

Review on Typical Ingredients for Ammonium Perchlorate Based Solid Propellant

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ABSTRACT

Ammonium perchlorate (AP) based solid propellant is a modern solid rocket propellant used in various applications. The combustion characteristics of AP based composite propellants were extensively studied by many research scholars to gain higher thrust. The amount of thrust and the thrust profile, which may be obtained from a specific grain design, is mainly determined by the propellant composition and the manufacturing process that produces the solid propellant. This article is intended to review and discuss several aspects of the composition and preparation of the solid rocket propellant. The analysis covers the main ingredients of AP based propellants such as the binder, oxidizer, metal fuel, and plasticizers. The main conclusions are derived from each of its components with specific methods of good manufacturing practices. In conclusion, the AP based solid propellant, like other composite propellants is highly influenced by its composition. However, the quality of the finished grain is mainly due to the manufacturing process.

KEYWORDS: Ammonium Perchlorate, Composition, Solid Propellant

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