



MATERIALS/PRODUCTS

Brush Wellman Inc., Cleveland, Ohio: **Two grades large area substrates, THERMALSTRATES BW2000, for use in thin film hybrid electronic applications**; effective alternative to high grade alumina; 20% yield improvement over polished substrates; compatibility with high alumina processing; "as-fired" surface <5 µm. CLA; uniform surface for accurate resistor networks; improved surface enables high power handling; superior performance; no surface preparation required. Circle (1)

International Mold Steel, Inc., Erlanger, Kentucky: **A new mold steel, PX5**; welds without pre-/post-heating; unique chemical composition and manufacturing processes suppress commonly occurring cracks; uniform microstructure that machines up to 30 times faster than others; twice the toughness of typical chrome-moly steels yielding more flexibility in mold design; polishes faster to better mirror finish. Circle (2)

Wall Colmonoy Corp., Madison Heights, Michigan: New data sheet describing Colomony 88, **a patented nickel-based hard-surfacing alloy**, composed of complex bi-/tri-metallic borides and carbides; maximum abrasion/corrosion resistance; includes wear test results. Circle (3)

W.C. Heraeus GmbH, Hanau, Germany: **New silver/tin alloy contact material, AgSn20**, can be electrodeposited; particularly resistant to environmental corrosion; suitable for use with heavy-duty pin connectors; replaces nickel plating in jewelry with no allergic reaction. Circle (4)

H.C. Starck GmbH, Goslar, Germany: Introduction of **a new, higher purity beta silicon carbide advanced ceramic powder, B-hp beta silicon carbide**; purity to 99.995+%; fineness of less than seven µm; coarser powders possible to specifications; used to manufacture wafer-processing structural parts. Circle (5)

Crest Products Corp., Fountain Valley, California: **Innovative fiber-reinforced structural material, Aquapreg**; low cost for laminated structural parts, tooling; prototype parts from existing tooling; no presses, ovens, autoclaves, solvents required; satisfactory product in one hour; technical data sheet. Circle (6)

Amoco Performance Products, Inc., Alpharetta, Georgia: **New grade of glass-reinforced, injection molding grade liquid crystal polymer (LCP), Xydar[®]**, for most electrical/electronic applications utilizing surface mount technology (SMT); fills very thin walls over long flow lengths with little or no flash; low warpage in molded products, exceptional weld line strength/outstanding flow characteristics; use for hard-to-fill geometries unparalleled among thermoplastics. Circle(7)

Tioga Coatings Corp., Calumet City, Illinois: **New line of solvent/water-free liquid sprayable baking enamels, Series 20, for application on metals**; significant cost advantages compared to powder coatings; increased coverage; apply at room temperature via electrostatic disks and bells or 130 °F with air-atomized, electrostatic spray equipment. Circle (8)

Zyp Coatings, Inc., Oak Ridge, Tennessee: **New aerosol spray boron nitride coating, Boron Nitride Aerosol Lubriccoat**; superior adherence to metals, ceramics, graphite in air, vacuum, inert atmospheres; easily applied; uniform, economical thin layer; for high-temperature, anti-stick release agent/lubricant for hot pressing, glass forming, superplastic forming, melting/casting of nonferrous metals, alloys; use as weld-spatter-release agent, or as coating on electrical heating elements; product data sheet. Circle (9)

Carpenter Technology Corp., Reading, Pennsylvania: **New metal/ceramic iron-nickel-cobalt sealing alloy, Brazing Quality Kovar[®](ASTM F1466)** for critical

micro circuits; designed for long-term, high-temperature service; unprecedented efficiency low coefficient of expansion; compatible with alumina ceramic base; closer tolerance, wettability, adhesion of bonding elements; can be readily deep-drawn, stamped, machined. Circle (10)

Technetics Corp., DeLand, Florida: **The addition of aluminum and titanium fiber metals, that significantly reduce product weight, the line of FELTMETAL[®] fiber metal materials widens its industrial applications arena**; metal fibers sintered to produce metallic bonds at all points where the fibers touch each other resulting in a co-continuous metal and pore network in a material that possesses unique mechanical properties at low densities; also available in iron/iron alloys, all stainless steels, nickel, cobalt, and copper; may be exposed directly and continuously to elevated temperatures up to 2000 °F; easy to fabricate; can be welded/mechanically attached; corrosion resistant, nonflammable, unaffected by moisture, performs well when wet. Circle (11)

