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Pressing induced polymorphic phase transition in submicron-sized gamma-HMX¹ DAVID MOORE, KIEN-YIN LEE, Los Alamos National Laboratory — Submicron HMX has been produced and characterized to be less sensitive than impact standard HMX in small-scale sensitivity tests. The sm-HMX was found to be the gamma polymorph and to be stable under ambient conditions for at least a year. Pressing of sm-HMX in a small diameter pellet press at pressures from 10 000 psi to 31 000 psi and 1 to 5 minute hold times was found to promote the gamma to beta polymorphic phase transition. The fraction converted and rate of conversion versus time after pellet removal from the press were found to fit a sigmoidal curve, indicating nucleation and growth as a possible polymorphic transition mechanism.

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Prefer Oral Session
 Prefer Poster Session

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