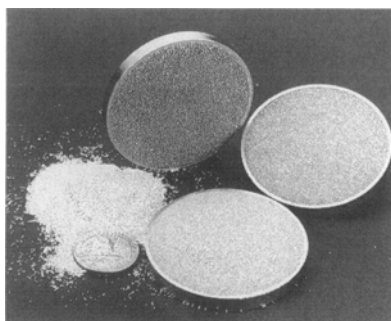


MATERIALS/PRODUCTS

Specialty metal powders made from different alloys for a variety of applications including porous structures on orthopedic and dental implants or specialized surface preparation are available from **Nuclear Metals, Inc.** NMI Specialty Metal powders can be produced from titanium, aluminum, common steels, stainless steel,



Nuclear Metals, Inc.

and cobalt and nickel based superalloys. Featuring a median particle distribution that is controllable within a specified range from 18 to 325 mesh (1000 to 45 microns), they are *highly spherical and free-flowing, as well as being totally free of nonmetallic contaminants*. For further information, contact John D. Nicolson, Nuclear Metals, Inc., 2229 Main St., Concord, MA 01742; tel: 508/369-5410; fax: 508/369-4045.

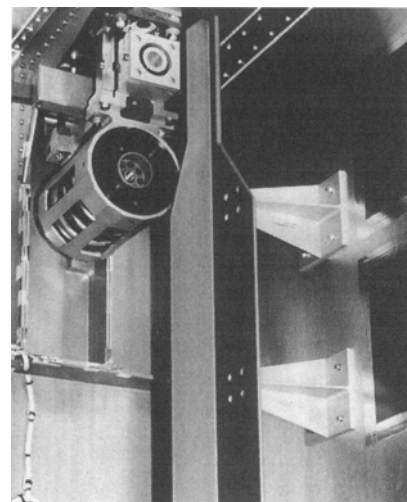
Air Products and Chemicals, Inc. has licensed its patented Ceramarc 2000 wear-resistant coating to TAFE, Inc. The new coating—which *extends the life of wear-prone parts up to ten times longer than conventionally-coated metal*—uses TAFE's 95MXC wire to create metal coatings that offer high hardness (1200-1400 Vickers), low coefficient of friction at both room and elevated temperatures, and resistance to wear, abrasion, oxidation, and corrosion. When sprayed at 20 to 30 lbs./hr with standard arc-spray equipment, the wire also significantly improves deposition efficiency of cored wires and dramatically reduces the amount of fumes typically generated during spraying with

air. Ceramarc is an amorphous iron-chrome-based material that provides a homogeneous composition and level of hardness not attainable with most competitive coatings or treatments which typically are crystalline-based. For further information, contact Air Products and Chemicals, Inc., 7201 Hamilton Boulevard, Allentown, PA 18195-1501; tel: 610-481-5302.

DVB-CP, a divinylbenzene monomer product specially formulated for use in sheet and bulk molding compounds, has been introduced by the **Dow Chemical Company** for use in Union Carbide Corporation's patented process for production of fiber-reinforced molded compounds. The process, which is used in producing reinforced molded unsaturated polyester thermosets and incorporates DVB-CP as a reactive monomer, has shown particular effectiveness in fast-cure systems for *improving interlaminar tensile shear strength, reducing or eliminating blistering and paint popping, and improving gloss of molded composites*. For further information, contact David J. Wampfler, the Dow Chemical Company, Larkin Laboratory, 1691 N. Swede Rd., Midland, MI 48674; tel: 517-636-9229.

Textron Specialty Materials has received a \$750K award from the Department of Energy to develop and fabricate in a cost effective manner, *high-strength hot gas filters with greatly enhanced durability*, while maintaining acceptable environmental resistance and filter performance. The development effort will focus on obtaining acceptable permeability and particulate filtration characteristics in a continuous fiber-reinforced ceramic composite. This material system, which is nitride-bonded silicon carbide reinforced with TSM's SCS-6 monofilament has already demonstrated superior resistance to crack propagation and thermal fatigue. For further information, contact Bruce Thomson, Textron Specialty Materials, 2 Industrial Avenue, Lowell MA 01851; tel: 508/934-7519.

TUFRAM synergistic surface enhancement technology from **General Magnaplate Corp.** gives aluminum and aluminum alloys performance properties equivalent to or better than those of steel. These coatings provide an *unusual degree of permanent lubricity with drastically*



General Magnaplate Corp.

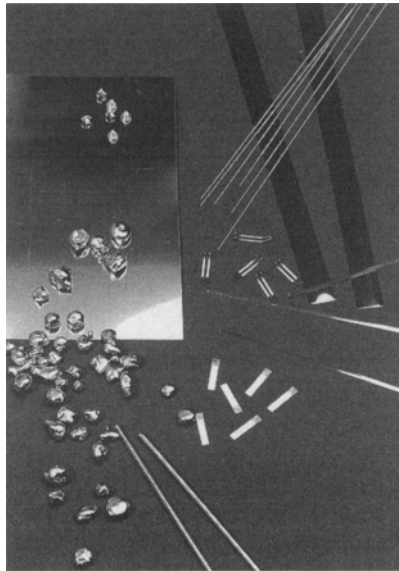
reduced surface tension and added hardness. They exhibit longer wear life and resist wetting. Hardness varies from equivalent hardness of Rc 40 to Rc 65, with an effective temperature range from 360 to 800°F, and a wide range of thermal conductivity. Heat capacity of 0.25 Btu/lb./F TUFRAM coatings offer excellent dielectric characteristics without affecting high conductivity. For further information, contact General Magnaplate Corp., 13331 Route 1, Linden, NJ 07036; tel: 908/862-6200; fax: 908/862-6110.

