



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-splatter-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 exact 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 Cer alloy 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

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

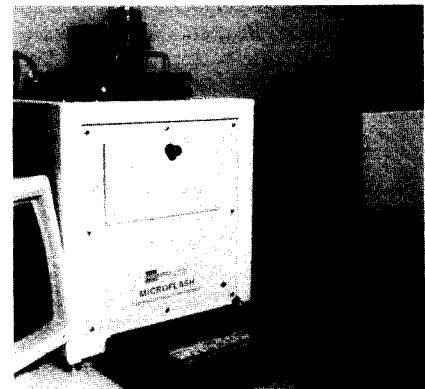
Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee: Reports of "seeing" individual columns of silicon atoms and the holes between them, or defects one-millionth the thickness of a human hair with "electron vision" using powerful (300-kilovolt) scanning electron microscope (SEM) from **VG Microscopes**, 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-

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)



Holometrix, Inc.

rol 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-**