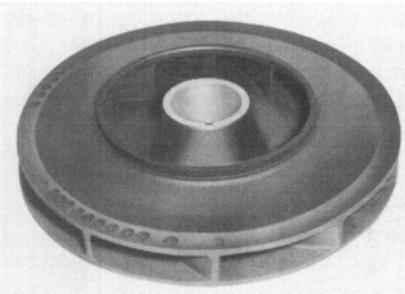


News

Materials/Products

HTR coating, from **General Magnaplate**, creates a **surface with a low coefficient of friction** that increases the release efficiency of steel, copper, brass, aluminum, and other metals used in molds and dies. Coated surfaces have consistent thermal conductivity, and they can be modified to be either thermally or electrically nonconductive. The surfaces withstand continuous operating temperatures to 510 °C (950 °F), intermittent air temperatures to 870 °C (1600 °F), and vacuum temperatures to 1315 °C (2400 °F). For more information, contact: General Magnaplate Corp., 1331 Rte. 1, Linden, NJ 07036; tel: 908/862-6200; fax: 908/862-6110.



General Magnaplate Corporation

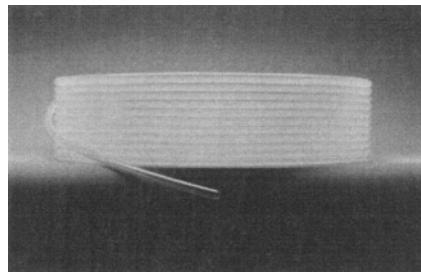
Duralco conductive adhesives, from **Cotronics**, bond to glass, ceramics, metals, and plastics. The silver- or nickel-filled **electrically conductive adhesives** provide 340 °C (650 °F) service for use in EMI/RFI shielding, electroplating, solder replacement, or electrically conductive bondlines. The **thermally conductive adhesives** are for applications that require heat transfer (to 340 °C, or 650 °F), such as bonding heating elements, cooling



Cotronics Corporation

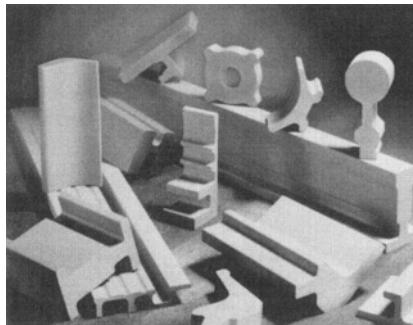
coils, semiconductors, or ceramic substrates. For more information, contact: Cotronics Corp., 3379 Shore Pkwy., Brooklyn, NY 11235; tel: 718/646-7996; fax: 718/646-3028.

Chemfluor 367, from **Norton Performance Plastics**, is a clear, chemical-resistant **fluoropolymer tubing** with a smooth inside surface and a working temperature range of -200 to 230 °C (-330 to 450 °F). For more information, contact: Norton Performance Plastics Corp., 150 Dey Rd., Wayne, NJ 07470-4699; tel: 201/696-4700; fax: 201/696-4056.



Norton Performance Plastics Corporation

Plymouth Extruded Shapes uses a single-die, near-net extrusion process to produce **special-shaped titanium and stainless steel components**. A new die is inserted for each extrusion in order to maintain the specified tolerances of the part and prevent surface imperfections caused by "die wash." Used dies are melted down and recycled. Near-net extrusion achieves the desired shape in a

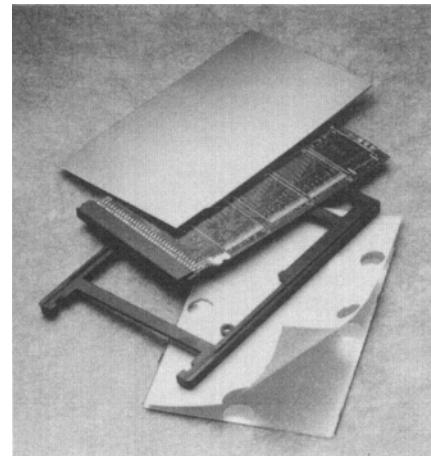


Plymouth Extruded Shapes

single process, with relatively low tooling costs, even for short manufacturing runs. For further information, contact: Plymouth Extruded Shapes, Plymouth Tube Co., P.O. Box 768, Warrenville, IL 60555; tel: 1/800/323-9506; fax: 908/393-3552.

Advantage Prototype Systems uses **stereolithography** to create solid plastic models from three-dimensional CAD designs. The models can be used for engineering testing, to create prototype injection molds, or for sales demonstrations. For more information, contact: Advantage Prototype Systems, 641 Monroe St., Ste. 107, Sheboygan Falls, WI 53085; tel: 414/467-9944; fax: 414/467-9945.

