# *Materials Engineering Newsline . . . Items of Interest to JME Readers*

**The Edison Materials Technology Center** (EMTEC), Kettering, OH, has begun operations at its new location in the Miami Valley Research Park. EMTEC was established in 1983 to conduct, for member companies, basic research and advanced development programs and projects in materials and materials processing technologies which will improve the inspection and testing of source materials; increase the performance of materials; define and develop alternative materials; improve the methods and operations used to process materials; and, define and develop alternative material processing methods.

**Winter Verlag GmbH,** 5 Beslauer Strasse, D 6056, Heusenstamm, FRG, has prepared a comprehensive survey of manufacturers of equipment for bond (adhesives) technology. The 1987 edition is 128 pages with German, English, French, Russian, and Chinese glossary of terms.

**Memory Metals Inc.,** Stamford, CT, has announced it has received a second phase contract from NASA to research and develop joints and couplings for advanced composite materials using shape memory effect (SME) alloys. Composites used in space vehicles and structures have high-strength and light weight, but are difficult to join reliably. Memory Metals will develop joints and couplings made from SME alloys that may be more reliable than those made of other materials and will allow easier fabrication and assembly.

The HPM Division, of **Aremco Products, Inc.,** Ossining, NY, is now offering twelve different optical crystals, which can be supplied in oriented form, if required. Most are grown as single crystal cylinders starting at 10mm diameter and varying in length of one inch or more. The crystals are available in LiF, NaCl, KCI, SrF2, NaF, CaF2, CdF2, MgF2, PbF2, KBr, and MnF2 and are used mostly as ultraviolet and infrared transmitting windows, prisms, and lenses.

**Sermatech Technical Services,** Limerick, PA, is pleased to announce that **Rick Bajan** has joined the company as Plasma Program Manager at its STS Middle Atlantic processing facility. Bajan was previously with Turbine Components, where he was Thermal Spray Sales/Development Engineer.

Scientists are saying that the new $1.7 million research facility recently unveiled at **Los Alamos National Laboratory** will advance the frontiers of materials science research. The facility will boost basic materials research into the physics of unusual alloys and evaluation of elements in meteorites, with emphasis for the future on the development of unusual alloys and materials to be employed in medicine, electronics, engineering, and national defense.

**Spire Corporation,** Bedford, MA has received a three-year research award from the Gas Research Institute for the production and characterization of nonplatinum catalytic materials formed by ion implanation. Spire will be investigating "metal macrocyclics," some of which have been shown to have very high catalytic activity. The compounds will be formed by using ion implantation into dispersed carbon powders.

The Commerce Department's **National Bureau of Standards** has developed a new polymer electrolyte for batteries that has wide potential use in solid-state, high-energy density batteries for weapon systems, satellites, and consumer products that require a light-weight energy source. For more information, contact Roger Rensberger, NBS, (301) 975-2762.

A new Center for Engineering Ceramic Manufacturing has opened at **Clemson University,** Clemson, SC. The Center will serve as the hub of process-dedicated research, supported by industrial sponsors, for developing new manufacturing methods and new products that will improve the US position in traditional ceramic manufacturing and trade.

**Master Bond, Inc.,** Teaneck, NJ, has introduced a unique single component moisture vapor barrier coating with outstanding electrical insulation, chemical and heat resistance. This system called EP29, can be applied to metallic and nonmetallic substrates. It can be cast in both thin and thick sections and its outstanding barrier properties offer new exciting design opportunities.

**Cortest, Inc.,** Cypress, TX, announces that **John W. Oldfield** has accepted the position of Technical Director of Cortest Laboratories, Ltd., Sheffield, UK. Dr. Oldfield, with a distinguished career in corrosion and materials research, engineering and testing, will be in charge of lab operations and technical marketing for project activities in the UK, Europe, and Middle East.

A range of pultruded composites and customized service is now available from the **National-Standard Composites Group,** Niles, MI. The composites are designed with a high-strength-to-weight ratio for reduced overall system weight. Exceptional corrosion resistance makes them an ideal replacement for expensive alloys. The dielectric insulation properties also reduce system costs by eliminating the need for coatings or special insulators.

**Anthony H. Pasquale** has been promoted to vice president of production for **Crystal Systems, Inc.,** Salem, MA. He was previously facilities manager there.

**Technical Insights, Inc.,** the worldwide intelligence service specializing in information on technical innovation, has just released a new report, ADVANCES IN HIGH-TECH MATERIALS: DATAFILE III, which offers a complete survey of the important developments of 1986. It provides details on the inventions and advances achieved in labs and universities around the world, giving readers a global perspective of where today's high-tech materials stand. For more information, contact: Technical Insights, Inc., Marketing Director, P.O. Box 1304, Fort Lee, NJ 07024 (201) 568-4744.

