## July 2013

### Ball, Quest and NASA successfully test new IMLI insulation for use on Green Propellant Mission Technology Demonstration Mission

Ball, Quest Thermal Group and NASA researchers at Kennedy Space Center built Integrated MLI (IMLI) panels and conducted two critical tests to reach the appropriate readiness level to use IMLI on the Green Propellant Infusion Mission (GPIM). The GPIM will test a new green, non-toxic rocket propellant that can replace corrosive, toxic hydrazine. High performance insulation is not a requirement of this mission, but it will provide a first opportunity for IMLI to be installed on a spacecraft and flown. Tests involved component level vibe testing of large IMLI panels in an edge mounted configuration, and hot temperature performance verification at higher temperatures than normally encountered in IMLI's typical cryogenic applications. IMLI passed these tests with flying colors, and advances to the GPIM Preliminary Design Review.

Goals of this effort are to demonstrate IMLI on a space flight mission, to reach Technology Readiness Level 9 for this spacecraft application, and to provide verification of the accuracy of IMLI thermal models for spacecraft use.

With these two additional tests of IMLI completed, Ball and Quest Thermal staff stated "IMLI poses minimum cost and risk to the GPIM and maximum opportunities to advance the state of the art."

Chris McLean, Program Manager at Ball Aerospace, noted that integration of IMLI into the Green Propellant Infusion Mission was a good example of NASA investments leading to new technology. IMLI R&D was initially funded by NASA's SBIR program, further advanced via Game Changing Development funding, and now will be used in a Technology Demonstration Mission. All these programs fall under NASA's Space Technology Mission Directorate, and cover the full range from early stage innovations, through game changing technologies, to technology capability demonstration.