

## Abstract Details

**Title:** Development Rocket Performance of 107mm Using Composite Propellant

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**Abstract:** The design of 107mm solid rocket motor using hydroxyl-telechelic poly-butadiene (HTPB) propellant to increase the rocket performance of 107mm and details study of the internal ballistic affecting performance of the motor using solid propellant will be analyzed. Both approaches analytical and experimental have been used to calculate the internal ballistic parameters and performance. This objective of this study will be achieved by the grain configuration design, propellant formulation design, small batches of propellant and firing test. The basic solid rocket motor is the double base propellant. In this study we used composite propellant (HTPB) instead of double base, the solid rocket motor composite propellant designed by two formulation. First RMD-107-1 formulation giving low burning rate 11.8mm/s, this result is not suitable for requested design. Second RMD-107-2 formulation giving high burning rate 31.41mm/s. This formulation high burning rate is adopted according to the requirement for our design. Six degree of freedom (6DOF) will be used to calculate the range of tow motors. Original motor and modified one, experimentally test carried for two motors. The original motors represent the performance that was designed for double base propellant. Modified motor represent the performance for modified grain propellant which was design by using composite propellant. Therefore the original motor and modified will be designed with same combustion chamber and nozzle.

**Keywords:** Thrust, Pressure, solid propellant, Internal Ballistic, Solid Rocket Motor.