Sector focus
Aerospace

Light Guides Fabricated by Goodfellow Head Toward the International Space Station

When the U.S. Space Shuttle was launched on October 15th in the 2000's, its payload will include light guides supplied by Goodfellow to the Spanish government-owned research organization, CIEMAT, for use in the Alpha Magnetic Spectrometer, or AMS-02, bound for the International Space Station (ISS). The light guides form part of a detector that will search for dark matter, missing matter, and anti-matter.

The light guides, fabricated by Goodfellow from molded and machined PMMA (polymethyl-methacrylate) acrylic, are assembled to form a truncated pyramid that is part of a Ring Image Cherenkov Counter, which is positioned under AMS-02 to detect and identify charged particles. To meet project objectives, this demanding application called for a molding grade of PMMA with UV transmission characteristics similar to that of cast product.

AMS-02 will be mounted on the main truss outside the ISS to collect cosmic ray data. ISS communications equipment will send the scientific data back to Earth, where it will be monitored around the clock. After its three-year mission, the Space Shuttle will bring AMS-02 back to Earth.

AMS-02 is a cooperative international project that involves over 200 people from 31 institutions and 15 countries, in addition to subcontractors and suppliers all over the world. For more information about the AMS-02 project, go to the project home page at http://ams.cern.ch/AMS/ams_homepage.html.

The launch of AMS-02 will mark the second time in recent months that Goodfellow has been involved in making interplanetary history. On January 14th of this year, the probe from the Cassini-Huygens spacecraft descended to the surface of Titan and began to transmit the first definitive images and data about the atmosphere and surface of Saturn's largest moon. Instruments on board the Huygens probe included a sensor that measured thermal conductivity and thermal diffusivity by means of platinum wires supplied by Goodfellow.