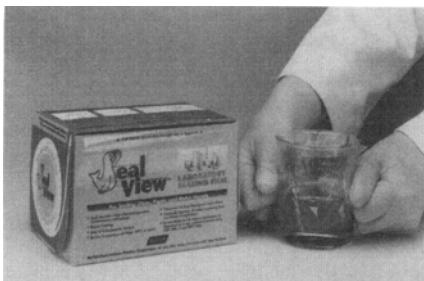
Intended for use on high-volume assembly operations, **3M Thermo-Bond Film thermoplastic adhesives** combine the precision of film and the speed of a hot melt. The film can be sized and shaped through die cutting, so the adhesive goes only where needed. The adhesive bonds in seconds to such substrates as polyolefin, liquid crystal polymer, metal, and temperature-sensitive materials. Custom formulations are available. For more information, contact: Industrial Tape and Specialties Div., 3M, St. Paul, MN; tel: 1/800/362-3550.



3M Industrial Tape and Specialties Division

Hoechst Technical Polymers has available three grades of Celstran *long glass fiber reinforced thermoplastic composite resins for automotive applications*. PPSG50-01-4 linear polyphenylene sulfide has 5x the impact strength of short-fiber-filled linear PPS. PPG-40-03 polypropylene offers high impact strength and heat resistance. ACG40-01-4 acetal copolymer has 420 N·m/m (7.9 ft·lbf/in.) notched Izod impact strength per ASTM D256 and 7x the impact strength of conventional glass coupled acetal. For more information, contact: Hoechst Technical Polymers, Hoechst Celanese Corp., 90 Morris Ave., Summit, NJ 07901-3914; tel: 908/598-4162; fax: 908/598-4165.

Seal-View film, from **Norton Performance Plastics Corporation**, forms a *drumtight seal over vials, bottles, and test tubes*. The film is available in two sizes: 6.3 cm (2.5 in.) for wrapping petri dishes and sealing test tubes or 12.6 cm (5 in.) for beakers and other wide-mouth containers. Unlike other films, Seal-View neither cracks when frozen (to -95 °C, or -139 °F) nor dissolves on contact with aggressive chemicals such as acetone or methylene chloride. For more information, contact: Norton Performance Plastics Corp., 150 Dey Rd., Wayne, NJ 07470-4699; tel: 1/800/798-1545; fax: 201/696-4056.



Norton Performance Plastics Corporation

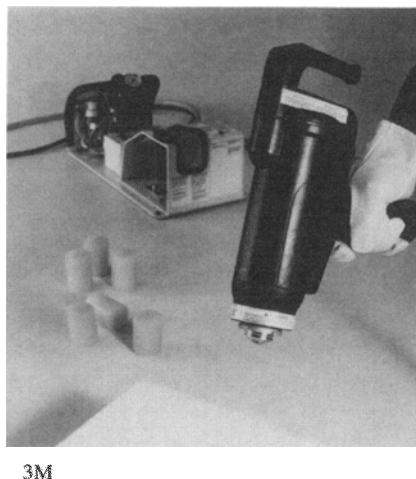
DTM has available *two materials for use in the company's Sinterstation rapid prototyping systems*. DuPont Somos 201 is an elastomeric polymer that produces flexible parts with characteristics similar to rubber. VeriForm Polymer is for prototypes of operational working product models. For more information, contact: DTM Corp., 1611 Headway Cir., Bldg. 2, Austin, TX 78754; tel: 512/339-2922; fax: 512/339-0634.

The *spray-bond heat-applied adhesive system*, from **Minnesota Mining and Manufacturing**, is an alternative to aerosols, contact adhesives, and solvent-based adhesives for bonding foam and other lightweight materials. The system sprays a precisely controlled, neat pattern of solids adhesive that bonds within 5 min of application. The 1.5 mm (0.06 in.) nozzle is standard. Nozzles of .8 and 1.2 mm (0.03 and 0.05 in.) and bead-tip kits are also available. Applicator controls select spray patterns and widths. For more information, contact: 3M, St. Paul, MN; tel: 612/733-0643; fax: 612/733-0729.

more information, contact: Carpenter Technology Corp., Reading, PA 19601; tel: 1/800/654-6543.



