

News Briefs

MATERIALS/PRODUCTS

ReAct 727, from **Heron Manufacturing Inc.**, Sanford, FL, is a two-part, no mix, reactive, *modified acrylic adhesive* designed to bond magnets, ferrites, glass, and metal wear strips, and metals with special surface treatments: galvanized, phosphatized, dichromatized, painted. It requires no mixing of components, is less costly to use than mechanical assembly, and ensures assembly integrity. Its unique properties of high-temperature (300 °F), high-impact resistance, and fixture time as short as 10 seconds makes it perfect for magnets in speakers and electric motors.

Circle No. (1) on reader service card.

Indium Corp., Utica, NY, announces the availability of a new VLR™ (Very Low Residue) *no-clean solder paste for use in nitrogen atmospheres* with 500 ppm oxygen or less. The paste contains no halides and is designed for fine-pitch printing down to 16 mil.

Circle No. (2) on reader service card.

A new two-component room-curing *polyurethane elastomer*, CONATHANE™ Tu-956, has been introduced by **Conap, Inc.**, Olean, NY. Applications include core box linings, foundry patterns, metal forming pads, and vibration damping devices.

Circle No. (3) on reader service card.

Refractory metal and reactive metal powders able to achieve 65% tap density and featuring *exceptionally high sphericity, purity, and consistency* are now available from **Nuclear Metals, Inc.**, Concord, MA. Powders include molybdenum, niobium, titanium, tungsten, zirconium, and both cobalt- and nickel-base superalloys—and are suitable in medical implants, photocopier toner carriers, shot blasting media, plasma spraying, and brazing.

Circle No. (4) on reader service card.

Properties of *freestanding "white" diamond*, now available from **Norton Co.**, Northboro, MA, are very close to natural gemstone quality. Benefits include high thermal conductivity, high transparency—

even into the infrared region—chemical inertness, and extreme hardness.

Circle No. (5) on reader service card.

A special *high-temperature marking paint* in various colors is now available from **Markal Co.** The Paint will mark hot metal surfaces—such as hot ingots, slabs, or pipes—with alpha or numeric characters. It may be used from 800 to 1600 °F without charring or burning.

Circle No. (6) on reader service card.

An improved *vacuum pump fluid*, PermaVis 8, is now being marketed by the **Kurt J. Lesker Co.**, Clairton, PA. It permits cooler pump operation and thereby generates less sludge and wear on internal moving parts. A free sample and extensive details are available.

Circle No. (7) on reader service card.

A superior *polycarbonate/PET for electric applications* is announced by **Miles, Inc.**, Polymers Div., Pittsburgh, PA. (On 1 January 1992, all Mobay businesses began operating under the corporate name Miles, Inc.)

Circle No. (8) on reader service card.

A two-component *high-performance nickel conductive epoxy adhesive* that cures at room temperature has been developed by **Master Bond, Inc.**, Hackensack, NJ. Master Bond EP76-M is a 100% reactive system and contains no diluents or solvents. It bonds to metal, glass, plastic, and ceramic materials, and its strength frequently exceeds that of the adherent.

Circle No. (9) on reader service card.

Precision-ground core and ejector pins made from the beryllium-copper alloy Moldmax® have been introduced by **Brush-Wellman Inc.**, Cleveland, OH. They remove heat more effectively from plastic parts and molds, improve productivity by shortening cycle time, and offer *improved thermal conductivity* when compared with steel.

Circle No. (10) on reader service card.

A new *core cryogenic insulation system* is now offered by **Composite Technology Development, Inc.**, Boulder, CO. Cry-Coat 620 features a two-part epoxy system and ceramic microspheres as the insulating component. Curing is at room temperature and below. High-humidity environments do not alter curing. The insulation bonds well to stainless steels used in cryogenic applications.

Circle No. (11) on reader service card.

PROCESSES/EQUIPMENT

The AQUANIDE™ process, developed by **Arnold Engineering Co.**, Marengo, IL, is a *low-cost method for producing NdFeB magnets with high corrosion resistance* and increased Curie temperatures (in excess of 400 °C). In addition, NdFeB powder made by the process is not pyrophoric and may be stored for prolonged periods in normal atmospheres without degradation or risk of spontaneous combustion. It is also magnetically stable, making it suitable for use in bonded magnets.

Circle No. (12) on reader service card.

High-efficiency gas filters for the metalworking industry are now available from **Pall Corp.**, E. Hills, NY. When used in combination with other Pall Profile bags, the new bag filters provide consistently clean metalworking fluids at the point of use, and much longer filter life. Applications include machine tool coolants, rolling mill coolants, EDM fluids, and parts washing fluids.

Circle No. (13) on reader service card.