A specialty line of patented, two-side releasable film has been introduced to the plastics and rubber processing fields by the **PACOTHANE** Division of Paper Corporation of United States. The PACOTHANE film is engineered for use in critical processing and laminating applications conducted at high temperatures/pressure, which require an easy releasing

mechanism from a broad range of adhesives and adherent surfaces, such as epoxy, vinyl, acrylics, melamine, phenolic, butyl rubber and many other polymers. PACOTHANE has a continuous *service temperature in excess of 375°F (190°C) with exposures for over 1 hour, at pressures up to 700 psi*. For further information, contact Martin J. Wilhelm, PACOTHANE Division, 161 Avenue of the Americas, New York, NY 10013; tel: 212/337-5539; fax: 212/924-0663.

ZYP Coatings, Inc. has introduced TYPE Z, an *ultra-high purity zirconia paintable coating for protecting ceramic and graphite crucibles used with melting and casting of precious metals*. Applied just like ordinary house paint, TYPE Z is proven ideal for investment casting and is a safe, water-based paint that yields 99.7% zirconia upon drying to give excellent protection to over 2000°C. For further information, contact ZYP Coatings, Inc., PO Box 4005, Oak Ridge, TN 37831-4005; tel: 615/482-5717; fax: 615/482-1281.

The J.M. Ney Company has developed Paliney 5, an *extremely durable, cost-effective electronic alloy*. This alloy offers a wide range of options for low-voltage, sliding contact applications. A unique blending of silver and palladium, Paliney 5 is ideal for applications that require a cost-effective, long-lasting material. It demonstrates exceptional endurance in server environmental conditions, such as service temperatures above 150°C. For further information, James P. Woble, The J.M. Ney Company, Electronics Division,



The J.M. Ney Company

Ney Industrial Park, Bloomfield, CT 06002-3690; tel: 203/242-2281; fax: 203/242-5688.

Hoechst Celanese Corporation has introduced a grade of linear Fortron polyphenylene sulfide (PPS) formulated to *provide greater dimensional stability in molded parts* with challenging geometries while offering improved processing characteristics. Fortron PPS 6850L6 has 0.04% warpage, a tensile strength of 18,000 psi, and a flexural strength of 28,000 psi. The material is targeted for applications in automotive, healthcare, electronics, heating/ventilation, and other

industrial/consumer end-markets where there is a special need for parts that exhibit flatness, strength and integrity and chemical resistance. For further information, contact Hoechst Celanese Information Center, 114 Mayfield Ave., Edison, NJ 0837; tel: 800/235-2637.

Ultra-high purity alumina that is both 99.6% pure and thermal shock resistant has been developed by **Blasch Precision Ceramics**. The Blasch formulation, manufactured through a proprietary process, creates a microporous network in the material that results in *superior thermal shock resistance*. Initial applications include kiln furniture for firing electronic grade components and crucibles for melting very high temperature alloys. For additional information, contact Jeff Bolebruch, Blasch Precision Ceramics, 580 Broadway, Albany, NY 12204; tel: 518/436-1263; fax: 518/436-0098.

ARNCO Technology Trust has introduced ARNCO 200XT, a *chromium-rich alloy designed for tool joint hardbanding to resist metal-to-metal wear and high-stress abrasion*. Benefits include lower cost to the operator with the prevention of casing wear and low cost to the drilling contractor with increased abrasion resistance of the tool joint over present casing wear materials. Compared to tungsten carbide, the wear factor is reduced by 76%. For further information, contact ARNCO Technology Trust, 5915 Brittmoore, Houston, TX 77041; tel: 713/466-9535.

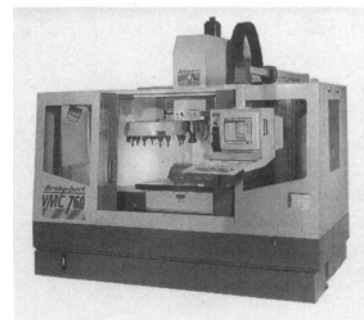
PROCESSING/EQUIPMENT

Jessup Engineering, Inc. has introduced *programmable automatic hoist systems for use in a broad range of conversion coating processes*. The systems are customized to the coating process and operate in automatic, semi-automatic or manual mode with a standard lifting capacity up to 15,000 lbs. per hoist. A hoist control stores multiple machine cycles for part processing. For further information, contact Ken Marvicsin, Jessup Engineering, Inc., 2745 Bond Street, Rochester Hills, MI 48309-3572; tel: 810/853-5600; fax: 810/853-7530.

Globe Metallurgical Inc. has introduced a *one-step molten metal processing tech-*

nique that produces cleaner castings at substantially higher metal yields. Known as Flexipor, the process allows cast iron to be treated, inoculated and alloyed simultaneously to produce gray, vermicular and ductile iron castings. Since it fills molds with greater consistency and less turbulence than traditional processes, the resulting metal yields are often as much as 15% higher. The process is ideally suited for vertically parted molds and can also be applied to horizontally parted molds in green and no-bake sand. For further information, contact Arden C. Sims, Globe Metallurgical Inc., 6450 Rockside Woods, Boulevard South, Suite 390, Cleveland, OH 44131; tel: 216/328-0145.

The VMC 760/22 Vertical Machining Center from **Bridgeport Machines, Inc.** is now available with a DX-32 PC-based



Bridgeport Machines, Inc.

control system, which provides *faster part programming and machining throughput for improved shop productivity*. The control includes interactive graphics as well as conversational and G-code programming. The VMC 760/22 features a positioning accuracy of ± 0.0002 in., a repeatability of ± 0.00008 in. for all axes. The x and y axes have a rapid traverse rate of 1220 ipm, the z axis has a rate of 787 rpm. For further information, contact Bridgeport Machines Inc., 500 Lindley Street, Bridgeport, CT 06606; tel: 800/243-4292.