**Cryogenics International, Inc.,** Tempe, AZ, has developed a new fully automated system for the treatment of materials using ultra-low temperatures in the range of −320° F. The fully-computerized system will make it possible and practical for almost any size company to own and operate a deep cryogenic unit capable of automatically treating tooling and parts at temperatures below 300° F with no fear of damaging the items. The system uses liquid nitrogen as the cooling agent instead of the traditional commercial deep cryo-service helium systems, which are costly to operate and maintain.

**Rogers Corporation,** Rogers, CT, has received a patent on its MEKTAL™ HT-500 phenolic alloy, which is recommended for structural applications that see continuous temperatures of 180° C to 220° C. The material is mechanically equivalent to glass-reinforced phenolic, but the polymeric modification in the material improves its toughness over conventional glass phenolic. This is evidenced by the alloy's drop-weight impact strength, which is roughly 36% better than standard phenolic with 35% glass reinforcement.

A 1,000-page comprehensive survey of the technical and economic opportunities that new surface coatings methods offer is available from **Battelle Memorial Institute.** Technical, as well, as economic data on processes such as vapor deposition, ion plating, sputtering, plasma treatment, and laser treatment are evaluated, together with recommended methods for surface modification. The report is divided into three volumes, the first of which is "Management Summary," and highlights the key results. Volume two contains technical details of the processes and their applications, and volume three has detailed descriptions of the status of industrial use, current and potential fields of application, and anticipated future possibilities of commercial use of key processes.

**Inco Alloys International,** Huntington, WV, has introduced INCO alloy MS 250—a high-strength, maraging steel designed to replace cobalt containing compositions of similar strength. MS 520 contains 19 percent nickel, 3 percent molybdenum, and 1.4 percent titanium. A higher level of titanium provides the additional strengthening in its composition, as a substitute for all of the cobalt and part of the molybdenum.

**Norman W. Johnston** was recently appointed group vice president for **Flat Glass Products,** Libbey-Ownes-Ford Co., Toledo, OH. He was vice president of technology and engineering at the LOF Technical Center.

**CERAFINE SINTERED NITRIDE** (SSN) from Britain is said to offer greater strength and durability at high temperatures than metals and alumina ceramics. It has been designed for various engineering uses including high-energy welding components, bearings and wear parts, high-performance furnace furniture, guides in wire drawings and dies for hot and cold metal extrusion and drawing. SSN has good creep properties, is resistant to oxidazation when used in gas turbines and is hard and tough with a fine grain size. A fully dense sintered silicon nitride with considerable thermal shock resistance and strength retention at 1200° C,

SSN is resistant to most chemicals apart from hydrofluoric and phospheric acids and molten caustic alkalis. For more information contact: Tenmat Ltd., Mr. B. Hobson, P.O. Box 22, Trafford Park, Manchester M17 1RU, UK.

**Nippon Tungsten Co.,** Nippon Steel Corp., and Kubota Ltd., Japan, working on a joint venture, have created a new ceramic material which is being offered as the replacement for SiC in some refractory applications. The material is made by employing a special sintering additive and hot isostatic pressing. It is anticipated that the material will be used primarily for metalheat treating furnace skid buttons.

Aerospace manufacturers and other high-technology product producers will be interested in the **NBS Standard Reference Material** (SRM) 647, Titanium-Base Alloy (6A1-2Mo-2Sn-4Zr) for use in quality assurance control programs. The new SRM is packaged in chip form to help users solubilize the material for checking the measurement accuracy of instruments that require solution standards. For more information, contact Roger Rensberger, (301) 975-2762.

**Spire Corp.,** Bedford, MA, is pleased to announce the receipt of a $40,000 award from the National Science Foundation for the development of improved mechanical properties of natural and synthetic diamonds by ion implantation. For more information, contact Piran Sioshansi, Ph.D., Vice President/Ion Implantation, Patriots Park, Bedford, MA 01730.

**Devoe and Raynolds Co.,** Div., of Grow Group, Inc., has introduced a unique, patented, reinforced inorganic zinc-rich primer for shop and field priming interior or exterior structural steel, tanks, piping, and other steel work in moderate to severe corrosion areas. ZINC-BOND™ has been formulated for fast dry to handle and recoat, easy mixing, excellent mudcrack and topcoat bubbling resistance, and adhesion to marginally prepared surfaces. It can be brushed, rolled, or sprayed on and topcoated with acrylic latex, chemically cured epoxy or polyurethane coatings.

**Aremcolox™ Grade 502-600,** a machinable glass-ceramic with excellent dielectric properties and temperature resistance to 100° F, is now available from **Aremco Products, Inc.,** Ossining, NY. Grade 502-600 can be easily machined using conventional machine shop equipment. The materials offers high mechanical strength and zero porosity. With this material, the user can reduce production lead time as well as prototype costs.