Polymer Corp., Reading, Pennsylvania: **First available Material Selector for engineered thermoplastic materials**; simplifies selection of best material based on application design/environmental criteria; offers three alternate selections for each application. Circle (12)

Orpac, Inc., Oak Ridge, Tennessee: **New nonfibrous zirconium oxide, Z-RIM 2200** low density insulating board; yttria-stabilized (8 wt%) zirconia for best chemical stability/thermal shock resistance; no silica, organics; pre-fired for odor-free initial use; high insulating quality; resembles firebrick; easy to cut and machine. Circle (13)

PROCESSING/EQUIPMENT

DTM Corp., Austin, Texas: Paper recently published describing **creation of polycarbonate patterns for use in the investment**

casting process; an effective/practical substitute for wax when parts include fine features, thin walls, other fragile elements;

relieves temperature-sensitive transport difficulties; can be quickly/effectively created using Sinterstation[™] 2000 System

with SLS™ Selective Laser Sintering process, rapid prototyping that quickly creates three-dimensional objects from 3-D CAD files. Circle (14)

A-B Lasers, Inc., Acton, Massachusetts: New **laser microwelder, the LSW-4000, breakthrough in convenience, high quality, reproducibility of results**; efficient/economical; ideal for spot welding different metals or points of platinum, titanium, silver, gold, copper, others; use for continuous welds with additional translation stage; compact/portable; simple, precise positioning of parts via glove box-type hand insertion ports under a stereo microscope. Circle (15)

Advanced Vacuum Systems, Inc. (AVS), Ayer, Massachusetts: New **high-precision vacuum hot press with advanced control/data system**; rated at 50 tons; capable of ± 6 lb of load between zero and 10,000 lb; press frame is machined/welded with top/bottom cross head parallel to within 0.002 in. for rock-solid alignment; load train contains adjustment blocks for guaranteeing repeatable high precision parallelism between platens; ram travel and space between platens to 0.001 in.; rated at 1650 °C. Circle (16)

TESTING/MEASUREMENT/EVALUATION

United States Testing Company, Inc., Hoboken, New Jersey: New wall chart contains **comprehensive listing of 60+ flammability tests**; ASTM, NFPA, CPSC etc. procedures on textiles, building materials, plastics, paints, aerosols, liquids, and more; free. Circle (22)

Custom Scientific Instruments, Cedar Knolls, New Jersey: Introduction of a **simple, sophisticated extrusion plastometer, the MF12 Melt Flow Indexer**; basic melt flow measurements for thermoplastics; determines extrusion properties, checks incoming materials, characterizes new polymers; ensures precise testing to international standards; dynamic menu-driven software stores up to 50 tests/conditions; link up to 32 units to any PC-compatible computer. Circle (23)

U.S. National Institute of Standards and Technology (NIST), Gaithersburg, Maryland: **Development of an instrument for cold neutron prompt gamma activation analysis**; nondestructive measurement of hydrogen and other elements; determines the total hydrogen content of a sample without disadvantages of conventional

Ceradyne, Inc., Costa Mesa, California: Introduction of **superior grade of silicon nitride cutting tools are tough ceramic Ceralloy 147-31E Needlelok™**; specially formulated composition produced by gas pressure sintering; high strength, superior hardness/toughness; superior wear/notch resistance, greater reliability; up to 30% better performance in milling operations; performance of hot-pressed grades at dramatically reduced cost. Circle (17)

Polymer Research Corp. of America, Brooklyn, New York: **Unique method of "chemical grafting" enables attachment of new desirable properties to existing material without changing the material itself**; suitable for metals, plastics, rubber, cellulose, glass/textile materials; attach a wide variety of properties to substrates inexpensively/effectively; uses microwave energy to accelerate drying of grafting formulations, many in water base. Circle (18)

American Roller Co., Bannockburn, Illinois: Eliminate web drag, reduce waste/energy consumption, extend roller life while corona treating thin films with **lightweight ceramic-coated, aluminum, corona treating roller, Arcotron®C-510**; ideal for thin-gage films/narrow webs; lighter-than-steel, aluminum roller core

turns easier, eliminating web drag, minimizing film scratches, lowering energy usage; will not pit/corrode. Circle (19)

