Michael Hanichak

Senior Materials and Processes Engineer

Chalfont, PA - Email me on Indeed: indeed.com/r/Michael-Hanichak/2a7f9579077a97f3

Authorized to work in the US for any employer

WORK EXPERIENCE

Sr. Staff Engineer

Materials and Processes Engineering, Lockheed Martin Space Systems - Newtown, PA - August 1997 to March 2015

• Lead Materials and Processes Engineer for multiple spacecraft programs for NASA, DoD, Air Force, Navy and commercial customers; responsible for development, selection and approval of all materials and processes to insure design, performance and quality objectives are met in the most cost effective manner; provided direct hands-on support through the entire life cycle of each program, from conceptual design through manufacture, integration, test and end use; led numerous failure investigations
• Developed and qualified a new antenna sunshield configuration (patent application filed) that reduced weight, improved antenna performance, and saved hundreds of thousands of dollars on multiple spacecraft
• Developed an electrically-conductive adhesive compound (patent disclosure submitted) for grounding of spacecraft components which saves weight and reduces assembly time and costs
• Developed several processes using low-pressure plasma technology to substantially increase the adhesion of coatings and adhesives to difficult-to-bond surfaces such as silicone and Teflon
• Led the investigation to determine the cause of on-orbit contamination of several Space Shuttle Camera lenses; identification of cause and successful implementation of solution received recognition from NASA, a Letter of Commendation, and a Special Recognition Award
• Received Special Recognition Award for the development of common practices and specifications for PWB and PWA fabrication that could be used at different company locations; annual cost savings ~ $500,000

Manager

Materials & Processes Engineering, Lockheed Martin Astro Space - East Windsor, NJ - 1996 to 1997

• Led a group of ten engineers and two technicians during a difficult period of plant closing, meeting all cost, schedule and performance objectives for several spacecraft programs
• Lead Materials & Processes Engineer for the ACES satellite; responsibilities included evaluation and approval of all materials and processes, analytical prediction of on-orbit contamination levels, and production support to Manufacturing and subcontractors
• Investigated the effects of atomic oxygen on materials in low earth orbit; co-authored with NASA and presented a paper, "Effects of Simulated Orbital Atomic Oxygen on Germanium-Coated Kapton Films"

Staff Engineer

Materials and Processes, Lockheed Martin Astro Space - East Windsor, NJ - 1994 to 1996

• Provided material and process support as a member of an Integrated Product Team to produce High Voltage Electronic Power Conditioners; assisted design engineers with material and process selection, resolved manufacturing and quality problems, wrote material and process specifications, and evaluated new materials
• Conducted an investigation to reduce adhesive bonding cycle time for Solid-State Power Amplifier production which resulted in a reduction in bonding cycle time by over 50%
• Worked on a team to replace an ozone depleting solvent (Freon 113) with an HCFC solvent; effort included testing to determine cleaning effectiveness as well as compatibility with numerous spacecraft materials

Lead Materials & Processes Engineer for the Earth Observing System Spacecraft

GE Astro Space - East Windsor, NJ - 1991 to 1994

• Evaluated and approved all materials and processes, both in-house and subcontractor built; assisted design engineers with proper material and process selection, and conducted material testing and characterization
• Responsible for $700K budget - all contractual requirements were met on schedule and within budget
• Co-chaired a proactive, multifunctional Engineering/Materials/Manufacturing/Quality (EMMQ) team with over 20 members for 2 years, successfully heading off numerous hardware problems prior to production
• Functioned as technical interface with NASA Goddard Materials Branch; led weekly customer meetings

Senior Materials & Processes Engineer

GE Astro Space - Valley Forge, PA - 1989 to 1991

• Established and quantified the chemical mechanism responsible for oxidation of silver by atomic oxygen in low earth orbit environment; wrote software to predict degradation as a function of time and orbit parameters
• Lead Materials and Processes Engineer for Space Station Attached Payloads Accommodation Equipment (APAE) program; technical liaison with NASA
• Developed innovative CVD coating process to coat niobium filaments with yttria to prevent welding of filaments to one another at 1200 degrees C operating temperature; received recognition from JPL customer

Materials Survivability Engineer

GE Astro Space - Valley Forge, PA - 1987 to 1989

• Designed and implemented a laser interferometer-based facility for the measurement of coefficient of thermal expansion (CTE) for very low expansion graphite/epoxy composite materials
• Assisted on a team to design and construct facilities to simulate the combined space environment of solar UV radiation, vacuum, electrons, and protons, as well as the atomic oxygen environment of low earth orbit
• Quantified the effects of particulate and film-type contamination on the bidirectional reflectance (BRDF) of low scatter optical surfaces; authored and presented two papers on this topic at conferences

Materials Development Engineer

GE Space Systems Division - Valley Forge, PA - 1984 to 1987

• Conducted in-depth characterization of graphite/epoxy composites in the areas of absorption and diffusion of moisture and thermal expansion for the NASA Upper Atmosphere Research Satellite (UARS)
• Developed and qualified high-temperature (1200 degrees C) passive thermal control coatings
• Designed and implemented a facility for measuring CTE of large (>20 feet) composite test specimens
• Developed a computer model to assess the effects of atomic oxygen on several materials in low earth orbit
• Automated existing test equipment and installed data acquisition system for measuring light scatter (BRDF)

EDUCATION

B.S. in Chemical Engineering

Lehigh University - Bethlehem, PA

Master of Business Administration

Lehigh University - Bethlehem, PA

PUBLICATIONS

Effects of Simulated Orbital Atomic Oxygen on Germanium-Coated Kapton Films

November 4, 1996
28th International SAMPE Technical Conference

Contamination Effects on Optical Surfaces

August 6, 1989

SPIE 33rd Annual International Symposium on Optical and Optoelectronic Applied Science and Engineering

ADDITIONAL INFORMATION

Innovative, solutions-oriented materials and processes engineer with extensive experience with materials and processes used for high reliability products over all phases of the product life cycle, including proposal, development, design, manufacture, assembly, test, implementation, failure analysis and end user support. Direct hands-on experience with metals, metal finishes (e.g., anodize, conversion coating, electroplating), fiber-reinforced resin composites, engineering polymers, adhesives, paints, passive thermal control materials, optical thin film coatings, lubricants and electronic materials (including high voltage), as well as the processes used in conjunction with them. Proven ability to meet demanding cost, schedule and technical requirements.

SKILLS

- Evaluation, selection, characterization and testing of materials for high quality, high reliability products
- Hands-on support to manufacturing and test areas, and customer support for end users
- Development and qualification of new materials and processes to meet critical requirements
- Analytical modeling of behavior of materials
- Materials problem solving - patents filed for spacecraft grounding method and antenna sunshield material
- Experience with techniques for surface analysis, e.g., SEM/EDS, XPS/ESCA, Auger and IR Spectroscopy
- System-level materials and processes requirements development, documentation and verification
- Program/project leadership, including direct experience with NASA, military and commercial customers
- Strong written and oral communication skills - authored and presented several papers
- Currently hold DoD Secret security clearance; previously held Top Secret clearance for special programs