For organizations that have been granted a photocopy license by the CCC, a separate system of payment has been arranged.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Visit the Taylor & Francis Web site at
<http://www.taylorandfrancis.com>

and the CRC Press Web site at
<http://www.crcpress.com>

Brief Content

I	INTRODUCTION	1
I.1	Lipid Classification.....	3
I.2	Nomenclature of Lipids.....	7
I.3	Fatty Acids.....	33
II	PHOSPHOLIPIDS	43
II.1	Phospholipid Classification and Molecular Weights.....	45
II.2	Fatty Acid Composition of Naturally Occurring Phospholipids.....	99
II.3	Physicochemical Properties of Phospholipids.....	149
II.4	Phospholipid pK _a s.....	157
II.5	Crystal Structures of Phospholipids.....	165
II.6	Phase Behavior and Hydration.....	259
II.7	Calorimetric Data.....	297
II.8	X-Ray Diffraction Data.....	373
II.9	Densitometric Data.....	437
II.10	Elastic Constants.....	467
II.11	Dynamic Properties.....	481
II.12	Phase Transition Temperatures.....	539
II.13	Phase Diagrams: Binary and Ternary Mixtures.....	601
II.14	Non-Lamellar Phases (Hexagonal and Cubic).....	767
II.15	Critical Micelle Concentrations and Lipid Transfer.....	809
II.16	Bilayer-Bilayer Interactions.....	839
II.17	Ion-Binding Constants.....	853
III	GLYCOLIPIDS	861
III.1	Glycolipid Classification and Molecular Weights.....	863
III.2	Fatty Acid Composition of Naturally Occurring Glycolipids.....	885
III.3	Physicochemical Properties of Glycolipids.....	907
III.4	Glycolipid pK _a s.....	913
III.5	Crystal Structures.....	915
III.6	Phase Behavior and Hydration.....	959
III.7	Calorimetric Data.....	967
III.8	X-Ray Diffraction Data.....	985
III.9	Densitometric Data.....	1015
III.10	Elastic Constants.....	1027
III.11	Dynamic Properties.....	1031
III.12	Phase Transition Temperatures.....	1039
III.13	Phase Diagrams: Binary Mixtures.....	1057
III.14	Non-Lamellar Phases (Hexagonal and Cubic).....	1075
III.15	Critical Micelle Concentrations and Lipid Transfer.....	1103
III.16	Bilayer-Bilayer Interactions.....	1107
III.17	Ion-Binding Constants.....	1113
	Index	1115