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COMBUSTION INSTABILITY OF SOLID PROPELLENTS: EFFECT OF OXIDIZER PARTICLE SIZE, OXIDIZER/FUEL RATIO AND ADDITION OF TITANIUM DIOXIDE TO PLASTIC PROPELLENTS.

 Authors: [R. D. Gould](#); [ROCKET PROPULSION ESTABLISHMENT WESTCOTT \(ENGLAND\)](#)

Abstract: The effect of variations in the composition of solid propellents on their tendency to show combustion instability at 1000 psi has been investigated using a T burner. It has been shown that ammonium perchlorate particle size can have a large effect on the acoustic response and that this is frequency-dependent. **Titanium dioxide** is usually added to plastic propellents to promote stable combustion and the mechanism of its action has been determined. With a view to the potential use of oxygen-balanced propellents the effect of varying the oxidizer/fuel ratio of plastic propellents has also been studied. (Author)

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