Custom extrusion services that feature the *consolidation of a full range of metals and alloys in presses up to 1400 tons* is available from **Nuclear Metals, Inc.** Capable of consolidation reactive and refrac-



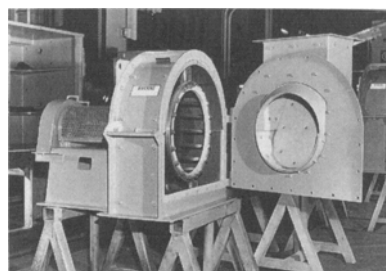
Nuclear Metals, Inc.

tory metals for aerospace and electronic applications, the services use 100, 300, and 1400 ton presses with furnace temperatures to 2200°F. Engineering assistance to determine optimum processing parameters is also provided. For further information, contact John D. Nicholson, Nuclear Metals, Inc., 2229 Main St., Concord, MA 01742; tel: 508/369-5410; fax: 508/369-4045.

The Southwest Research Institute has recently added an *ion beam modification*

facility that allows molecular manipulation and nanoengineering of material surfaces. The instrument can apply coatings to workpieces by heating reservoirs of material in an electron beam hearth situated within the chamber, producing a stream of vapor that condenses on the selected surface. This method, known as ion beam assisted deposition, has been used to produce diamond-like coatings for artificial hip joints. Institute efforts that use the facility include evaluation of surface coatings of diesel engine components, development of calcification-resistant heart valves, and development of catheters with improved material surfaces. For further information, contact Southwest Research Institute, 6220 Culebra Road, PO Drawer 28510, San Antonio, TX 78228-0510; tel: 210/684-5111; fax: 210/522-3547.

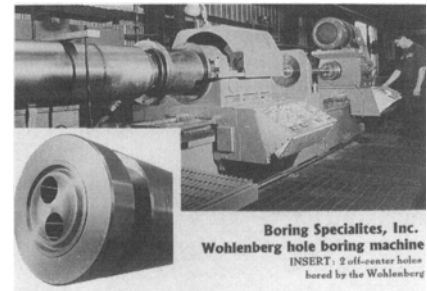
Pennsylvania Crusher has introduced its Model CME single-row cage mill used for size reduction or delumping of chemical, salts, and other readily friable materials. The mill can *accommodate feed sizes up to 6 in, producing a cubical particle*



Pennsylvania Crusher

shape with a minimum of overgrinding. For wet feed materials, special liners can be provided that minimize build-up within the crushing chamber. For further information, contact Lee Doyer, Pennsylvania Crusher Corporation, Box 100P, Broomall, PA 19008; tel: 610/544-7200; fax: 610/543-0190.

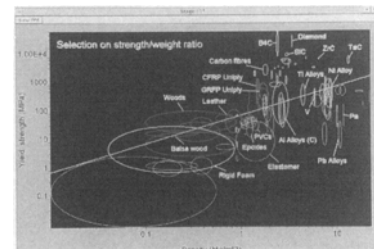
Boring Specialties, Inc. has added a new capability to its hole making and hole finishing processes. The Wohlenberg, a German machine, is a *versatile drilling machine that can drill off-center and off-*



Boring Specialties, Inc.

angle holes in work pieces at almost any angle. Holes can be drilled having an inside diameter ranging from 1.5 to 7.5 in. Unusual shapes and sizes can also be handled, up to 7-feet long and 40,000 lbs. For more information call toll free at 1-800-375-2673.

Granta Design Limited has introduced the Cambridge Materials Selector version 2.0 for Windows, which is a *computer-aided design software package that allows the rapid selection and evaluation of materials during engineering design*. The



Granta Design Limited

program contains several databases, a general one that contains 150 materials, and individual databases for different classes of material, each containing 180 specific materials. The program can transfer selection criteria between databases and allows the designer to have up to 15 separate selection stages on-screen simultaneously. For further information, contact Mrs. S. J. McKay, Granta Design Limited, 20 Trumpington Street, Cambridge UK CB2 1QA; tel: 01223/334755; fax: 01223/332797.

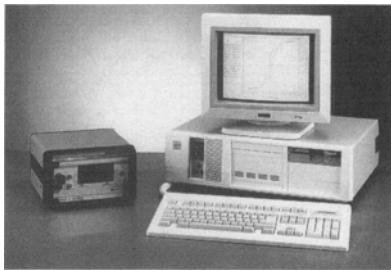
MEASUREMENT/TESTING/EVALUATION

An automatic hysteresisgraph for *precisely measuring the AC magnetic prop-*

erties of materials, such as soft ferrites, amorphous cores, and electrical steels is

available from **Walker Scientific, Inc.** The Walker AMH-400 Magnetic Hystere-

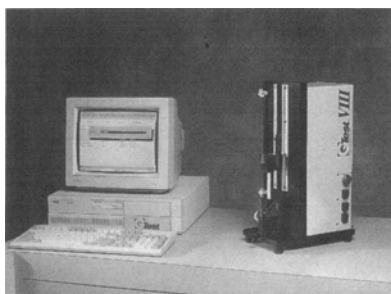
sisgraph can provide core loss by power, unit volume, and by per unit weight and operate over a 50 Hz to 1 MHz frequency range. The instrument is capable of running a hysteresis loop within 30 sec and



Walker Scientific, Inc.

automatically calculates the parameters and displays test results. Accurate to +/- 2% for B or H values and +/- 5% for core loss, it sorts over 1000 different test setups with pass/fail limits and up to 1000 test result files. For further information, contact Bruce Langley, Walker Scientific, Inc., Rockdale St., Worcester, MA 01606; tel: 800/962-4638 or 508/852-3672; fax: 508/856-9931.

