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Results from Marble Experiments Using an Argon/Tritium Fill Gas for Studying the Effect of Heterogeneous Mix on Thermonuclear Burn[1] THOMAS J MURPHY, BRIAN J ALBRIGHT, MELISSA R DOUGLAS, TANA CARDENAS, JAMES COOLEY, THOMAS DAY, MARK GUNDERSON, JEFFREY HAACK, BRIAN HAINES, CHRISTOPHER HAMILTON, YONGHO KIM, MATTHEW LEE, JOHN OERTEL, RICHARD OLSON, BLAINE RANDOLPH, JOSEPH SMIDT, LIN YIN, Los Alamos National Laboratory — The Marble[2] campaign on NIF quantifies the effect of heterogeneous mix on thermonuclear burn for comparison to a probability distribution function (PDF) burn model.[3] MARBLE utilizes plastic capsules filled with deuterated plastic foam and tritium-containing gas. Indirect-drive experiments in which the Marble capsules were filled with a hydrogen/tritium gas mix and driven with either a single strong shock or using a 2-shock drive have been completed. The ratio of DT to DD neutron yield for these shots is consistent with that for uniform atomic mix regardless of the initial morphology of the foam. Recent experiments, in which the hydrogen-tritium fill gas is replaced with an argon-tritium mixture, has shown the expected decrease in DT/DD yield ratio with non-uniform initial foam morphology.

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[2]T J Murphy *et al,* J Phys:Conf Series **717**, 012072 (2016).
[3]J R Fincke, unpublished; J R Ristorcelli, Phys Fluids 29, 020705 (2017).

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