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The Effects of Kinetically Enhanced Interfacial Mix on Reactivity Variation in Omega Capsules[1] WILLIAM TAITANO, ANDREI SIMAKOV, LUIS CHACON, BRETT KEENAN, STEVEN ANDERSON, Los Alamos National Laboratory — Analyzing the effects of the hydrodynamic mix has been an essential part of designing ICF targets. In contrast, atomic mixing processes due to kinetic effects have largely been overlooked until recent years. Various studies have been performed both theoretical and computational to assess the role of these effects on the yield. A particular experiment (amongst many) which has challenged our understanding of both kinetic and hydrodynamic theory is the so-called Rygg experiment [1]. The targets were comprised of a direct drive CH capsule with a D-^{3}He fill that was varied in concentration while ensuring hydro-equivalence (the initial total mass and pressure are kept fixed). In the experiments, anomalous (non-hydrodynamic) yield variations were observed that had eluded explanations thus far. A recent fuel (D-3He) only Vlasov-Fokker-Planck (VFP) simulation [2] of a similar experiment has shown how kinetically enhanced fuel-species separation can partially predict the observational yield trend. In this work, we present our results on similar simulations with the CH pusher partially modeled to assess the interplay of interface dynamics on the yield. [1] J. R. Rygg et al., Phys. Plasmas, 13, 052702 (2006) [2] W. T. Taitano et al., Phys. Plasmas, 25, 056310 (2018)

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