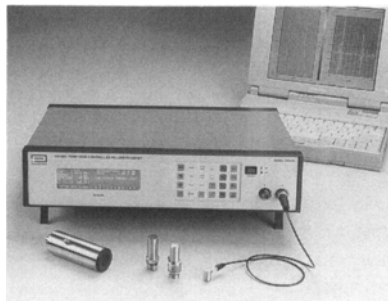
The QTest Division of MTS Systems Corporation has introduced QTest VIII, a 25-



QTest

lb. capacity computerized quality tester. The QTest VIII is a *universal test system suitable for testing fibers, films, paper, and other low force materials*. The system includes a load frame, electronics, computer, printer, software, load cell, and more. Both vertical or horizontal testing is available. For further information, contact QTest, 1001 Sheldon Drive, Cary, NC 27513; tel: 919/677-0263; fax: 919/677-2480.

Panametrics, Inc. has introduced the Model 5900PR, a *200 MHz computer-controlled ultrasonic pulse-receiver designed for high frequency ultrasonic testing*. Applications include flaw detec-

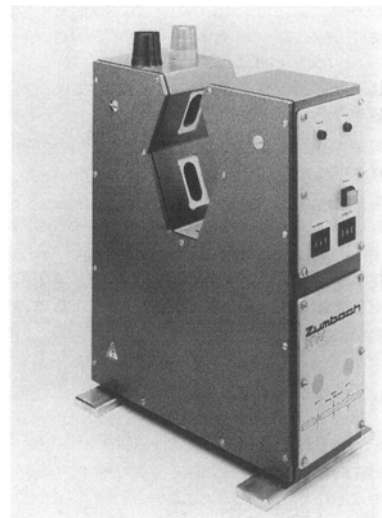


Panametrics, Inc.

tion, material analysis and thickness gauging systems. The Model 5900PR is used with broad band transducers in the frequency range from 10 to 150 MHz for thin or non-attenuating materials. With a 125 MHz transducer, the system can be used to measure the thickness of nonmetallic coatings, such as paint on non-ferrous substrates, barrier layers in plastic containers, and other films as thin as 0.0008 in. (20 microns). For further information, contact Panametrics, Inc., NDT Division, 221 Crescent Street, Waltham, MA 02154; tel: 800/225-8330, 617/899-2719; fax: 617/899-1552.

The U.S. Bureau of Mines has developed an optical sensor for monitoring industrial processes called a video photometer that *offers real-time, on-line analysis and automatic control*. The PC-based, software-driven system uses a true red-green blue color video camera and plastic optical fibers to collect color information. A unique, patent-pending peak detector digitizes the video signals with a color resolution of more than 23 billion hues and provides the basis for process control. The system has been successfully used to analyze and control copper concentrations in a commercial electrolytic circuit. For further information, contact Sandra Cleva, 202/501-9649.

Even at line speeds as high as 7500 ft/min (2500 m/min), the Zumbach Model KW 26 XY dual-plane optical lump and neck-down detector can *find sudden diameter variations as small as 1 mil (0.02 mm)*. It *detects variations during time durations as short as 1/200,000 second*. The KY 26

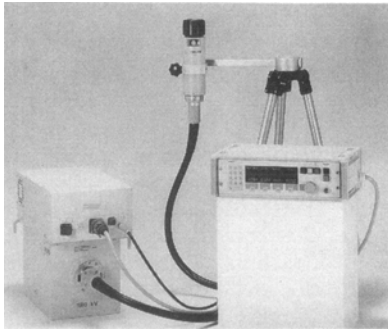


Zumbach Electronics Corp.

XY is a compact, stand alone unit which is fully effective in detecting lumps (increases), neckdowns (decreases), bare wire spots, breakouts, braiding faults, burls, blisters, and droplets. It has a measuring field of 1 in. x 1 in. (25 x 25 mm). For further information, contact **Zumbach Electronics Corp.**, 140 Kisco Avenue, Mt. Kisco, NY 10549; tel: 914/241-7080; fax: 914/241-7086.

Bytewise Measurement Systems, Inc. has introduced an off-line profile measurement system for extruded rubber and plastic components, which uses Selcom SLS-5000 self-contained high speed non-contact sensors. The Profilometer system *automatically computes variations from design parameters in terms of thickness, break-point and shoulder locations, and cross sectional area parameters*. It is available in a single or dual axis mode. For further information, contact Bytewise Measurement Systems, 5637 Whitesville Road, PO Box 7331, Columbus, GA 31908-7331; tel: 706/323-5142; fax: 706/323-0178.

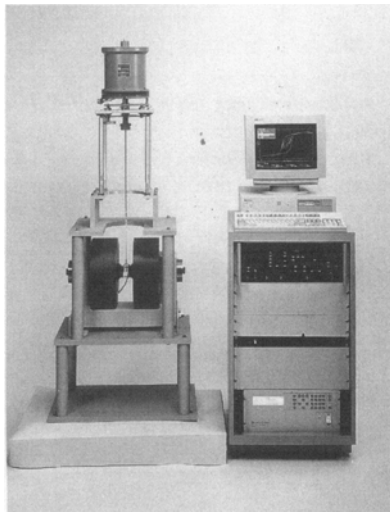
Philips Industrial X-Ray has introduced the MG 121 VF, a variable focal spot, sealed x-ray tube system and the MG 165 and MG 325 systems. All are *ultra high stability x-ray systems utilizing fast ramp-up, quick responding 40 kz technology*. The MG 121 VF has a variable focal spot that varies from 0.07 mm to 0.3 mm at mA settings of 0.12, 0.5, 1.0, and 2.0 mA. Applications include those in the electronic/electrical, aerospace, and automotive industries. For further information,



Philips Industrial X-Ray

contact Karen McGee, Philips Electronic Instruments Company, Philips Industrial X-Ray, 2975 Courtyards Drive, Norcross, GA 30071; tel: 404/368-4545.

