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THE PROPERTIES OF ENERGETIC MATERIALS

SENSITIVITY, PHYSICAL AND THERMODYNAMIC PROPERTIES

For a chemist who is concerned with the synthesis of new energetic compounds, it is essential to be able to assess physical and thermodynamic properties, as well as the sensitivity, of possible new energetic compounds before synthesis is attempted.

Various approaches have been developed to predict important aspects of the physical and thermodynamic properties of energetic materials including (but not limited to): crystal density, heat of formation, melting point, enthalpy of fusion and enthalpy of sublimation of an organic energetic compound. Since an organic energetic material consists of metastable molecules capable of undergoing very rapid and highly exothermic reactions, many methods have been developed to estimate the sensitivity of an energetic compound with respect to detonation causing external stimuli such as heat, friction, impact, shock and electrostatic discharge.

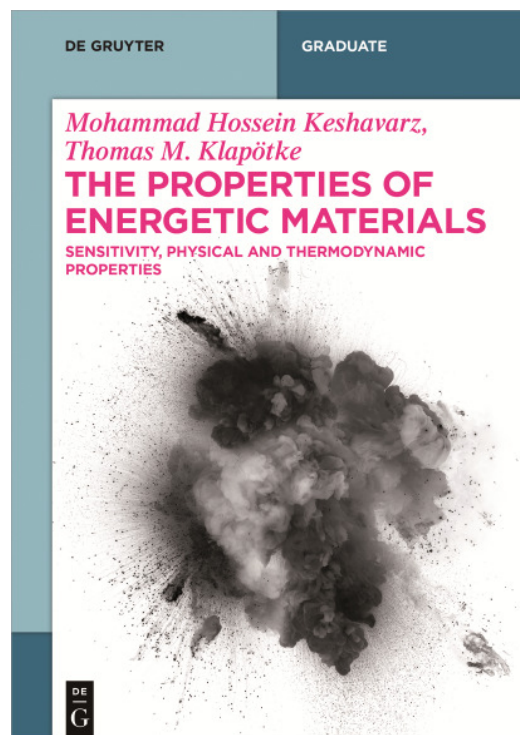
This book introduces these methods and demonstrates those methods which can be easily applied.

- Presents methods for the design, synthesis and development of novel energetic compounds.
- Tools to predict the performance of new compounds for reducing costs associated with synthesis, testing and evaluation of these materials are discussed.
- Suitable for advanced students in chemistry, chemical engineering or materials science as well as researchers in the pyrotechnics, mining, oil and gas, and civil engineering industries.

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