Carpenter Technology Corporation



3M

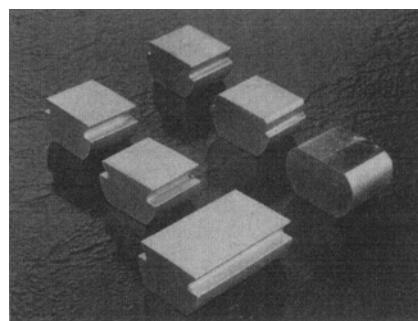
Flexchem 5050-02 is a *clear, flexible vinyl compound* with 35 to 65 Shore A hardness *developed as a silicone tube replacement*. It retains dimensional stability after continuous flexing and has good compression set properties. For more information, contact: Unichem Products, Div. Colorite Polymers, Ridgefield, NJ 07657; tel: 201/941-2900; fax: 201/941-0308.

Project 7000 stainless steel 203 from **Carpenter Technology** was designed as an alternative to type 303 stainless for use in applications such as fittings, valve bodies and shafts, automotive hardware, electronics fasteners, and ordnance components. The stainless is 30 to 50% more machinable than generic type 203. Composition is 0.08% C, 5.0 to 6.5% Mn, 0.04% P, 0.18 to 0.35% S, 1.0% Si, 16 to 18% Cr, 5.0 to 6.5% Ni, 1.75 to 2.25% Cu, and 0.5% Mo. The substitution of manganese and copper for some of the nickel results in a stable austenitic structure with low magnetic permeability. For

Devcon has developed *Epoxy Plus structural adhesive for bonding metals, thermoset plastics, steel, laminates, and ceramics*. The adhesive cures at room temperature and is available in formulations for a range of fixturing times, gap-filling abilities, degrees of flexibility, and chemical resistances. For more information, contact: Devcon, 30 Endicott St., Danvers, MA 01923-3786; tel: 508/777-1100; fax: 508/774-0516.

Celanese NFX-0102 30% glass-bead *nylon 6/6*, introduced by **Hoechst Technical Polymers**, has excellent dimensional stability for on-engine applications such as carburetor housings. The nylon maintains 0.001 cm (0.0005 in.) tolerances on critical hole sizes and has nearly isotropic shrinkage. For more information, contact: Hoechst Technical Polymers, Hoechst Celanese Corp., 90 Morris Ave., Summit, NJ 07901-3914; tel: 908/598-4162; fax: 908/598-4165.

Rathbone Precision Metals is engineering *custom cold-drawn parts*. A cold-rolling process draws the parts into a rod with the profile of the final part. The rod has a



Rathbone Precision Metals

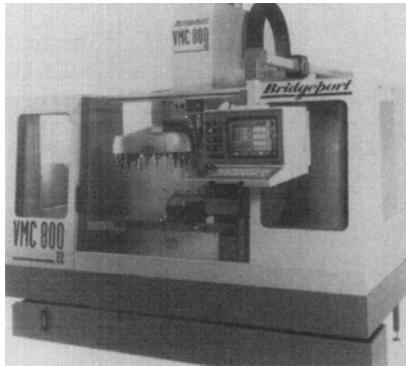
hardened uniform granular structure and can be sliced into net-shaped final parts that require little machining. For more information, contact: Rathbone Precision Metals Inc., 241 Park St., Palmer, MA 01069; tel: 413/283-8961; fax: 413/283-9722.

General Magnaplate has available Magnaplate HCR, a multistep proprietary *coating process that produces a harder-than-steel surface on aluminum and aluminum alloys*. Coated parts evince a harder-than-steel surface rated to an equivalent of 65 HRC. In salt-spray tests, a 0.005 cm (0.002 in.) surface of HCR exceeded 15,000 h. For more information, contact: General Magnaplate Corp., 1331 Rte. 1, Linden, NJ 07036; tel: 908/862-6200; fax: 908/862-6110.

Rolled Alloys is stocking *RA2205 duplex stainless steel* plate and sheet (UNS S31803), with bar, pipe, and welding materials available. Twice as strong as common austenitic stainless steels, RA2205 is resistant to stress cracking and sulfide corrosion. For more information, contact: Rolled Alloys, 125 W. Sterns Rd., Box 310, Temperance, MI

Processing/Equipment

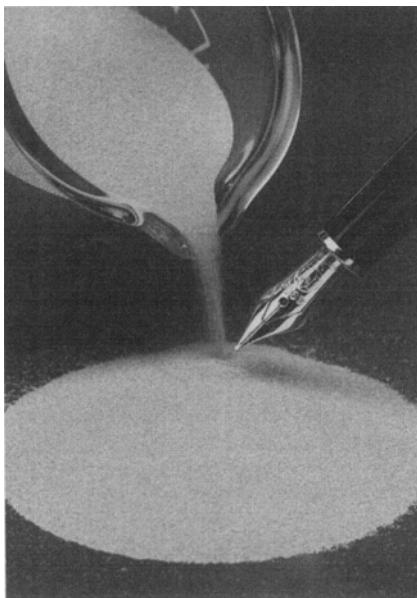
The 800/22 *vertical machining center* from **Bridgeport Machines** is designed for faster part programming and machining. The DX-32 control uses graphics and pulldown menus to lead the operator through the programming sequence. Digitizing software collects data points via a probe interface to assist in the duplication of prototype parts. For more information, contact: Bridgeport Machines Inc., 500 Lindley St., Bridgeport, CT 06606; tel: 1/800/243-4292.



