Ball is first when it comes to innovative space technology. Spacecraft propellant is going green, and we are on the team that enables the first time our nation will use a spacecraft to demonstrate a new high-performance, non-toxic propulsion fuel on orbit.
Ball Aerospace is working with NASA on a technology designed to prove the practical capabilities of a new propellant for future use in the aerospace industry. The Green Propellant Infusion Mission program will demonstrate a hydroxyl ammonium nitrate based fuel/oxidizer propellant blend called AF-M315E. The newly introduced green propellant is an alternative to the traditional toxic spacecraft fuel, hydrazine, and was developed by the U.S. Air Force Research Laboratory at Edwards Air Force Base in California. In addition to enabling higher performance and improved safety for industry workers, the new propellant is less harmful to the environment and decreases the complexity and cost of launch processing. The capabilities of the non-toxic propellant will be tested during a 13-month spaceflight experiment.

**OUR ROLE**

The GPIM project is a Technology Demonstration Mission managed by NASA Marshall Space Flight Center (MSFC) for the Space Technology Mission. Ball Aerospace, the prime contractor and principal investigator, leads a team of co-investigators from Aerojet Rocketdyne, Edwards Air Force Research Laboratory (AFRL), NASA Glenn Research Center (GRC), NASA Goddard Space Flight Center (GSFC) and NASA Kennedy Space Center (KSC), with additional mission support from the U.S. Air Force Space and Missile Systems Center at Kirtland Air Force Base. The project utilizes a Ball Configurable Platform (BCP) 100 spacecraft bus with an Aerojet Rocketdyne modular propulsion system to validate the benefits of the non-toxic fuel for future satellite missions. Additionally, three Department of Defense experimental hosted payloads will fly aboard GPIM.

**OVERVIEW**

**QUICK FACTS**

- The AF-M315E propellant offers 50% higher performance over a traditional hydrazine system.
- Green propellant’s “shirt sleeve” operational environment reduces ground processing time from weeks to days.
- The broad temperature range eliminates system complexity for “colder” missions.
- Initial savings for each launch using green propellant are estimated at $500,000.
- This is the first time a propulsion system will be included on Ball’s BCP 100 spacecraft bus.