

Materials List for:

Reaction Kinetics and Combustion Dynamics of I₄O₉ and Aluminum Mixtures

Dylan K. Smith¹, Michelle L. Pantoya¹, Jeffrey S. Parkey², Mehmet Kesmez²

¹Department of Mechanical Engineering, Texas Tech University

²Lynntech Inc.

Correspondence to: Michelle L. Pantoya at michelle.pantoya@ttu.edu

URL: <https://www.jove.com/video/54661>

DOI: [doi:10.3791/54661](https://doi.org/10.3791/54661)

Materials

Name	Company	Catalog Number	Comments
Iodine pentoxide (Commercial I ₂ O ₅)	Sigma Aldrich	229709	Commercial I ₂ O ₅
Iodic Acid (Commercial HIO ₃)	Alfa Aesar	A11925	Comercial HIO ₃
Tetraiodine nonoxide (I ₄ O ₉)	Lynntech Inc		synthesized using a dry process
Water			Local distilled water run through micron filter
80 nm Aluminum	NovaCentrix	AL-80-P	Nano Aluminum
Differential Scanning Calorimeter with Thermal Gravimetric Analyzer (DSC-TGA)	Netzsch	STA-449	Equilibrium analysis of heat flow and mass loss
Sonic Wand	Misonix	Sonicator 3000	Provides ultrasonic waves to aid intermixing of reactant powders
Phantom High Speed Camera	Vision Research	Phantom 2512	High speed camera for visualizing flame front
Mass Balance	Ohaus	Ohaus Explorer	Weigh powders with a 0.1 mg resolution up to a 110 g capacity