Bridgeport Machines Inc.

48182-0310; tel: 313/847-0561; fax: 313/847-6917.

Specialty metal powders that have high yields in a particle size range from 45 to



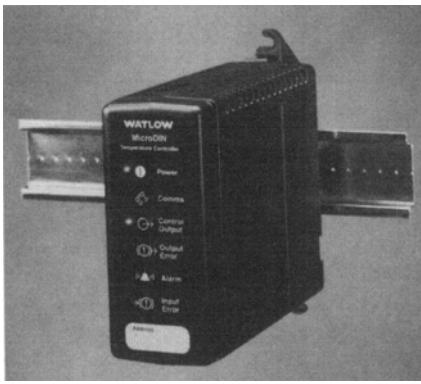
Nuclear Metals Inc.

1000 mm (0.002 to 0.04 in.) *for producing low-density metal-matrix composites and various P/M products* are available from **Nuclear Metals**. These powders can be produced from titanium, zirconium, aluminum, common steels, stainless steels, and cobalt- and nickel-base superalloys. For more information, contact: Nuclear Metals Inc., 2229 Main St., Concord, MA 01742; tel: 508/369-5410; fax: 508/369-4045; e-mail: sales@nucmet.com; web: <http://www.nucmet.com>.

Hoechst Technical Polymers has available *Celcon M25HT acetal copolymer for automotive components and Celcon WR25HT acetal copolymer for cable ties and interior automotive components* that need ultraviolet resistance. Notched Izod impact strengths are 14.0 and 17.0 kJ/m² (6.7 and 8.1 ft · lbf/in.²), and tensile strengths at yield are 37 and 39 MPa (5.3 and 5.7 ksi) for WR25HT and M25HT, respectively. For more information, contact: Hoechst Technical Polymers, Hoechst Celanese Corp., 90 Morris Ave., Summit, NJ 07901-3914; tel: 908/598-4162; fax: 908/598-4165.

MAAC Machinery Corporation, a manufacturer of heavy-gage cut-sheet thermoforming machinery, *will change on request installed System 9000 computerized machinery control software via modem*. For more information, contact: Maac Machinery Corp., 801 Hilltop Dr., Itasca, IL 60143.

The MicroDIN, from **Watlow Electric Manufacturing Corporation**, is a *rail-mount temperature control with a communications interface for use within*



Watlow Electric Manufacturing Corporation

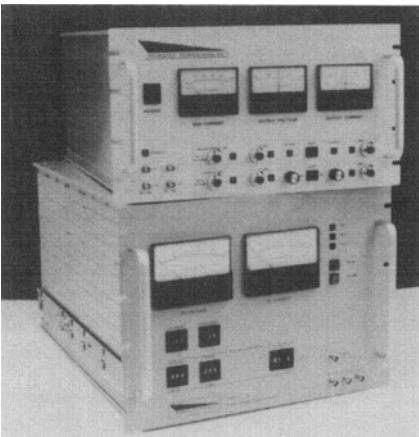
distributed control systems. The controller uses Modbus standard communications protocol and has front bezels available in English, French, Spanish, and German. For more information, contact: Watlow Controls, 1241 Bundy Blvd., Winona, MN 55987-5580; tel: 507/454-5300; fax: 507/452-4507; web: <http://www.watlow.com>.

The PS4-201-MM1 *PLC programmable controller for industrial motor control* from **Klockner Moeller** has eight digital inputs, six transistor outputs, two analog inputs, and one analog output. The 24K memory can be programmed using an IBM-compatible personal computer running S30-S4-200 software. The controller can be panel mounted either with standard screw mounts or by using the integrated 3.5 cm (1.4 in.) DIN rail snap mount. For more information, contact: Klockner Moeller, 25 Forge Pkwy., Franklin, MA 02038; tel: 508/520-7080.

"Stokes Vacuum Blowers Boost Uptime, Performance, and ROI," an eight-page brochure from **Stokes Vacuum**, describes the company's *vacuum blowers*. A cut-

away drawing highlights such features as helical timing gears, balanced impellers, oil-injection technology, oversized anti-friction bearings, by-pass technology, and application-specific seals. Performance charts depict pumping speed (cfm) versus pressure (torr) for each blower. A specifications chart lists values for displacement, motor speed, inlet and outlet flanges ASA, height, footprint dimensions, and oil capacity. For a copy, contact: Jay Scherbik, Stokes Vacuum Inc., 5500 Tabor Rd., Philadelphia, PA 19120; tel: 1/888/4-STOKES; fax: 215/831-5420.

