1. Record Nr. UNINA9911004823103321 Autore Martin R **Titolo** Ageing of Composites Pubbl/distr/stampa Burlington, : Elsevier Science, 2008 **ISBN** 1-84569-493-7 Descrizione fisica 1 online resource (543 p.) Collana Woodhead Publishing Series in Composites Science and Engineering Disciplina 620.112 Soggetti Composite materials Lingua di pubblicazione Inglese Materiale a stampa **Formato** Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di contenuto Cover; Ageing of composites; Copyright; Contents; Contributor contact details; Introduction; Part I Ageing of composites - processes and modelling; 1 The physical and chemical ageing of polymeric composites; 1.1 Introduction; 1.2 Background; 1.3 Viscoelasticity; 1.4 Ageing and effective time; 1.5 Development of an ageing study; 1.6 Summary; 1.7 References; 2 Ageing of glass-ceramic matrix composites; 2.1 Introduction; 2.2 Composite fabrication; 2.3 Fastfracture behaviour; 2.4 Long-term environmental ageing behaviour; 2.5 Mechanism of oxidation degradation 2.6 Development of a failure mechanism map 2.7 Oxidation behaviour under applied stress; 2.8 Thermal shock cycling; 2.9 Composite protection methods; 2.10 Conclusions and future trends; 2.11 References: 3 Chemical ageing mechanisms of glass fibre reinforced concrete; 3.1 Introduction; 3.2 Problem identification; 3.3 Experimental methods; 3.4 Modelling of the chemical attack of fibres; 3.5 Interface effects; 3.6 Composite loading effects; 3.7 In situ degradation of composites due to chemical attack; 3.8 Conclusions; 3.9 Acknowledgements; 3.10 References 4 Stress corrosion cracking in glass reinforced polymer composites 4.1 Introduction; 4.2 Overview of stress corrosion cracking in glass reinforced polymer matrix composites; 4.3 Stress corrosion cracking of

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## Sommario/riassunto

Ageing of composites is a highly topical subject given the increasing use of composites in structural applications in many industries. Ageing of composites addresses many of the uncertainties about the long-term performance of composites and how they age under conditions encountered in service. The first part of the book reviews processes and modelling of composite ageing including physical and chemical ageing of polymeric composites, ageing of glass-ceramic matrix composites, chemical ageing mechanisms, stress corrosion cracking, thermo-oxidative ageing, spectroscopy of ageing composit