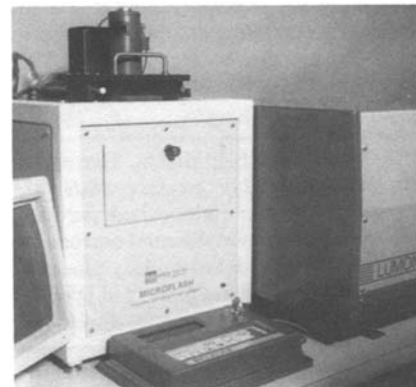
Carlisle Geauga Co., Chardon, Ohio: Four-page **"Designer's Guide to Rubber or Plastic-to-Metal Bonding"**; describes/analyzes unique process; significant advantages over traditional assembly; combines sound/vibration absorption, sealing capabilities, frictional properties, flexibility of rubber/plastic with rigidity of metal; simplification of design/reduction in assembly costs. Circle (20)

Technogenia, Inc., Charlotte, North Carolina: Revolutionary **new hardfacing technique using laser technology mixes tungsten carbide powder and a metal binder directly on the surface** being treated; powder is injected into laser beam near the surface of a part with special coaxial injection nozzle; innovative optical system focuses beam precisely on area to be treated; precision focusing for localized jobs; smooth deposit/no porosity; high speed solidification of deposit. Circle (21)

measurement; successfully used on advanced materials such as fullerenes, quartz crystals, silicon wafers, among others. Circle (24)

Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee: Reports of "seeing" individual columns of silicon atoms and the holes between them, or defects one-millionth the thickness of a human hair with "electron vision" using powerful (300-kilovolt) scanning electron microscope (SEM) from **VG Microscopes**, England; designed to apply Z-contrast imaging technique, gives sharpest direct images yet achieved of atoms in a solid; photograph the arrangements of atoms inside materials; more economical than conventional microscopes; provides easier to interpret images as small as 1.3 Å. Circle (25)

Holometrix, Inc., Bedford, Massachusetts: Introduction of **new automated instrument designed for nondestructive thermal diffusivity and conductivity measurements of aluminum nitride, Microflash NDT**; samples exchanged/tests completed in seconds; ideal quality con-



Holometrix, Inc.

trol tool for manufacturing; no preparation required for samples up to 4 × 4 in.; attachments for in-plant measurements/mapping of thermal diffusivity at discrete locations on sample; test very thin samples to detect variations within substrate; software controlled; printed data sheets. Circle (26)

Implant Sciences Corp., Wakefield, Massachusetts: The latest model in line of **wear/friction test equipment, the ISC-**

500PC Vacuum Tribometer, meets ASTM G-99 standard for pin-on-disk wear testing; for optimization of surface modification techniques, evaluation of high-performance aerospace/engineering materials, development of solid lubricants; designed for unattended operation; tests tribological properties of materials/surfaces at pressures from the 10^{-6} torr range to 1 atm, at vertical loads up to 300,000 psi (2 GPa) in a controlled environment; stainless steel vacuum test chamber can be baked out at up to 250 °C; measures friction coefficient/wear behavior, integrity of thin film coatings; metals, ceramics, plastics, composites, glass.

Circle (27)

Technicorp, Rockledge, Florida: A **new 56-piece Metal Sample Reference Kit, P/N 105**, contains stainless, carbon/alloy steels, nickel, copper/brass, aluminum, cupro-nickel, nickel-copper, titanium, and specialty alloys; varying thickness 1/16 to 1/8 in.; glass bead finish; complete chemical analysis cross-referencing common name, mill or origin, heat number, UNS designation.

Circle (28)

UNIVERSITY VIEW

Texas A & M University
College Station, Texas

An **improved method for fabricating metal-matrix composites using bidimensional compression** has been developed at the Texas Engineering Experiment Station, a member of the Texas A & M University System. The novel technique for fabricating automotive, aerospace, and electronic components of uniaxially reinforced metal-matrix composites produces uniform and dense fiber arrays approaching the theoretical maximum of approximately 0.91 for rigid fibers. The new technology overcomes the obstacles found in current production of continuous fiber-reinforced metal-matrix composites that cannot achieve high fiber volume fractions

Zygo Corp., Middlefield, Connecticut: First **Three-dimensional imaging surface structure analyzer**, NewView 100 precision microscope, uses scanning white light interferometry (SWLI) to generate quantitative three-dimensional images; 5 Å repeatability over long vertical distances up to 100 μm; fields of view up to 2.1 mm; measures individual features and full-field surfaces; texture analysis software provides data for peak/summit density, spatial frequency analysis; Hewlett-Packard 700 workstation analyzes phase relationships of individual components with Metro-Pro™ software for surface height map with ultrahigh Z resolution, independent of magnification.