Lake Shore Cryotronics, Inc. has introduced its 4-in. variable-gap vibrating sample magnetometer (VXM) system, which provides field strengths to 15 kg (1.5 tesla). The system *combines ease-of-use with high sensitivity and measurement speed*, resulting in a system ideally suited for production test and quality control, as well as basic and applied materials re-



Lake Shore Cryotronics, Inc.

search. The compact, fully-integrated and computer controlled system provides for automatic measurement of magnetic moment as a function of applied field, temperature (optional cryostats or oven provide measurement capability from 2 K to 1273 K), and time for single crystal, thin film, powder, bulk solid, and liquid samples. For further information, contact Lake Shore Cryotronics, Inc., 64 East Walnut

Street, Westerville, OH 43081-2399; tel: 614/891-2243; fax: 614/891-1392.

A new test has been developed to help *identify various grades of stainless steels in the plant or in the field*. This test, developed by **Koslow Scientific Co.**, separates steels according to the chrome and nickel content, from high alloy steels (incoloy) to lower alloys (400 stainless). The test is based on a new chemical color spot test and the KOSLOW ElectroSpot method, in which a minute sample of alloy is electrically dissolved and color-tested.

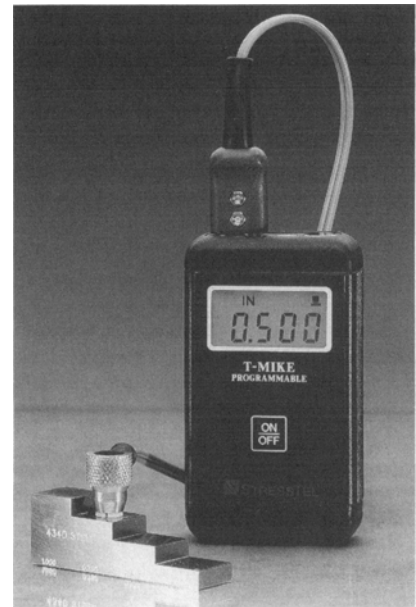


Koslow Scientific Co.

Test time is under one minute and no special equipment is needed. For further information, contact Koslow Scientific Co., 75 Gorge Road, Edgewater, NJ 07020; tel: 201/941-4484; fax: 201/941-4485.

The **Metorex ARC-MET 930** mobile optical emission analyzer can now be used to *measure alloy content directly on hot surfaces up to 500C/932°F*. The analyzer is portable, weighing just 14.5 kg or 38 lbs. Surface preparation requires only a small area, about the size of a quarter, to be ground on the sample. The state-of-the-art 2048 element photodiode array detector provides full spectrum analysis and is more rugged and stable than the photomultiplier tubes used in other systems. For further information, contact Metorex, 1900 NE Division St., Suite 204, Bend, OR 97701; tel: 800/229-9209.

The T-Mike Programmable *velocity gauge for accurate thickness measurement* has been introduced by **StressTel Corporation**. Built to withstand the demands of constant use in the field, T-Mike Programmable is factory set to each customer's velocity specifications. Reprogramming sound velocity is easily achieved by connecting to a T-Mike E or computer. For further information, contact StressTel Cor-



StressTel Corporation.

poration, 2225 Technology Circle, Scotts Valley, CA 95066; tel:408/438-6400; fax: 408/438-7917.

Riegl U.S.A. has introduced *high performance pulsed laser range finders for noncontact distance measurement to solid, semi-solid or fluid surfaces* for the steel, foundry, aluminum, and metalworking industries. The LD 90-3 series offer a range capability of 1650 ft., with an accuracy as high as +/-0.2 in. Other features include a very narrow measurement beam, immunity to electromagnetic and acoustic interference, minimal maintenance, and easy on-site installation without the need for calibration. For further information,



Riegl U. S. A.

contact Riegl U.S.A., 8516 Old Winter Garden Rd., Suite 101, Orlando, FL 32835; tel: 704/332-5004; fax: 704/332-3771.

INTERNATIONAL RESEARCH/MANUFACTURING CENTERS

The Chemical Thermodynamic and Energy Release Program CHETAH Version 7.0, available from the **National Institute of Standards and Technology**, is a *database for estimating both thermochemical properties* and predicting certain reactivity hazards associated with a pure chemical, mixture of chemicals, or a chemical reaction. It can help chemical manufacturers, materials suppliers and researchers in predicting the performance of chemicals in their custody, including storage, shipping, and use in the laboratory and in manufacturing. The NDRL/NIST Solution Kinetics Database, Version 2.0, holds information on the rates of 10,800 free radicals derived from more than 14,000 experimental determinations. Searches can be made for 17,000 chemical species that are reactants or products. To order, contact the Standard Reference Data Program, A320 Physics Bldg., NIST, Gaithersburg, MD 20899-0001; tel: 301/875-2208; fax: 301/926-0416.

The **National Center for Manufacturing Sciences**, in collaboration with its member companies, has developed a unique sys-

tem in response to the need to replace ozone-depleting materials. The Material Compatibility System (MATCOMPAT) uses the Windows interface to sort through the material compatibility results developed by an NCMS study. The study evaluated the effects of seven non-ozone-depleting solvents and cleaning solutions and two common ODC solvents on 13 materials used in electronic assemblies. MATCOMPAT *provides a methodology for choosing between the cleaning alternatives available for the majority of materials used in microelectronic parts* and is used as a reference to aid the selection and evaluation of alternative solutions and/or test methods for the users' material and process specific compatibility decisions. For further information, contact NCMS, 3025 Boardwalk, Ann Arbor, MI 48108-3266; tel: 313/995-0300.