A user-friendly *computerized plasma cutting system*, designed for fabrication in the kitchen appliance/device industry has been developed by **L-LEC**, Florence, SC. The unit known as the "Kustom Kutter" can be used to cut notches and a large variety of regular and custom shapes.

Circle No. (14) on reader service card.

Several new applications have been found by **Selectron, Ltd.**, Waterbury, CT, for its electropolishing solution SSP 3001 and

Activator #1, solution SCM 4200. Both employ brush plating and Selectrons electrochemical metallizing equipment. The brush-plating approach *effectively removes heat treatment stains* and improves the luster of welded corners and edges of stainless steel components. The technique, which may be done on site, is applicable to stainless steels for removing weld smut.

Circle No. (15) on reader service card.

A new heat exchanger cooler for welding applications has been introduced by the **Lincoln Electric Co.**, Cleveland, OH. The unit is designed to cool water even at the low flow rates typical of welding operations. Easy to set up, it is enclosed, small, lightweight, and features automatic operation vertically or horizontally. Two models are available: Cooler 10 for hand-held applications and Cooler 20 for automated applications. Both are designed for MIG, TIG, and plasma arc welding operations.

Circle No. (16) on reader service card.

INSTRON announces an *automated tensile tester* for thin materials such as film, paper elastomers. It can test multiple samples and fill in a test report data sheet without operator assistance.

Circle No. (17) on reader service card.

TESTING/EVALUATION

The Magnaforce System from **Walker Scientific, Inc.**, Worcester, MA, *measures the direct pull or repulsion force of a magnet* as it will be used in an end product, and can simultaneously stabilize and condition the magnet. This system lets users precisely set the magnet to the actual pull force required by eliminating the use of gaussmeters or fluxmeters and the correlation of readings obtained to calculate the pull force.

Circle No. (18) on reader service card.

American Magnetics, Inc., Oak Ridge, TN, introduces four new Sample-and-Hold Helium Level Monitors. Liquid helium sensors operating in a vacuum will self-heat to the point of burnout, but now the innovative microprocessor-based circuitry detects sensor burnout and de-energizes the sensor before damage can occur. AMI manufactures superconducting magnets and cryogenic instrumentation.

Circle No. (19) on reader service card.

A line of fully *automatic hysteresis graphs for analyzing magnetic materials* ranging from soft ferrous to very hard NdFeB magnets in production and laboratory environments is offered by **Walker Scientific, Inc.**, Worcester, MA. All have fully-automated systems, eliminating the need for extensive operator training or special programming skills. Test results output to a laser printer or plotter.

Circle No. (20) on reader service card.

Zygo Corp., Middlefield, CT, announces a new *higher resolution version* of its MAXIM 3D[®] non-contact surface profilometer, the Model 5800. Spatial sampling is 0.15 micron at 100 \times .

Circle No. (21) on reader service card.

Several new *instruments for testing/evaluation of materials* are offered by **Anter Laboratories**, Pittsburgh, PA. They include a multi-sample dilatometer for measuring thermal expansion from -150 to 1000 °C, thermal diffusivity meter for thermal measurements from -150 to 2500 °C, computerized thermal conductivity tester for low-conductivity materials, and a high-temperature dilatometer. All are designed for ease of operation.

Circle No. (22) on reader service card.

A new viewer from **Nikon, Inc.**, Bayshore, NJ, allows users of *stereo microscopes to view samples on an angle* ranging from 0°-45°, adjustable in either direction. Parfocality is maintained. The feature is beneficial for solder mount inspection, and when the entire specimen demands minimum handling. The new oblique viewer attaches to most commercially available stereo microscopes with a working distance of 100 mm or more.

Circle No. (23) on reader service card.

Measuring dielectric properties of materials is now easier with a new instrument from **ASTex/Gerling Laboratories**, Woburn, MA.

Circle No. (24) on reader service card.

UNIVERSITY VIEW

A new \$1.5 million electron microscope, designed at **Glasgow University**, Scotland, to be the first of its type, is expected to have a *major impact on the study of micromagnetism of materials*. It will enable scientists from the solid state physics

group to study the structure of magnetic materials down to groups of 10 atoms or so.

Circle No. (25) on reader service card.

Georgia Institute of Technology, Atlanta, GA...*High-temperature insulation using tiny bubbles* has been developed by Prof. Joe K. Cochran. The tiny hollow bubbles are 1-7 mm in diameter and made from aluminum oxide, mullite, and glass. They are said to be usable up to 3200 °F.

Circle No. (26) on reader service card.

