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NASA Radiation Probes Put DUNMORE Materials to Ultimate Test of Durability

Twin satellites protected by company's MLI materials are exploring extremes of space 'weather'

Bristol, Pa., Aug. 24, 2012 – Exploring “space weather” – or changes in the Earth’s space environment caused by the sun – means plunging into extremes of temperature, radiation and magnetic interference. When NASA’s twin Radiation Belt Storm Probes enter these harsh conditions, DUNMORE Corporation [multi-layer insulation \(MLI\)](#) products will shield them from damage as they collect data and beam it back to scientists on Earth.

The probes are exploring the kind of conditions that can disable space vehicles like themselves so they needed even greater protection than previous NASA missions. DUNMORE produced an extra-durable insulation film that combines a specialized substrate and a germanium metal coating to protect the probes during their mission.

DUNMORE MLI materials cover the two probes’ exteriors and instruments. The MLI layers on the surface reflect heat and radiation while [protecting against electrostatic charge buildup](#). Germanium has the right combination of heat absorption and reflection properties to keep the temperature range inside the probes consistent. The DUNMORE MLI materials also allow radio frequency waves to reach instruments inside the crafts, where a more conventional insulation system would reflect them away from the instruments.

The Radiation Belt Storm Probes will help scientists understand space weather’s effects on power grids, communications systems and GPS service. The mission will also allow researchers to understand fundamental radiation and particle acceleration processes throughout the universe. The probes are the second mission in NASA’s “Living With a Star” program. The first, the Solar Dynamics Observatory orbiting the earth to study the sun, also contains DUNMORE MLI materials.

“Even though they’re facing harsher-than-usual conditions, the Radiation Belt Storm Probes had to meet the same weight-performance ratio as every other NASA mission,” said DUNMORE Vice President John Jordon. “We have more than 40 years of thin-film expertise to draw on so we were able to produce MLI materials with the properties needed to protect the probes without adding extra weight.”

DUNMORE has been a major supplier of tapes and insulation blankets to NASA missions for more than 25 years. DUNMORE products have been used in almost every major space program in this timeframe, including the Space Shuttle, Hubble Space Telescope, International Space Station, and NASA’s Juno, Aquarius and Curiosity exploratory missions. With increasing demand from public and private organizations launching satellites into orbit, DUNMORE expects steady growth in space program opportunities, such as supplying MLI materials to the next-generation GPS III program, which will encompass a minimum of 30 new satellites.

About DUNMORE

DUNMORE Corporation is a global supplier of engineered [coated and laminated films and foils](#). DUNMORE offers film conversion services such as coating, metallizing and laminating along with contract film manufacturing. DUNMORE produces coated film, metallized film and laminating film substrates for the photovoltaic, graphic arts, packaging, aerospace, insulation, surfacing and fashion industries. DUNMORE is privately held, ISO 9001:2008 and OSHA VPP Star certified. For complete information on DUNMORE’s products, services and industries served, please visit DUNMORE’s website <http://www.dunmore.com/>.

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