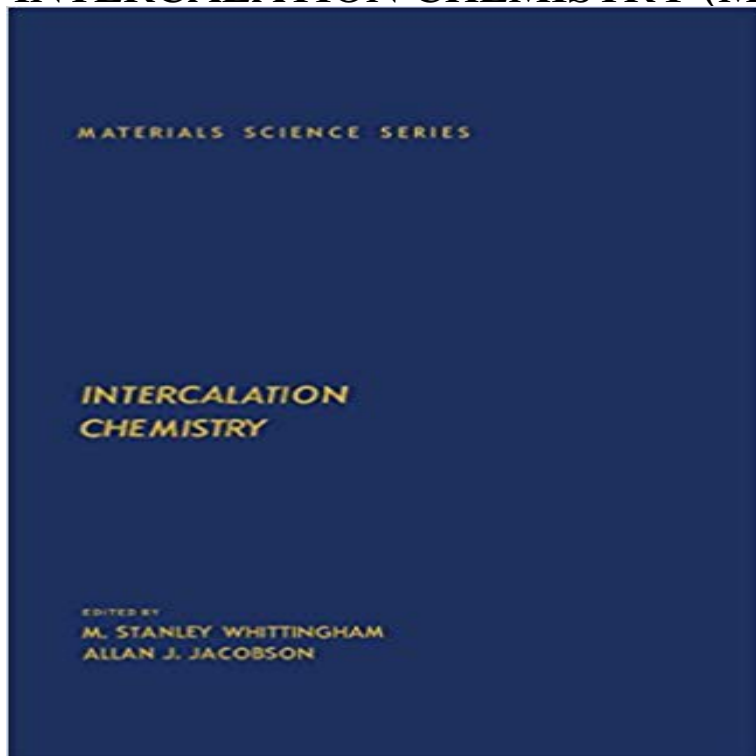


INTERCALATION CHEMISTRY (Materials science and technology)



Intercalation Chemistry introduces the specialist reader to the breadth of intercalation chemistry and the newcomer to the diverse research opportunities and challenges available in synthetic and reaction chemistry and also in the controlled modification of physical properties. Topics covered range from graphite chemistry to sheet silicate intercalates, diffusion and shape-selective catalysis in zeolites, organic and organometallic intercalation compounds of the transition metal dichalcogenides, and solvated intercalation compounds of layered chalcogenide and oxide bronzes. This book is comprised of 18 chapters and begins with an introduction to intercalation chemistry. The discussions that follow focus on the intercalation chemistry of graphite and of complex oxides with both two (clays and acid phosphates)- and three (zeolites)-dimensional structures, along with organic conversions that have been discovered using essentially smectite (i.e., montmorillonite- and hectorite-based) intercalates. The next chapters focus on γ -aluminas, acid salts of tetravalent metals with layered structure, and layered chalcogenides and halides with simple and hydrated cations as well as organic and organometallic ions. The book also considers the chemistry, thermodynamics, and applications of intermetallic compounds that incorporate hydrogen, intercalation in the context of biological systems, crystallographic shear structures, and intercalation reactions of oxides and chalcogenides of vanadium, molybdenum, and tungsten. The final chapter touches on the physical properties of some intercalation compounds of the dichalcogenides. This book is intended for researchers in the various materials science disciplines.

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