



SOLID FUEL MIX/CAST FACILITY

Purpose:

To fabricate solid hybrid fuel and solid rocket simulants for Solid Rocket Motors (SRM) materials testing and to evaluate solid fuel ingredients.

In fulfilling its charter to provide expertise and support in nonmetallic materials for cross-cutting engineering functions, the Non-Metallic Materials and Processes has established the solid fuel mix/cast facility.

Located in Building 4767, the facility can produce from 1 pint to 10 gallons of solid fuel in a single mix. The facility is equipped with 4 vacuum mixers with heating/cooling jackets, including a high shear mixer, which can be used for the manufacture of solid fuel, liners, or inert simulant of solid rocket propellant. Processing support equipment includes a 16" diameter vacuum casting bell and a cure oven.

Developed initially to support Reusable Solid Rocket Motor (RSRM), the facility has been instrumental in providing fuel grains to various small solid rocket motor test beds and gas generators. These are used to evaluate the materials response to the hot gases and particle impingement of the solid rocket motor environment.

The facility is used not only to cast fuel grains. The facility has the capability to manufacture Propellant-Liner-Insulation (PLI) samples for mechanical and physical property tests, and has provided PLI test specimens used in the establishment of a Joint Army, Navy, NASA, and Air Force (JANNAF) standard test method. Characterization of various solid propellant and

liner ingredients and their performance within the materials systems can be assessed using this facility.



POINT-OF-CONTACT:

Louise Semmel / ED34
(256) 544-3650
louise.semmel@msfc.nasa.gov