Circle (29)

Metal Samples Co., Inc., Munford, Alabama: **Instantaneous corrosivity level measurements of water and other conductive environments with MS 1000 Corrosion Meter**; general corrosion/pitting measurements in mils per year readings; portable/operates off a rechargeable battery; measures corrosion rates using linear polarization technique; take readying

without sacrificing the quality of the microstructure. Studies showed that with proper fiber preparation, the microstructure and mechanical properties can be consistently reproduced, a desirable advantage in a commercial setting. Other potential advantages of the technique include short high-temperature exposure which should limit undesirable reactions between the fiber and matrix, the ability to fabricate highly anisotropic whisker-reinforced metal-matrix composites of high particle volume, and the ability to control the properties of the matrix metal during fabrication and cool-down by controlling the axial temperature profile of the dies.

Circle (33)

often without withdrawal of electrodes from system; several materials/sizes.

Circle (30)

Applied Test Systems, Inc., Butler, Pennsylvania: Introduction of a **computer-operated creep system for continuous operation without operator supervision**; software operated; independent or network system compatible; maintains complete database of materials specifications, specimen test records, alarms; display/printout of short-/long-term test data; creep plots.

Circle (31)

Park Scientific Instruments, Sunnyvale, California: **New ultrahigh vacuum scanning probe microscope, AutoProbe UHV ASM/STM, requires no optics or alignment**; tips/cantilevers can be changed in situ; images conducting/non-conducting samples prepared in vacuum; provides controlled environment, eliminating contamination responsible for ambiguous data; designed for studies in physics, chemistry, composites, semiconductor, data storage media, materials science.

Circle (32)

University of Texas at Austin
Austin, Texas

Chemists have identified several organic substances that may one day **substitute for the silicon in computer chips** and other information storage devices. The organic compounds are unique in their ability to produce an electric charge when in the presence of light and "trap" the charge in a very small volume the instant the light is turned off. The substances can also maintain a charge in a space at least 500 times smaller than the width of a human hair, leading to the possibility of memory chips, based on the new substances, that could be one-hundredth the size of silicon chips and just as fast.

INTERNATIONAL MANUFACTURING/RESEARCH CENTERS

Argonne National Laboratory
Argonne, Illinois

Using a new, more efficient technique, compared with conventional methods, **high-temperature superconductors may be produced in one-tenth the time and at 40% of the cost**. Those made with the new process carry about twice as much electric

current as those made under the old process. The new technique removes carbon dioxide gas given off before it reacts with salts during processing to form non-superconducting impurities that lower the current carrying ability of the final products. The salts need be heated to only 1470 °F (850 °C) for only about four hours. The need for periodic grinding of the salt crys-

tals is eliminated, additionally reducing contamination.

Circle (34)

....**New ceramics could prove stronger than welds for bonding some hard-to-join materials**. They could also coat instruments, sensors, and components against corrosive environments and improve techniques for manufacturing advanced batter-

ies, recovering light metals, and producing solar energy systems. The new materials, unlike conventional ceramics based on compounds of oxygen, nitrogen, or boron, are based on sulfur compounds called sulfides. Sulfide ceramic bonds are up to 20 times stronger than those of other bonding agents in joining metals to ceramics. Besides forming high-strength bonds between ceramic and nonceramic materials, they are stable in corrosive environments like high-temperature molten salts. In addition, because they form at lower temperatures than welds, sulfide ceramics are less brittle and could actually replace welding for joining materials that are difficult to weld, such as graphite, molybdenum, and tungsten. The new ceramics can bond materials with different physical properties that make other bonding methods impractical, such as in materials that have different coefficients of thermal expansion, or how much a material expands when heated. Using sulfide ceramics, materials with coefficients that differ by as much as 200% have been bonded. The increased bond strength may make practical a high-temperature molten-salt battery being developed by major automakers. The battery is based on lithium and iron sulfide and operates at 750 °F (400 °C). The ceramics can bond the battery's stacked, disk-shaped cells for operation in the corrosive, high-temperature environment. Sulfide ceramics also serve as a structural foundation for voltage sensors in metals production and other corrosive environments. They can withstand the

molten-salt environment used in electrolytic recovery of metals that is destructive to many other materials. Circle (35)

