



The Textile Institute

# Textile Progress

September 2010

Vol 42 No 3

ISSN 0040-5167

ISBN-13: 978-0-415-61505-1

ISBN-10: 0-415-61505-1

## **Geotextiles: production, properties and performance**

Amit Rawal, Tahir Shah  
and Subhash Anand



Taylor & Francis  
Taylor & Francis



# CONTENTS

<b>1. Introduction</b>	181
1.1. Historical development	181
1.2. Functions of geotextiles	182
1.3. Fibres used in geotextiles	183
1.3.1. <i>Synthetic vs. natural fibres for geotextile applications</i>	185
1.3.2. <i>Major geotextile applications</i>	186
1.4. Production of geotextiles	187
1.5. Market outlook	190
<b>2. Properties of geotextiles</b>	191
2.1. Mechanical properties of geotextiles	191
2.1.1. <i>Tensile and puncture properties of geotextiles</i>	191
2.1.2. <i>Frictional behaviour of geotextiles</i>	194
2.1.3. <i>Compressional behaviour of geotextiles</i>	197
2.1.4. <i>Creep behaviour of geotextiles</i>	198
2.2. Hydraulic properties of geotextiles	198
2.2.1. <i>Porous structure of geotextiles</i>	199
2.2.2. <i>Permeability characteristics of geotextiles</i>	200
2.3. Chemical properties	203
2.4. Process–structure–property relationships	205
2.5. Test methods of geotextiles	209
<b>3. Performance of geotextiles</b>	209
3.1. Design of geotextiles	209
3.2. Durability of geotextiles	217
<b>4. Summary and perspectives</b>	220