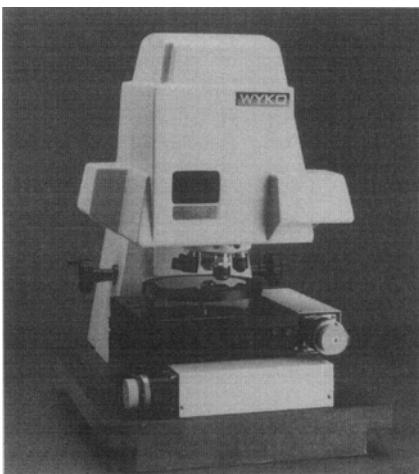
Diversified Technologies has developed Powermod *pulse systems* for semiconductor fabrication equipment and laboratory



Diversified Technologies

Measurement/Testing/Evaluation

Wyko, a manufacturer of surface measurement instruments, has available the



Wyko Corporation

applications. Available with voltages from 1 to 100 kV, 1 to 2000 amp current, pulse widths from 1 μ s to continuous, and 5 to 400 kW average power, the systems fit 48 cm (19 in.) racks. For more information, contact: Diversified Technologies Inc., 35 Wiggins Ave., Bedford, MA 01730-2345; tel: 617/275-9444; fax: 617/275-608; e-mail: info@divtecs.com.

The Natural Field Orientation (NFO) controller, a *control circuit* designed by NFO Drives AB, Lund, Sweden, and manufactured by Intel Corporation, Santa Clara, CA, *controls the speed of an induction motor without a sensor*. Designed for induction motors in the 1 to 20 kW range, the circuit operates like a preprogrammed application specific integrated circuit run by a coprocessor. The system designer can choose his own coprocessor. The control circuit handles the mathematical calculations required by the NFO algorithms, as well as supplying three-phase pulse-width modulation signals to the six power switches of the power circuit via a six-wire bus. For more information, contact: Ragnar Jönsson, NFO Drives AB, Science and Technology Parks, Lund SE-223 70, Sweden; tel: 46/46/16-8500; fax: 46/46/18-2925; web: <http://www.nfo.se>.

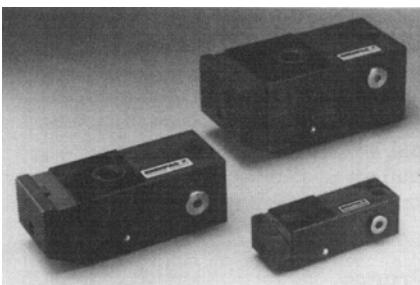
Airtek's Turbo Blower Purge is a *single-tower desiccant air dryer that deliv-*

NT-2000 *optical profiler, a surface metrology system that performs noncontact surface height measurements* with resolution to 0.1 nm (0.04 μ m). The Vision-32 analysis software for Windows NT 4.0 generates output as two-dimensional cross sections, contour plots, bearing ratio plots, or three-dimensional images. For more information, contact: Wyko Corp., 2650 E. Elvira Rd., Tucson, AZ 85706; tel: 520/741-1044; fax: 520/294-1799; web: <http://www.wyko.com>.

AutoSimulations has released the AutoMod 8.2 for Windows 95/NT, *three-dimensional graphical simulation/modeling software*. An import/export utility transfers CAD design files into and out of the program. World Wide Web tools put model output into html and graphics formats for inclusion in a Web page or intranet/internet distribu-

ers ISO Moisture Class II compressed air. The instrument creates dew points down to -40°C (-40°F) and uses a chemically inert activated alumina to strip moisture from compressed air. For more information, contact: Airtek, 4087 Walden Ave., Lancaster, NY 14086; tel: 716/685-4040.

Enerpac has introduced *hydraulic pull-down and mechanical counterhold clamps for use in top surface machining*. Designed for operating pressures to 35 MPa (5 ksi), the clamps have 390 to 2800 kg (870 to 6300 lb) of lateral force and 130 to 950 kg (290 to 2100 lb) of pulldown force. For more information, contact: Enerpac, Div. Applied Power Inc., 13000 W. Silver Spring Dr., Butler, WI 53007; tel: 1/800/433-2766; fax: 414/781-1049.



Enerpac, Div. Applied Power Inc.

tion. For more information, contact: AutoSimulations Inc., 655 Medical Dr., Bountiful, UT 84010; tel: 801/298-1398; fax: 801/298-8186.

