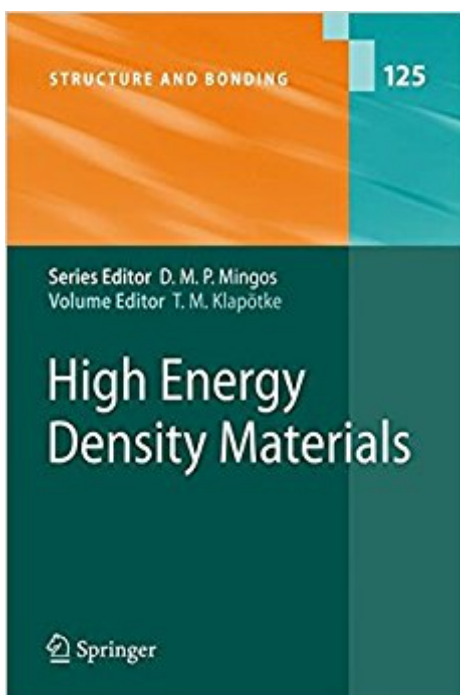


The book was found

# High Energy Density Materials (Structure And Bonding)



## Synopsis

This book summarizes some recent developments in the area of high-energy high-density (HEDM) materials. Rather than being comprehensive in scope, emphasis is given to structural and bonding features of highly energetic materials with possible applications as high explosives (secondary explosives) or propellants. In this book we do not focus on primary explosives (e.g. lead azide replacements) since by definition the explosive performance (detonation velocity and detonation pressure) of such materials - although very sensitive - are much less energetic than secondary (high) explosives. Modern HEDMs derive most of their energy (i) from oxidation of the carbon backbone, as in traditional energetic materials, (ii) from ring or cage strain, or (iii) from their very high positive heat of formation. Examples of the first class are traditional explosives, such as TNT, RDX and HMX. Modern nitro-compounds, such as CL-20 or the recently reported hepta- and octa-trocubanes, belong to the second group of explosives and possess very high densities and enhance the energies utilizing substantial cage strain. Members of the third class of compounds are high-nitrogen compounds (up to 85% nitrogen content), such as aminotetrazole and nitrotetrazole derivatives, which show the desired remarkable insensitivity to electrostatic discharge, friction and impact, while having very high positive heats of formation and therefore very high explosive powers. The synthesis of energetic, non-nuclear materials for military application has been a long-term goal in various academic and military research groups worldwide. Some of the current challenges that face HEDM scientists are: Demand for environmentally compatible and toxicologically acceptable explosives and propellants. Examples are replacements for TNT, RDX and HMX since nitro-explosives per se, as well as their environmental transformation products, are toxic.

## Book Information

Series: Structure and Bonding (Book 125)

Hardcover: 286 pages

Publisher: Springer; 2007 edition (August 23, 2007)

Language: English

ISBN-10: 3540722017

ISBN-13: 978-3540722014

Product Dimensions: 6.1 x 0.7 x 9.2 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #12,302,798 in Books (See Top 100 in Books) #81 in Books > Science &

Math > Chemistry > Organic > Heterocyclic #3408 in [Books](#) > Science & Math > Chemistry > Inorganic #8584 in [Books](#) > Medical Books > Medicine > Internal Medicine > Pathology > Clinical Chemistry

[Download to continue reading...](#)

High Energy Density Materials (Structure and Bonding) Osteoporosis: How To Reverse Osteoporosis, Build Bone Density And Regain Your Life (Osteoporosis, Bone Density, Strong Bones, Healthy Bones, Osteoporosis Cure) High-Energy-Density Physics: Fundamentals, Inertial Fusion, and Experimental Astrophysics (Shock Wave and High Pressure Phenomena) Structure and Bonding in Crystalline Materials High Fiber Recipes: 101 Quick and Easy High Fiber Recipes for Breakfast, Snacks, Side Dishes, Dinner and Dessert (high fiber cookbook, high fiber diet, high fiber recipes, high fiber cooking) Foundations of High-Energy-Density Physics: Physical Processes of Matter at Extreme Conditions Bonding and Structure of Molecules and Solids (Oxford Science Publications) Chemical Structure and Bonding Structure and Bonding (Basic Concepts In Chemistry) Reiki: The Healing Energy of Reiki - Beginner's Guide for Reiki Energy and Spiritual Healing: Reiki: Easy and Simple Energy Healing Techniques Using the ... Energy Healing for Beginners Book 1) Power Density: A Key to Understanding Energy Sources and Uses (MIT Press) The Structure of Materials (Mit Series in Materials Science and Engineering) High Blood Pressure Cure: How To Lower Blood Pressure Naturally in 30 Days (Alternative Medicine, Natural Cures, Natural Remedies, High Blood Pressure ... Cures for High Blood Pressure, High BI) Energy Harvesting: Solar, Wind, and Ocean Energy Conversion Systems (Energy, Power Electronics, and Machines) Renewable Energy Made Easy: Free Energy from Solar, Wind, Hydropower, and Other Alternative Energy Sources Crystals: The Ultimate Guide To: Energy Fields, Auras, Chakras and Emotional Healing (Aura, Healing Stones, Crystal Energy, Crystal Healing, Energy Fields, Emotional Healing, Gemstone) Solution Key for Algebra and Trigonometry: Structure and Method: Book 2 (McDougal Littell Structure & Method) Advanced Organic Chemistry: Part A: Structure and Mechanisms: Structure and Mechanisms Pt. A Engineering Materials 3: Materials Failure Analysis: Case Studies and Design Implications (International Series on Materials Science and Technology) (v. 3) Bonding and the Case for Permanence: Preventing mental illness, crime, and homelessness among children in foster care and adoption

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)