**Electric Power Research Institute (EPRI)
Center for Materials Fabrication (CMF)
Battelle Institute
Columbus, Ohio**

A TechApplication, "*Chromic Acid Recovery Using Electrodialysis*," has been published on the use of electrodialysis to recycle chromic acid used in refurbishing railroad car wheel bearings. Previous methods utilized an evaporator to remove water from the various recycling steps. Contaminated residue from the evaporator was collected and shipped off-site. The new method combines a series of rinses to reduce hexavalent chrome in the final rinse. After concentration in an evaporator, rinse water impurities are removed by electrolysis and the reconstituted material is returned to the plating bath. This new operation saves around \$40,000 a year from reduced chrome purchases and reduced sludge disposal costs. Circle (36)

**U.S. National Institute of Standards and Technology (NIST)
Gaithersburg, Maryland**

The high cost associated with machining and finishing has been identified as a major barrier to the use of ceramics and composites in commercial components. The *development of new machining tech-*

nologies for advanced materials requires interdisciplinary research and collaboration between industry, government, and universities. Proceedings of the 1993 International Conference on Machining of Advanced Materials contains 48 papers on machining/finishing techniques, surface quality, cutting tools, precision grinding, and other topics. Circle (37)

**Los Alamos National Laboratory
Los Alamos, New Mexico**

The properties of traditional polymer composites could be further improved by *reinforcing a matrix at the molecular level*. Using individually dispersed rigid rod polymer molecules to form a molecular composite may also improve the properties of these materials. In addition, the formation of a molecular composite may alleviate the problem in conventional composites of failure at discrete fiber-matrix interfaces. Circle (38)

.....A class of *porous ceramics based on a fracture-resistant zirconia-toughened alumina (ZRA) composition* has been developed. The microstructure can be tailored to cover the nanometer to micron size range, appropriate to a variety of insulation, filtration, and adsorption applications. The materials provide high throughputs, withstand corrosive cleaning environments, and can potentially operate at high temperatures. Circle (39)

LITERATURE/DATA SOURCES

Metal Powders: A Global Survey of Production, Applications & Markets: Recently published by *Elsevier Advanced Technology*, New York, New York; in-depth market and technical report providing a detailed global survey of the markets, applications, and manufacturing processes for metal powders; estimates current/future markets, reviews of applications, current manufacturers and their products/processes, updated global market data, reviews of key producers/their production capacities, surveys of trends in powder applications/end-user markets. Circle (40)

Practical Manual on Microbiologically Influenced Corrosion: New book from *National Association of Corrosion Engineers (NACE)*, Houston, Texas; practical, useful, understandable information on the roles that microorganisms such as bacteria/fungi play in corrosion reactions; com-

prehensive glossary of terms; corrosion basics and descriptions of common bacteria; discusses occurrence of MIC in chemical, power, pulp/paper, metalworking process, hydraulic system, oilfield, marine industries; identification, treatment, prevention; a definitive work on MIC.

Circle (41)

ASM M/VISION® DOS-based materials databases: Now available on workstation-based networks in M/VISION® materials information software format from *ASM International®*, Materials Park, Ohio, in cooperation with *PDA Engineering*, Costa Mesa, California; use in CAD/CAM/CAE applications; 13 databanks; searchable properties information from *ASM Materials handbooks*; structural, stainless/alloy steels, aluminum alloys, other nonferrous metals/composites; reduce, query, graph materials data with flexible set of software

tools, including an engineering spreadsheet, graphics, imaging, materials modeling capability. Circle (42)

Coating Thickness Standards for Nonferrous Gages: For the calibration/verification of nonferrous (eddy current) coating thickness gages, from *DeFelsko Corp.*, Ogdensburg, New York; quality adherent coating standards traceable to N.I.S.T. Circle (43)

The Structure and Properties of Polymeric Materials: New book for students of engineering/science with no prior knowledge of plastics materials, from *The Institute of Materials*, London, England; basic principles underlying the properties of polymeric materials—thermoplastics, thermosets, rubbers; mechanical/flow behavior; manipulation of properties through molecular structure of polymers.

Circle (44)

The Essentials of Magnesium Die Casting—An Introduction to Expanding Your Die Casting Operation: New reference guide from the *International Magnesium Association*, McLean, Virginia; alloys for die casting, metal melting/handling, machinery/processes, second operations, safety, product design, tooling, product marketing strategies. Circle (45)

Basic Extruder Problems and Solutions: Videotape and workbook program from the *Society of Plastics Engineers*, Brookfield, Connecticut; for identifying problems at the outset; details prescribed

IN BUSINESS

One of Europe's largest automotive groups, and the sixth biggest in the world, has been formed by the merger of France's *Renault* and Sweden's *Volvo Automotive*. The two companies have been in alliance since 1991, have set up a joint strategic and product planning department, created a joint department for quality, increased their exchange of components, and started work on a common platform for the assembly of their vehicles. The integrity of the respective brand names will be maintained.

