

Abstract Submitted
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Nano-Al Reaction with Nitrogen in the Burn Front of Oxygen-Free Energetic Materials BRYCE TAPPAN, STEVEN SON, DAVID MOORE, Los Alamos National Laboratory — Nano-particulate aluminum metal was added to the high nitrogen energetic materials dihydrazinotetrazine (DHT) and triaminoguanidium azotetrazolate (TAGzT) in order to determine the effects on decomposition behavior. Standard safety testing (sensitivity to impact, spark and friction) are reported, show that the addition of nano-Al actually decreases the sensitivity of the pure DHT and TAGzT. Thermo-equilibrium calculations (Cheetah) indicate that the all of the Al reacts to form AlN in both materials at the levels of interest, and the calculated specific impulses are reported. Emission spectra were collected to determine AlN formation in combustion. Burning rates were also collected, and the effects of nano-Al on rates are discussed.

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