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First published in 1962, and now in its fourth edition, Physical properties of textile fibres has become a classic, providing the standard reference on key aspects of fibre performance. The new edition has been substantially reorganised and revised to reflect new research. After introductory chapters on fibre structure, testing and sampling, the book reviews key fibre properties, their technical significance, factors affecting these properties and measurement issues. Each chapter covers both natural and synthetic fibres, including high-performance fibres. The book first reviews properties such as fineness, length and density. It then considers thermal properties and reaction to moisture. A further group of chapters then reviews tensile properties, thermo-mechanical responses, fibre breakage and fatigue. Finally, the book discusses dielectric properties, electrical resistance and static, optical properties and fibre friction. Written by one of the world's leading authorities, the fourth edition of Physical properties of textile fibres consolidates its reputation as a standard work both for those working in the textile industry and those teaching and studying textile science. A standard reference on key aspects of fibre performance

An essential read and reference for textile technologists, fibre scientists, textile engineers and those in academia

Provides substantial updated material on fibre structure and new test methods, data and theories regarding properties of textile fibres

Those working in the textile industry and those teaching and studying textile science

Introduction to fibre structure; Testing and sampling; Fibre fineness and transverse dimensions; Fibre length; Fibre density; Thermal properties; Equilibrium absorption of water; Heats of sorption; Rate of absorption of moisture; The retention of liquid water; Swelling; Theories of moisture sorption; Tensile properties; The effects of variability; Elastic recovery; Rheology; Directional effects; Thermo-mechanical responses; Fibre breakage and fatigue; Theories of mechanical properties; Dielectric properties; Electrical resistance; Static electricity; Optical properties; Fibre friction

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Offers up-to-date coverage of new and advanced materials for the fiber and textile industries

Reviews structure-property relationships of high-performance natural, synthetic polymer and inorganic fibers

Offers a range of perspectives on the tensile properties of fibers from an international team of authors with diverse expertise in academic research and in textile development and manufacture

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Accept Decline

Textiles are ubiquitous materials that many of us take for granted in our everyday lives. We rely on our clothes to protect us from the environment, for modesty, to enhance our appearance and reflect our personality. Beyond these traditional applications, high-performance fibres have been specifically developed for more demanding roles in protective garments, industrial work-wear, car tyres, parachutes and artificial arteries. This is the only book to describe the chemistry of textile fibres at a level appropriate for 'A' level students and first-year undergraduates following courses in textile science and technology. Readers with a background in chemistry and an interest in the principles of functional fibre development will also find it to be of value. The book explains the characteristics required for polymers to be fibre-forming, the general physical properties needed from textile fibres, and the chemistry of important natural and synthetic fibres. The book also deals with the essential chemistry of "high-performance" fibres that possess functionalities beyond those of materials traditionally used for apparel. Later chapters describe methods of fibre enhancement and fibre blending.

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