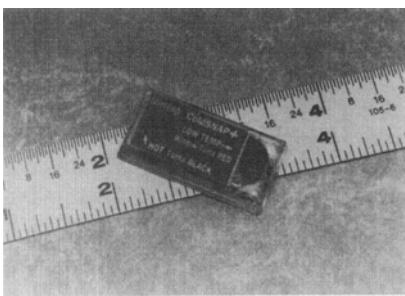
The Leco Pegasus II *Time-of-Flight Mass Spectrometer analyzes gas composition*. Ions are pulsed into the flight tube with equal kinetic energies, so ions of varying mass have different velocities as they move through the flight tube. Fast acquisition rates let the machine handle the narrow peak widths from fast gas chromatographic separations. The system's Windows-based software has NIST library search algorithms, a quantitation package, functions that determine peaks and deconvolutions, and a custom report generator. For more information, contact: Leco Corp., 3000 Lakeview Ave., St. Joseph, MI 49805-

2396; tel: 616/982-5496; fax: 616/982-8977; web: <http://www.leco.com>.

The 1910 **spectrum analyzer**, from **Computational Systems Inc.**, is designed for **spot checks of bearings**. Capable of storing 200 spectra with 400 lines of resolution, the analyzer monitors waveform, spectra, DC values, peak, and RMS. For more information, contact: CSI, 835 Innovation Dr., Knoxville, TN 37932; tel: 423/675-2400, ext. 2333; fax: 423/675-3100.

Fluent Inc. has developed MixSim, a **software analysis tool for the simulation of fluid mixing in agitated mixing vessels, and Icepak 2.0, thermal management modeling software**. MixSim simplifies creation of computational fluid dynamics (CFD) models. The user specifies tank size, bottom shape, baffle configuration, and draft tube or sparger location. A built-in library contains leading manufacturers' impellers, or the user can customize an impeller. Icepak uses CFD to analyze air flow and thermal distribution in enclosed spaces, particularly those containing electronic components. This upgrade has enhanced physical and geometric modeling. For more information, contact: Fluent Inc., Centerra Resource Pk., 10 Cavendish Ct., Lebanon, NH 03766; tel: 603/643-2600; fax: 603/643-3967.

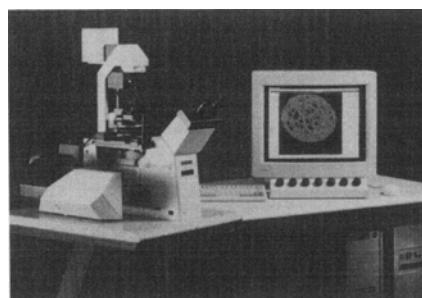
Telatemp Corporation has available the Coldsnap Plus Transit Thermometer, a **temperature monitor for transit and storage of low- and high-temperature-sensitive paints, coatings, and solvents**. A "Low Temp" indicator illuminates at a predetermined "cold" setpoint, and a "Hot" indicator turns black at a predetermined "hot" setpoint. The thermometer indicates temperatures of -5, 0, 2, 5, 10, 38, 41, 42, 46, 49, or 54 °C (23, 32, 35.6, 41.0, 50.0, 100.4, 105.8, 107.6, 114.8, 120.2, or 129.2 °F). For more information, contact: Telatemp Corp., P.O. Box 5160,



Telatemp Corporation

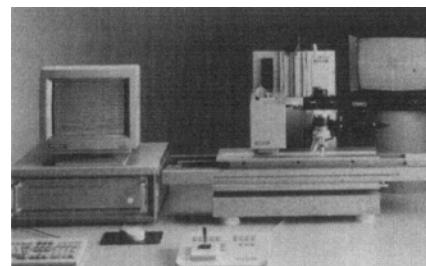
Fullerton, CA 92838; tel: 1/800/321-5160; fax: 714/870-8136.

Leica has developed the TCS-NT **confocal microscope**, designed for multicolor experiments with shift-free multiline illumination and laser illumination modules for five fiber-coupled UV/VIS lasers and AOTF wavelength mixer. A three-dimensional software program visualizes acquired data. For more information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.



Leica Inc.

CT: 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.

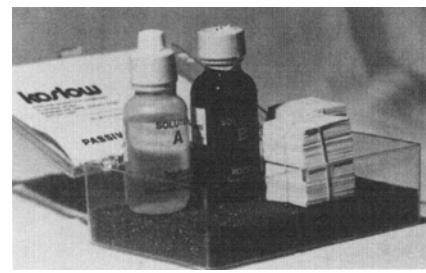


Fischer Technology Inc.

