Energetic materials at extreme conditions

Millar, David I. A., author

Abstrak

David I.A. Millar's thesis explores the effects of extreme conditions on energetic materials. His study identifies and structurally characterises new polymorphs obtained at high pressures and/or temperatures. The performance of energetic materials (pyrotechnics, propellants and explosives) can depend on a number of factors including sensitivity to detonation, detonation velocity, and chemical and thermal stability. Polymorphism and solid-state phase transitions may therefore have significant consequences for the performance and safety of energetic materials. In order to model the behaviour of these important materials effectively under operational conditions it is essential to obtain detailed structural information at a range of temperatures and pressures.