Michigan State University, E. Lansing, MI...A new center in the College of Engineering, supported by industry and state/federal funds, will study *high-speed processing of polymer composites*. Primary focus will be on reducing manufacturing costs through improving composite prepregging, use of supercritical solution processing and microwave heating, liquid molding, reactive extrusion, and the use of natural and recycled materials.

Circle No. (27) on reader service card.

The U.S. Dept. of Energy and the National Renewable Energy Laboratory (NREL, formerly the Solar Energy Research Institute) are negotiating with six U.S. universities on a \$2.5 million program to improve the performance of solar cells made from thin-film materials. The program will focus on *enhancing the performance of polycrystalline thin-film devices* made from cadmium telluride and copper indium diselenide. The universities involved are: **Colorado School of Mines**, Golden, CO; **Georgia Institute of Technology**, Atlanta, GA; **University of Central Florida**, Orange City, FL; **University of South Florida**, Tampa, FL; **Purdue University**, W. Lafayette, IN; and **Washington State University**, Pullman, WA.

Circle No. (28) on reader service card.

Through a consortium of five extrusion manufacturers, organized by **Youngstown State University**, Youngstown, OH, the U.S. Air Force Aeronautical Systems Div.'s Wright Laboratory will teach industry representatives of small manufacturing companies a number of *advances in the design and control of aluminum extrusion processes*. Under laws passed by the U.S. Congress, the Air Force and other federal agencies are exploring ways to transfer government-developed technology to the non-government sector.

Circle No. (29) on reader service card.

GOVERNMENT LABORATORY NOTES

The U.S. National Institute of Standards and Technology (NIST), Gaithersburg, MD, is seeking proposals to establish up to two new Manufacturing Technology Centers. These centers are joint NIST and locally-funded organizations that serve as bridges between industry and sources of modern manufacturing technology, such as universities, federal government facilities, vendors, and professional organizations. The goal of the MTC program is to *sharpen the competitive edge of the more than 350,000 small and medium-sized U.S. businesses by improving manufacturing competence.*

Circle No. (30) on reader service card.

The U.S. Los Alamos National Laboratory, Los Alamos, NM, is the site of the first U.S. long-pulse, high magnetic field laboratory in the U.S. Such labs already exist in Japan and Europe. Scheduled to partially open in Fall, 1992, with pulsed fields of 50-100 teslas, the National High Magnetic Field Laboratory is intended to place the U.S. at the forefront of research in very strong magnetic fields. The ultimate objective of the Laboratory is to *design and build stronger magnets*, making it possible for scientists to study material and organic structures that are otherwise difficult to study. One such application is magnetic resonance imaging, which is the

basis for the "CAT scan" technique used widely in the medical community.

Circle No. (31) on reader service card.

The U.S. Dept. of Energy's Argonne National Laboratory, Argonne, IL, and Metal Recovery Industries (MRIUS), E. Chicago, IL, are engaged in a cost-share program to test technology to *upgrade galvanized steel scrap into clean scrap for steelmaking.* The process will be tested on a commercial scale at a MRIUS pilot plant being built in E. Chicago, IL. It could help the U.S. save the energy equivalent of nine million barrels of oil per year, create \$330 million a year in new manufacturing, and reduce zinc imports by \$256 million per year, according to a study done by Argonne.

Circle No. (32) on reader service card.

A novel technique representing a major advancement in *measuring a crucial property of the new high-temperature superconducting materials* has been developed at the U.S. Sandia National Laboratory, Albuquerque, NM. The process is equally useful for evaluating thin-film and bulk conductors intended for high-speed circuits and microwave applications. With some additions, it can also be used to evaluate chemical reactions in either liquid or gas environments, a boon in the areas of corrosion, batteries, and environmental monitoring.

The operating device, a "confocal resonator," uses a quasi-optical microwave resonance technique, is non-contact and portable, and can be used *in situ.*

Circle No. (33) on reader service card.

KUDOS

Ribbon Technology Corp. (RIBTEC, Columbus, OH) President *Lloyd Hackman* has been named 1992 "Inventor-of-the-Year" by the Columbus Intellectual Property Law Assoc. (formerly Columbus Patent Assoc.) He received the award for his advances in rapid solidification technology and the melt overflow process.

George A. Kline has been promoted to Technical Director, **Enthone-OMI, Inc.**, W. Haven, CT. In his new position, Kline is responsible for technical service and quality assurance in addition to his present R & D duties. He will also coordinate all national technical center activities for the company.

Airco Gases, Murray Hill, NJ, announces the appointment of *Norman T. Mills* as a Senior Technology Specialist. Mills, one of the U.S. foremost leaders in iron and steelmaking research and management, will be responsible for expanding business opportunities in high-technology areas related to iron and steel. He was previously affiliated with Inland Steel.