International Mold Steel, Inc., has moved its General Office from Houston, Texas, to Erlanger, Kentucky. The new facility includes a metal service center where NAK55 and PX5 mold steels will be stocked and processed to customer sizes.

A new mark to designate powder coated products has been introduced by *The Powder Coating Institute*, Alexandria, Virginia. The mark is designed to increase awareness of the high quality finish that powder coating produces and educate industry professionals, and ultimately consumers, about the many benefits of powder coating. The mark depicts a rural landscape and emphasizes the environmental

observations; for identifying problems during startup, production, shutdown; working knowledge of equipment during operation. Circle (46)

SAE Aerospace Sources & Suppliers Directory: 1993 edition from the *Society of Automotive Engineers*, Warrendale, Pennsylvania; identifies sources of products/materials specified in SAE Aerospace Standards (AS), Aerospace Information Reports (AIR), Aerospace Recommended Practices (ARP), Aerospace Materials Specifications (AMS); locate companies that supply products/materials that meet

benefits of powder coating as a finish that contains no solvents and thereby does not emit volatile organic compounds that can pollute the atmosphere. It will appear on labels, stickers, and hang tags fastened to powder-coated products, and other materials representing the industry.

Solar Atmospheres, Inc., Souderton, Pennsylvania, has acquired and purchased the assets of *Modern Metal Treating, Inc.*, Cheshire, Connecticut, forming a new company to operate the business as *Solar Atmospheres of New England, Inc.* in the 10,000 sq. ft. facility currently at the Connecticut location.

The first formal "*Fullerenes Group*" has been launched by *The Electrochemical Society, Inc.*, Pennington, New Jersey, to create a technical home in a major society for scientists and engineers with an interest in fullerenes and related fields.

Duffers Scientific, Inc., Poestenkill, New York, has changed its name to *Dynamic Systems, Inc.*, to more accurately describe its business as a producer of dynamic thermal/mechanical systems for materials research.

silicon carbide products for the nonferrous melting industry, as well as assume the duties of quality control supervisor. Prior to his graduation from Iowa State University, Ames, Iowa, this year, Rebernak completed a two-year internship with *Engineered Ceramics*.

Among the winners of the 1993 U.S. National Medal of Technology, is *William D.*

the specification requirements; over 1200 products/700 SAE aerospace documents. Circle (47)

Preventing Explosions in Aluminum Melting Operations: New video produced by the *Aluminum Association*, Washington, DC; 17-minute training aid for employees who handle molten aluminum; reviews safe charging of scrap, ingot, sow, master alloys, and hardeners into remelt furnaces; storage/handling of materials; causes of scrap charging explosions; basic information to improve safety in remelt operations. Circle (48)

A joint agreement to scale up and produce silicon carbide fiber has been inked by the *3M Co.* and *Atlantic Research Corp.*, Vienna, Virginia; a plan to collaborate on the development of titanium-matrix components for turbine engine applications is included.

GE Plastics Pacific, Pittsfield, Massachusetts, has announced the formation of *GE Plastics China*. The operation will include resin activities in China, Hong Kong, and Taiwan, will be headquartered in Hong Kong.

Transfer Technology Group PLC (Trans Tec), Birmingham, England, has acquired *Coherent General, Inc.*, Sturbridge, Massachusetts. It becomes part of the *TransTec Group* which includes 15 businesses in order to benefit from experienced management and success in export markets.

The Powder Coating Institute reports it has moved to 2121 Eisenhower Ave., Suite 401, Alexandria, Virginia 22314, USA; telephone: 703/684-1770; fax: 703/684-1771.

Manly, Martin Marietta, Oak Ridge, Tennessee. Manly received the prize for his outstanding success in the development and processing of advanced high-temperature and high-performance materials. The Award recognizes extraordinary achievement in the commercialization of technology.

KUDOS

Thomas E. Rebernak, Jr., has been named a process engineer at *Engineered Ceramics*, Gilberts, Illinois. He will be responsible for the further development of the firm's new line of



Thomas E. Rebernak, Jr.