The Importance of Gruneisen Gamma in the Performance of SiO2 Double-Shell Capsules*

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February 23, 2006

Prepared for a panel discussion at the Workshop on Accelerator-Driven Warm-Dense-Matter Physics in Pleasanton California

*This work was performed under the auspices of the U.S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under contract No. W-7405Eng-48.

Gruneisen Gamma

Total Pressure is sum of cold and thermal pressures

$$P(\rho,T) = P_C(\rho) + P_T(\rho,T)$$

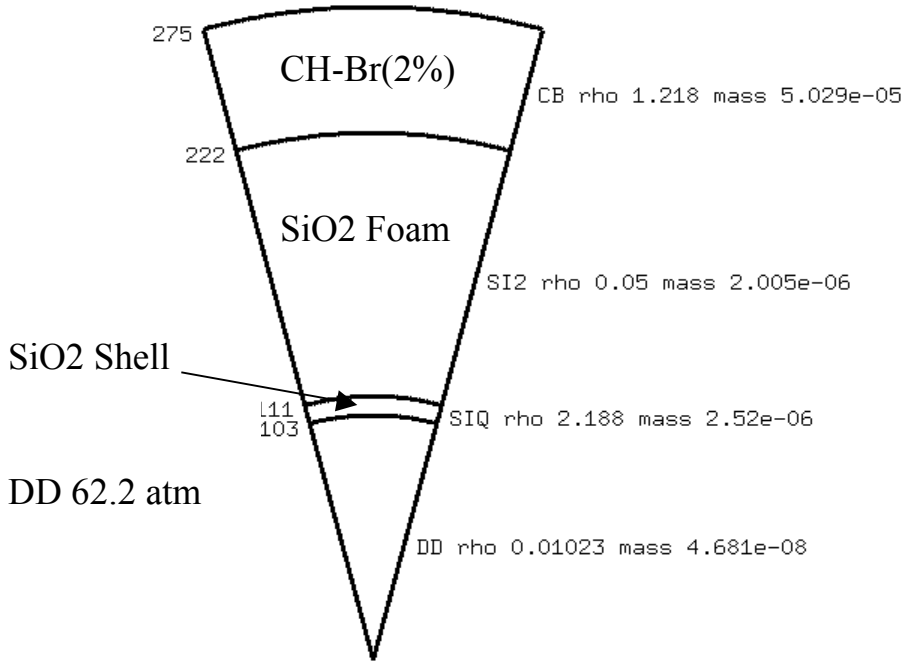
The thermal pressure can be expressed in terms of thermal energy.

$$P(\rho,T) = P_C(\rho) + \gamma(\rho)\rho\left(\varepsilon(\rho,T) - \varepsilon(\rho,0)\right)$$

Definition of Gruneisen Gamma

$$\gamma = \frac{P_T(\rho,T)}{\rho\left(\varepsilon(\rho,T) - \varepsilon(\rho,0)\right)}$$