The MPS30 **photoautomat**, from **Leica**, makes photography with microscopes, stereomicroscopes, and macroscopes easier. The functions are nearly all automatic, if the type of object and the photographic technique stay the same. The MPS30 reads the film format and speed, meters the light, processes the variable parameters, and exposes correctly. The MPS30 is compatible with optical instruments from Leica and other manufacturers. For more information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.

The Fischerscope XDV, from **Fischer Technology**, is an **x-ray system that measures coating thickness**. The specimen is placed on a programmable X-Y table in the measurement chamber. Measurement is top to bottom. A complex specimen can be measured in an automatic run when the measurement plane deviates from the set reference plane by less than 90 cm (3.5 in.). The instrument is capable of analyzing difficult cases, such as double or alloy coatings. For more information, contact: Fischer Technology, 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 1/800/243-8417 (in CT, 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.

A **test kit**, from **Koslow Scientific**, detects **surface zinc phosphate on steel**. The test is used to verify that a coating has been applied or to monitor the removal of a coating before heat treatment. The test is carried out by collecting surface samples on a test paper and applying a color developed for zinc. Test sensitivity is in the microgram range. For more information, contact: Koslow Scientific Co., 75 Gorge Rd., Edgewater, NJ 07020.



Koslow Scientific Company

The Fischerscope H100, from **Fischer Technology**, is a **micro-indentation system for evaluating the hardness, elasticity, and plasticity of thin coatings**, from soft elastomers to hard tool coating materials. Measurements are made with the coating or plating in place, and the results are unaffected by the substrate material. The instrument has a load range of 0.00004 to 1 N (0.00009 to 0.22 lbf). For more information, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 800/243-8417 (in

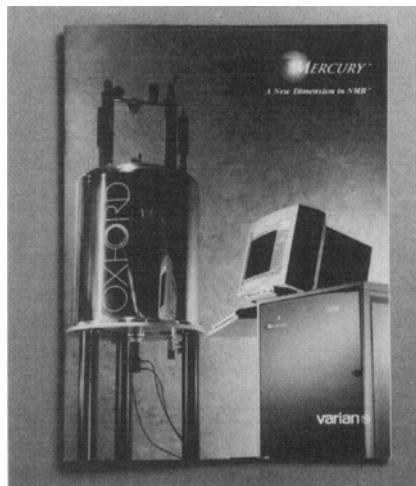
A four-page brochure describes **corrosion chambers for salt fog, CASS, and humidity testing** manufactured by **Singleton** in

sizes from 0.3 to 3.6 m³ (9.3 to 128 ft³). Options include low-water sensor system, exhaust condenser, salt solution mixing tank, graphical interface software, and an exhaust recirculation system. For a copy, contact: Singleton Corp., 3280 W. 67th Pl., Cleveland, OH 44102; tel: 216/651-7800.

Magnetic disc and metal-backed polishing cloths, from Struers, simplify sample preparation. Available in 20 cm (8 in.), 25 cm (10 in.), and 30 cm (12 in.) diameters, each MD Cloth has a thin metallic backing that adheres to a magnetic platen. When worn, the cloth can be easily lifted off the platen and discarded. For more information, contact: Struers, Div. Radiometer America Inc., 810 Sharon Dr., Westlake, OH 44145; tel: 1/800/735-2673; fax: 216/871-8188.

A 14-page brochure, "Hand-Held Instruments for Coating Thickness Measurement," from Fischer Technology focuses on the MP2C/3C Deltascope for magnetic induction measurement of coatings on iron and steel; the MP2C/3C Isoscope for eddy current measurement of coatings on nonferrous base metals; and the Dualscope MP4, which performs both magnetic induction and the eddy current measurement. For a copy, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 800/243-8417 (in CT: 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.

A brochure, from Varian Assoc., introduces Mercury, a nuclear magnetic resonance spectrometer for industrial and



Varian Analytical Instruments

academic applications. Mercury is the smallest NMR spectrometer available. The spectrometer has a four-frequency console and performs spinlock (Tocsy and Roesy) analysis. Graphical interface icons in the software walk users through experiments step-by-step. For a copy, contact: Varian Analytical Instruments, Varian Assoc., Dept. VNM029, P.O. Box 9000, San Fernando, CA 91341-9981; tel: 1/800/926-3000.

Thickness management software for XRF analysis from Fischer Technology uses the results of three fundamental parameter (FP) calculations to determine coating thickness, alloy composition, and ion concentration in plating solution. Fundamental parameter reduces the number of standards required for calibration to measures triple coatings, phosphorous content in electroless nickel, and alloy coatings with two or three alloy components. For

more information, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 800/243-8417 (in CT: 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.



Fischer Technology Inc.