The **Electric Power Research Institute and the National Science Foundation** have joined forces to promote *research on sensors for the power industry*. Proposal will be selected and awarded in spring 1995. Roughly a dozen awards are

planned, with a total budget of approximately \$3 million. The objective of the research is both to reduce the number of unplanned outages and to get the full measure of performance from each component. There are many operational parameters that still cannot be adequately measured, such as the flow of powdered coal to individual burners. For further information, contact John Maulbetsch, Exploratory Research, tel: 415/855-2438.

The **Department of Energy** has launched a *major industry initiative to help develop and deploy agile manufacturing technologies*. The Technologies Enabling Agile Manufacturing team has already drawn the participation and support of 70 U.S. companies. DOE has dedicated \$5 million to the effort in 1994, with \$8-9 million from 20 industrial partners. It is estimated that about \$150 to \$200 million will be spent over the next five years to study agile manufacturing issues. Responsible agent technology, as a means for achieving agile manufacturing, will be a major area of exploration.

LITERATURE/DATA SOURCES

Cotronics introduces *Hi-Temp Maintenance and Repair Highlights*, a maintenance guide that describes a complete line of specialty materials. Contents include easy-to-understand product descriptions, application examples, and illustrations of newly formulated, high temperature threadsealers, gasket formers, epoxies, and putties, designed to provide up to 2300F continuous service. For a copy, contact Cotronics Corporation, 3379 Shore Parkway, Brooklyn, NY 11235; tel: 718/646-7996; fax: 718/646-3028.

The **Metal Powder Producers Association (MPA)** and the **Refractory Metals Association** have published a 24-page *directory of leading suppliers of metal powders, refractory metals, and products*. Information is provided on available granular, flake and specialty powder and products, along with manufacturing capabilities and special equipment. The Metal Powder Industries Federation has also published a 40-page revised MPIF Standard 35, *Materials Standards for P/M Structural Parts*, that contains new information on elastic constants, data for new

low alloy steels, and revised engineering property data for P/M iron nickel materials. For further information, contact MPIF at 105 College Road East, Princeton, NJ 08540-6692; fax: 609/987-8523.

Recent publications available from **Materials Research Society** cover a wide range of materials and processes. They include: *Growth, Processing, and Characterization of Semiconductor Heterostructures, Molecularly Designed Ultrafine/Nanostructured Materials, Intermetallic Matrix Composites III, Rapid Thermal and Integrated Processing II, Epitaxial Oxide Thin Films and Heterostructures, and Advanced Metallization for Devices and Circuits*. Other topics include biomolecular materials, polycrystalline thin films, nuclear waste management, and novel methods for determining material properties at the nanoscale. For further information, contact the Materials Research Society, Publications Department, 9800 McKnight Road, Pittsburgh, PA 15237; tel: 412/367-3042; fax: 412/367-4373.

The *short-term properties of Vandar thermoplastic alloys* are detailed in a six-page brochure from **Hoechst Celanese Corporation**. The brochure presents typical physical, mechanical, thermal, and flammability properties for 11 grades—seven unreinforced, one mineral filled and three glass reinforced. Performance descriptions and typical molding conditions are also included. For a copy, contact Hoechst Celanese Information Center, 114 Mayfield Ave., Edison, NJ 08818-3053; tel: 800/235-2637.

A six-page chart, *rating the degree of resistance of fluoroelastomer synthetic rubber to over 750 chemicals and other substances* has been published by **Pelmor Laboratories, Inc.** The chart lists each chemical alphabetically and assigns one of six ratings to each. For a copy, contact Pelmor Laboratories, Inc., 401 Lafayette Street, Newtown, PA 18940-0309; tel: 800/772-6969; fax: 215/968-6415.

Dynacast has published a four-page brochure, *Magnetic Component Design*, that

covers a series of case histories on application of bonded magnet components to a variety of products. Each case history covers application, design criteria, and supplier value added information. For a copy of the brochure, contact Dynacast Magnetics, 4480 Lake Forest Drive, Suite 322, Cincinnati, OH 45242; tel: 513/554-3600; fax: 513/554-3608.

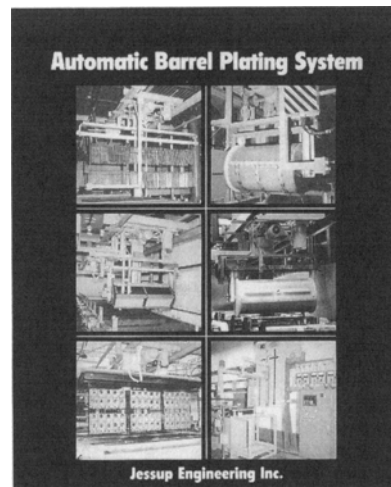
The Institute of Materials has published a number of proceedings and other books on various materials. These include: *Introduction to Powder Metallurgy, Surface Modification Technologies VII, Electroceramics: Production, Properties, and Microstructures, Metallurgical Modeling of Welding, and Magnetism and Magnetic Materials*. For further information, contact Ashgate Publishing Co., Old Post Road, Brookfield, VT 05036; tel: 802/276-3162; fax: 802/276-3651.

Technomic Publishing Co., Inc. has published several new books on composite materials, including *Stress Concentrations in Laminated Composites*, which analyzes and quantifies all categories of stress concentrations and related failure, and the Proceeding of the American Society for Composites Ninth Technical Conference. Technomic has also started a new series on intelligent materials and structures. For further information, contact Technomic Publishing Co., Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604; tel: 800/233-9936; fax: 717/295-4538.