Glass Double-Shell Target for Ω



Initial Geometry for Amendt's Double-Shell

Gruneisen gamma of glass effect M-band driven motion of glass interface

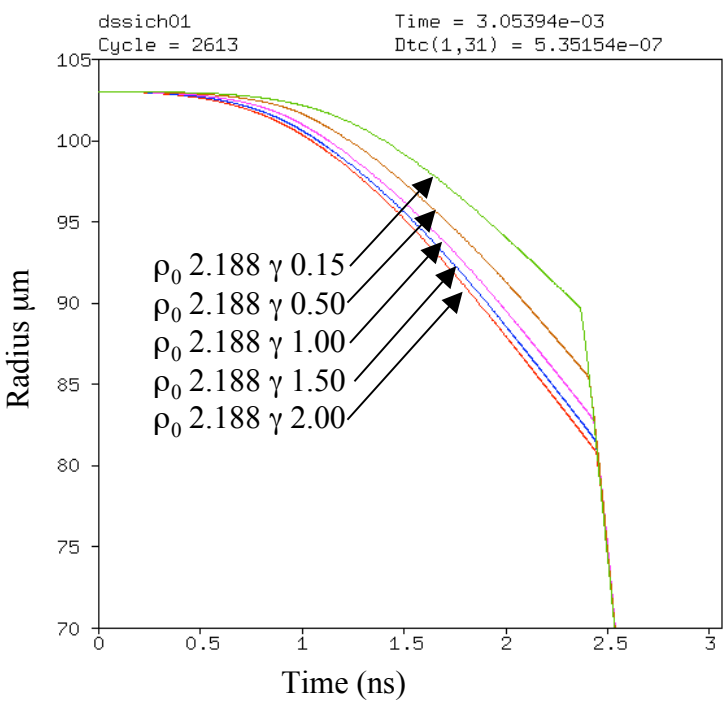


Figure 3a: Blow-Off Trajectories for Different γ with Constant ρ_0

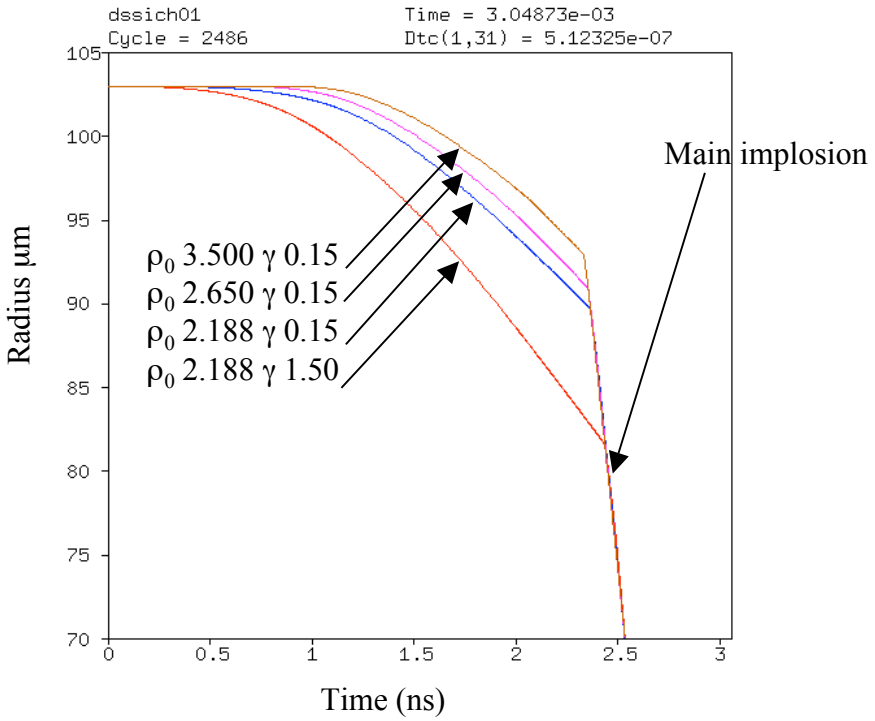
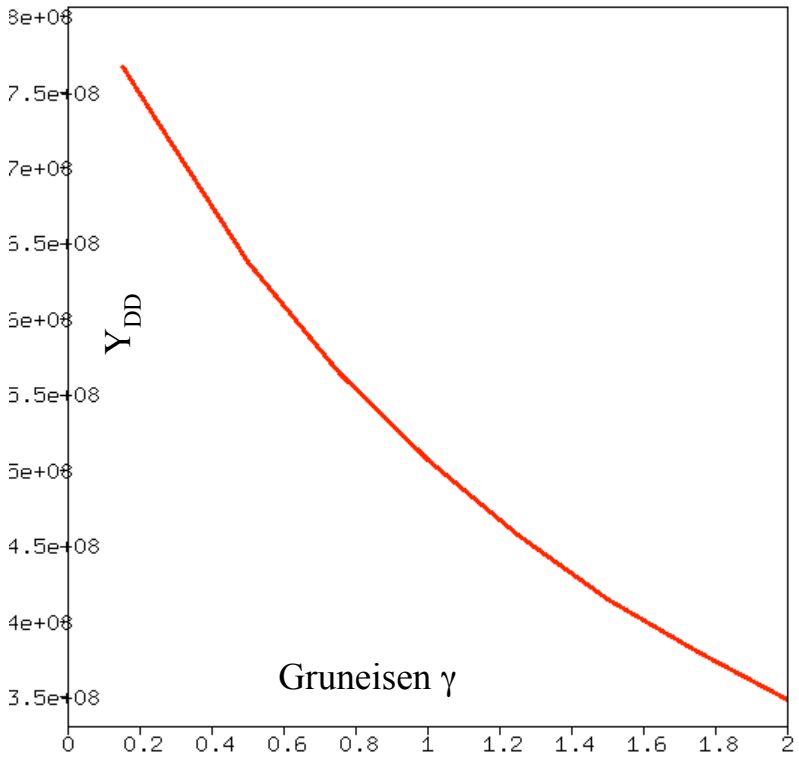
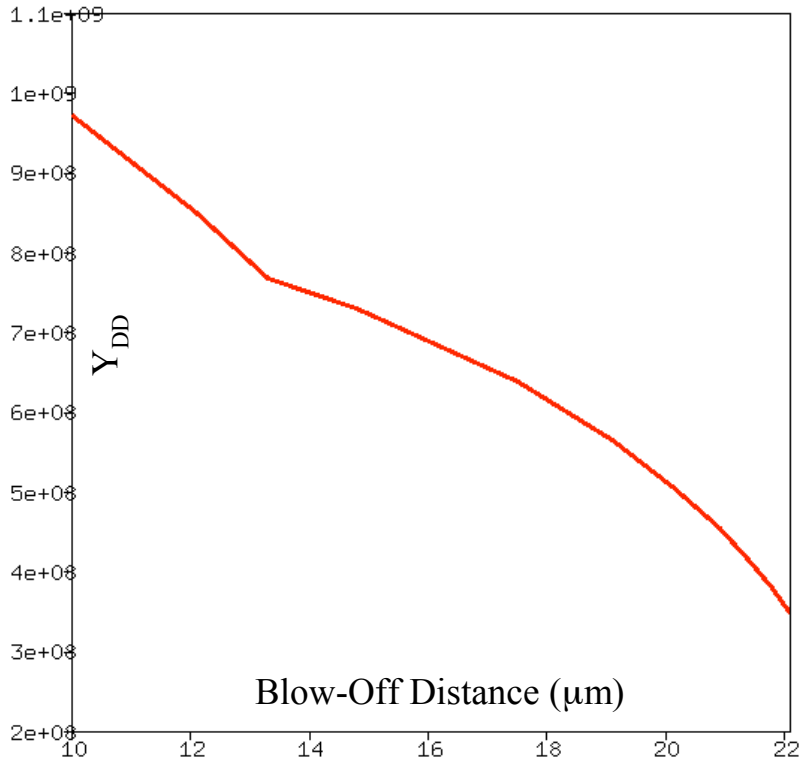


Figure 3b: Blow-Off Trajectories for Different ρ_0 with Constant γ

Gruneisen gamma has a big effect on neutron yield



Y_{DD} as a Function of Gruneisen γ.



Y_{DD} as a Function of Glass Blow-Off Distance