

## **Combustion Characteristics of GAP Fuels for Ducted Rocket Engine**

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**ABSTRACT:** The combustion characteristics of glycidyl azide polymer (GAP) based energetic fuels and ducted rocket engine were evaluated in order to obtain combustion temperature performances of GAP energetic fuels. The Flame structures of GAP/HMX and GAP/AP like that of double-base propellant and composite propellant respectively, but their flame temperatures are lower than 2000K. The secondary combustion tests of GAP fuel were conducted by a direct connect flow ducted rocket engine about Mach 2. The flame temperatures at rocket nozzle are not higher than 2500K at about experimental specific impulse 350s.

**Keywords:** burning rate; combustion temperature; GAP; HMX; AP; ducted rocket