

**STP 1396**

***Synthetic Bioabsorbable Polymers  
for Implants***

*C. Mauli Agrawal, Jack E. Parr, and Steve T. Lin, editors*

ASTM Stock Number: STP1396



ASTM  
100 Barr Harbor Drive  
PO Box C700  
West Conshohocken, PA 19428-2959

Printed in the U. S. A.

# Contents

## Overview

<b>Mechanical Evaluation of 70:30 Poly (L/DL-Lactide) Bone Screws After <i>In Vitro</i> Degradation</b> —J. A. DISEGI, J. W. DWYER, AND R. E. FAIRER	1
<b>Evaluation of Adhesive and Absorption Properties for Absorbable Tissue Adhesives</b> —J. M. ALLAN, J. A. FLALE, J. D. KLINE, R. L. DOOLEY, AND S. W. SHALABY	8
<b>Bacterial Polyesters for Biomedical Applications: <i>In vitro</i> and <i>in vivo</i> Assessments of Sterilization, Degradation Rate and Biocompatibility of Poly (<math>\beta</math>-hydroxyoctanoate) (PHO)</b> —Y. MAROIS, Z. ZHANG, M. VERT, X. DENG, R. W. LENZ, AND R. GUIDOIN	12
<b>Novel Biodegradable Polyurethanes for Medical Applications</b> —K. GORNA AND S. GOGOLEWSKI	39
<b>Effects of Thermal History and Physical Aging on Thermal Properties of Poly-L-Lactide</b> —M. DENG, J. M. ALLAN, J. T. CORBETT, AND S. W. SHALABY	58
<b>Resorption Profile and Biological Response of Calcium Phosphate filled PLLA and PHB7V</b> —N. L. JONES, J. J. COOPER, R. D. WATERS, AND D. F. WILLIAMS	69
<b>The Clinical Evaluation of a Bioresorbable Minipin</b> —D. W. HUTMACHER, A. KIRSCH, K. L. ACKERMANN, H. LIEDTKE, AND M. B. HÜRZELER	83
<b>The Use of the Vibrating Particle Technique to Fabricate Highly Porous And Permeable Biodegradable Scaffolds</b> —C. M. AGRAWAL, J. S. MCKINNEY, D. HUANG, AND K. A. ATHANASIOU	99
<b>Modulation of Pore Topography of Tissue Engineering Constructs</b> —K. J. L. BURG, C. E. AUSTIN, AND J. P. SWIGGETT	115
<b><i>In Vitro</i> Compression Testing of Fiber-Reinforced, Bioabsorbable, Porous Implants</b> —M. A. SLIVKA, N. C. LEATHERBURY, K. KIESWETTER, AND G. G. NIEDERAUER	124
<b>Clinical Evaluation of a Bioresorbable Membrane for Hard Tissue Regeneration</b> —D. W. HUTMACHER, A. KIRSCH, K. L. ACKERMANN, AND M. B. HÜRZELER	136
<b>Design and Fabrication of a 3D Scaffold for Tissue Engineering Bone</b> —D. W. HUTMACHER, S. H. TEOH, I. ZEIN, K. W. NG, J. T. SCHANTZ, AND J. C. LEAHY	152