Two brochures are now available from Jessup Engineering, Inc. that describe its *automatic hoist barrel systems for plating and finishing, and its automated metal finishing systems*. Features and technical data are described as well as various services, including on-line diagnostics and customized maintenance scheduling. For free copies, contact Ken Marvicsin, Jessup Engineering, In., 2745 Bond St., Roches-

IN BUSINESS

Midland Aluminum Corporation has been awarded the highest status of quality performance by the U.S. Department of Defense, Naval Supply Systems Command, receiving a GREEN classification by Federal Supply Class. This classification signifies a low risk of receiving non-conforming products.



Jessup Engineering, Inc.

ter Hills, MI 48309; tel: 810/853-5600; fax: 810/853-7530.

Universal Alloy Corp. has published a *comprehensive full color brochure describing the company's state-of-the-art high-tech methods of producing micro extrusions* with circle sizes from 1/16 to 3 in., with tolerances to 1/4 standard (ANSH35.2) with regard to metal dimensions, twist and bow. For a free copy, contact Robert Lobb, Universal Alloy Corp., 2871 La Mesa Avenue, Anaheim, CA 92816; tel: 800/331-7772.

General Magnaplate has recently published two brochures, an *application report that describes the use of high-tech synergistic coatings to prevent the gases used in laser systems from corroding their components, and a guide that describes the complete line of coatings*. The first report includes several case histories in which problems posed in the manufacture of a variety of types of lasers are solved with these coatings. The second report describes characteristics and appli-

DuPont and Cambridge Industries have been awarded a contract by the United States Department of Commerce Advanced Technology Program in support of a \$19.5 million research program to develop lightweight thermoplastic composite structures for the automotive industry. The two companies have also established a partnership to develop manufacturing



General Magnaplate

cations for the line of coatings. For copies of the brochures, contact General Magnaplate Corp., 1331 Route 1, Linden, NJ 07036.

A new brochure from Orbel Corporation describes the *process of electroplating and the many facets involved*. Contents include the range of processes available and the different specification applied to the process and product forms, including strip, wire, tubing, and foil. For a copy, contact Orbel Corp., 150 Anderson Street, Phillipsburg, NJ 08865; tel: 908/859-1000; fax: 908/859-3594.

The Fabricators and Manufacturers Association, International has published a book titled *Roll Forming: Collected Articles and Papers*. The book covers the basic mechanics of a roll forming line, new tooling technologies, equipment and methods, and solutions to common roll forming problems. For further information, contact Kelly Ryan at 815/399-8700.

technology that will produce "Class A" automotive body panels and structural components from DuPont XTC thermoplastic composite sheets.

IRD Mechanalysis Inc., a supplier of predictive maintenance products and revises, has acquired Condition Monitoring Lim-

ited Company, a U.K. based company serving the protection monitoring markets.

In recognition of the expansion of the extrusion systems market in the Far East, **Zumbach Electronics** has opened a service office in Taiwan.

Universal Steel Company, a steel service center, has changed the name of its Pennsylvania operating company, DSC Steel, Inc., to Universal Steel Company of Pennsylvania.

Degussa AG has become the agent for **Everwand & Fell GmbH**, a brazing machine manufacturer. Vulkanomat automatic brazing machines will now be sold exclusively by Degussa's Brazing Technology Business Sections in Germany, Great Britain, the Netherlands, Switzerland, and other countries.

Griffin Wheel Company has reopened its Kansas City, KS railroad wheel manufacturing facility. The plant will produce 100,000 wheels annually and employs 125 people.

Entela, Inc., an international engineering and testing firm, has opened a 15,000 square foot facility and laboratories in Detroit, Michigan.

KUDOS

Mark Hurt has been named Marketing Manager, and **Val Chapman** has been named Manager of Inventory Procurement for Rubber Products at **Bearings, Inc.**

Dr. Robert L. Williams II has joined the faculty of the Department of Mechanical Engineering in the Russ College of Engineering and Technology at **Ohio University**.

Robert Strieter has been named the **Aluminum Association's** Director of Environmental Affairs. Strieter will be responsible for managing environmental

Greenfield Industries, Inc., a manufacturer of expendable cutting tools and related products, has acquired the **Cleveland Twist Drill Company** from its parent, Acme-Cleveland Corporation. The company has also acquired **Threads, Inc.** and **Hendersonville Industrial Tool Co., Inc.**

Climax Research Services, Inc., a metallurgical engineering firm, has acquired **Analytical Associates**, a commercial analytical chemistry laboratory in Detroit that is a division of **Frankel Metal Company**.

A Memorandum of Understanding has been signed by the **Institute of Materials** and the **Society of Glass Technology**, which involves arrangement for joint membership that will allow qualified Society members to receive Institute grades, enabling them to register with the Engineering Council as Engineering Technician, Incorporated Engineer, and Chartered Engineer.

AGA Gas, Inc. has acquired **Blackhawk Gases & Supply, Inc.**, which sells industrial gases and welding equipment and supplies in north central Illinois and southern Wisconsin.

Davy International has completed a contract to supply ancillary equipment, design engineering, installation, and startup assistance for a **Kawasaki Top Blowing Oxygen Lance System** at the existing No. 1 RH degasser for **National Steel Corporation**, Great Lakes Division.

policy and technical programs within the aluminum industry for all environmental issues.

ARCO Chemical Company has appointed **Deborah L. Oberst** to the position of director of its South Charleston, West Virginia Technical Center. Dr. Oberst will head the Americas region research and development on conventional and performance polyols.

Steven M. Bowser, president of **BOWSER-MORNER, Inc.** has been elected to a second term as Secretary of

Fortron Industries, Inc., a joint venture between **Hoechst Celanese Corporation** and **Kureha Chemical Industries Co. Ltd.** of Japan, has opened North America's first polymerization plant devoted to the manufacture of linear polyphenylene sulfide resin, which has an annual production capacity of 8 million pounds per year.

Distributions Termicas, S.A. de C.V. has signed a contract to represent **Berry Metal Company** for the marketing of water-cooled oxygen lances to the steel producers in Mexico.

Blasch Precision Ceramics has moved its company headquarters from Schenectady, NY to a 43,000-square-foot facility in Albany. Blasch has also reorganized its marketing department into four market-focused teams: steel, non-ferrous metals, special alloys, and industrial process.

Inside Automotives (IA) magazine and the **American Society of Body Engineers (ASBE)** will announce the recipients of the second annual Automotive Interior of the Year Awards on 26 April, 1995 in Dearborn, Michigan. The award recognizes excellence and innovation in automotive interiors of North American-made vehicles in seven categories: compact, mid-size, sports, luxury, truck, van, and sport utility. The interior suppliers to each winning vehicle will be recognized and special guests representing each winning automaker will accept the awards. For more information call (404) 889-6884 ext. 200.

ACIL, formerly the American Council of Independent Laboratories and now the **Association of Independent Scientific, Engineering, and Testing Firms**.

Dr. Frank W. Harris has been named director of the **Maurice Morton Institute of Polymer Science at the University of Akron**. He is also the associate director of the National Science Foundation's Center for Molecular and Microstructure of Composites.

Coulter Steel and Forge Company has elected **Noel J. Jennings** and **Fred S.**

Homich Vice President of Sales and of Production, respectively.

Rhea L. Graham, who served as the administrator of the Mining and Minerals Division of the State of New Mexico Energy, Minerals and Natural Resources Department, has been named the 19th director of the U.S. Bureau of Mines.



Giovanni Carrara

Davy International has promoted **Michael Friedrich** to Manager, Process Engineering of its Pittsburgh office. Friedrich will be responsible for developing process flow

sheets and material balances, piping and instrumentation diagram, and supplying process information to the other engineering disciplines. **Giovanni Carrara** has also been appointed to Senior Vice President and General Manager, Industrial Furnaces.

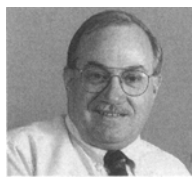
Innovative work in polymer synthesis has been recognized by the **Institute of Materials** with the presentation of the Swinburne Award to **Professor W. J. Feast**, University of Durham. The Griffith Silver Medal and Prize has been awarded to **Professor A. G. Evans**, University of California (Santa Barbara) for his work in the fields of fracture, ceramics, and composites.

OnTrak Systems, Inc., a supplier of silicon wafer cleaning equipment, has appointed **Dr. John M. de Larios** to Director of Process and Applications Engineering, **Dr. Diane J. Hymes** to Manager of Technical Marketing, Cleaning Systems Division, **Dr. Igor J. Malik** to Manager of Process Development, and **Homayoun Talieh** to Director of CMP Development.

Richard J. Boehman, formerly president of Hydro Aluminum Bohn Heat Transfer, Inc., has been named senior vice president of the **Hydro Aluminum Extrusion Group**, based in Lausanne, Switzerland. He will be responsible for all group activities involving heat transfer applications

for the global automotive industry, including product and business development.

W. Thomas Wood has been appointed to the position of Product Manager at the **Arvin TD Center**, which uses the thermal diffusion process to harden the surface of tooling and steel parts.



W. Thomas Wood

Rogers Corporation has appointed **Aarno A. Hassel** from Vice President, Circuit Materials to Vice President, Market and Venture Development.

Eric Hutton has been named Sales Engineer for **Michigan Induction, Inc.** He will be responsible for marketing and sales in the Midwest. **Rick Fleming** has been named Human Resource Director.

The **Metal Roofing Systems Association, Inc.** has elected **Jerry Boen**, MBCI, to President, **George King**, Kiry Building Systems, to Vice President, and the following to the Executive Committee: **Dennis Brown**, Butler Manufacturing Company, **Frank Chapman**, Steelo Systems, Inc., and **William Farrer**, AEP Span.



Margaret H. McGrath

PPG Industries has named **Margaret H. McGrath** to president of its Toronto-based PPG Canada Inc. subsidiary and vice president, coatings and resins, Canada. She had been controller in PPG's coatings and resins business since May 1992.

Globe Metallurgical Inc. has named **Robert E. Mathews** as Manager of Technical Services. In this position he will provide technical support to foundries purchasing Globe products and processes.

Midland Aluminum Corporation has appointed the following to its sales/market-

ing team: **Patricia Kehrer** as inside customer service representative, **Jane Walter** and **Wincel Ingram** as outside account executives.

Dr. Gregory Yurek, president and chief executive officer of American Superconductor Corporation, and **Dr. Vander Sande**, Associate Dean of MIT's School of Engineering, received the **1994 Massachusetts Columbus Quincentennial Award** for their breakthrough work on developing high temperature superconductors.

Carpenter Technology Corporation has appointed **Richard J. Weiler**, formerly vice president of sales and marketing, to vice president of business development. **Richard G. Santoro**, formerly general manager of marketing has been promoted to vice president of sales and marketing.

Norton Performance Plastics Corporation has appointed **Steven Parker** as Vice-President of its worldwide Foams, Films, and Laminates business segment. He is responsible for the overall performance of this business.



Dr. Kishen Koul

Dr. Kishen Koul has been promoted to President and Chief Operating Officer of **Atlantic Metals Corporation**. His responsibilities include the Natco International Division in Philadelphia,

which is a steel industry supplier of specialty powders, services and knowledge-based electronic performance support systems for improving the quality and yield of steel.

Amos O. Winsand, a Birmingham, MI consultant, has been reelected Treasurer of the **AWS Foundation** by its Board of Trustees. His term will extend until 1997.

Gerard F. Scannell has been elected president of the **National Safety Council**. He is currently vice president, corporate safety affairs at Johnson & Johnson.