Leica has available the DM RXA, a microscope-controlled via RS232-C port from a PC running Windows 95 or NT, for control of reflected and transmitted light, aperture adjustment, and focus. A motorized dark slide minimizes the photo bleaching of fluorescence specimens during epi-fluorescence illumination. The microscope has a magnification range of 14.4 to 6250 \times . For more information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.

International Research/Manufacturing Centers

Scientists at NASA Marshall Space Flight Center and at Lawrence Berkeley National Laboratory are preparing an experiment for the Space Shuttle Discovery on the manufacture of Aerogel in space. At three times the density of air, Aerogel is the lightest solid material known. A block the size of a man weighs less than 0.45 kg (1 lb) but is able to support 0.4 metric tons (0.5 tons) or about the weight of a subcompact car. When made on the ground, the material has a hazy, smoky appearance. The scientists believe that they may be able to learn how

to make the material transparent. If the experiment succeeds, the material could be used to create inexpensive, insulating windows. A 2.5 cm (1 in.) Aerogel window insulates as well as a 25 cm (10 in.) glass window. For more information, contact: NASA Marshall Space Flight Center, Huntsville, AL 35812.

The Westinghouse Science and Technology Center has completed an expansion of the Westinghouse Autoclave Laboratory, a high-pressure, high-temperature

test facility for corrosion-related programs. The facility has expanded from 750 to 1200 m² (2500 to 4000 ft²) and contains 30 autoclave test vessels. Complete system calibrations can be performed using signals from multiple sensors simultaneously. The lab will soon add off-site access for real-time review of test data by customers in conjunction with STC personnel. For more information, contact: Rich Jacko, Westinghouse, Pittsburgh, PA 15235; tel: 412/256-1268.

The National Technology Transfer Center hosted the *NASA Microgravity Technology Workshop*, 14 to 16 Jan 1997. Seventy scientists from NASA, Lockheed Martin, Boeing, Southwest Research, and Carnegie Mellon University discussed aspects of microgravity science and the In-

ternational Space Station. Because microgravity simulates the virtual absence of gravity, space flight presents an opportunity to study the states of matter (solids, liquids, and gases), and the forces and processes that affect them. The Space Station will permit long-duration micro-

gravity experiments. For more information, contact: National Technology Transfer Center, Wheeling Jesuit College, 316 Washington Ave., Wheeling, WV 26003; tel: 304/243-2455; fax: 304/243-4423.

University View

In a *discovery about lubricants that could lead to less machinery wear*, researchers at the University of Illinois have found that randomness, not roughness, is a major contributor to friction at the molecular level. In a series of measurements, materials scientist Steve Granick and graduate student A. Levent Demirel linked the occurrence of stick-slip friction (in which sliding surfaces momentarily stick and then slide) with a random fracturing of the liquid lubricant. Granick attributes the random sticking and sliding to a fracturing and healing process occurring within the lubricant. According to Granick, a better understanding of how the lubricant fractures, and how that fracture might be controlled, may lead to significantly reduced wear and tear on machinery. For more information, contact: James Kloeppe, Physical Sciences Editor, University of Illinois at Urbana-Champaign, 807 S. Wright St., Ste. 520 E., Champaign, IL 61820-6219; tel: 217/333-5802; fax: 217/244-0161; e-mail: kloeppe@uiuc.edu.

Researchers at Oregon State University have discovered *zirconium tungstate, a compound that contracts instead of ex-*

pands when heated. The researchers say that zirconium tungstate could be used in compound form with other materials to create products that neither expand nor contract when heated or cooled. The material could also be used to create products that expand at a predetermined rate when heated. The material exhibits negative thermal expansion from -270 to 815 °C (-460 to 1500 °F). The contraction is caused by oxygen atoms in the material "vibrating" when heated and pulling zirconium and tungsten atoms together. Teledyne Wah Chang, Albany, OR, funded the study and has an option to market and manufacture the material. For more information, contact: Oregon State University, Corvallis, OR.

tact: Kathy Smith, NADCA, 9701 W. Higgins Rd., Ste. 880, Rosemont, IL 60018-472; tel: 847/292-3600, ext. 309.

Rheocasting or semisolid forming, a metals-forming process discovered in 1971 by David Spencer, a graduate student in the **MIT Department of Materials Science and Engineering**, is becoming industrially important by giving automobile component manufacturers a way to produce durable, lightweight parts. To date, the process has been used primarily to make aluminum components for suspension systems and air conditioners. Aluminum continuous casting feedstock are cut into small lengths and shipped to the parts producer, where they are heated until they become partly liquid. The soft metal "glob" is then moved from the heater to a press, where it is shaped into the final part. Rheocasting makes near-net-shaped parts. MIT has licensed the technology to Alumax Inc., St. Louis, MO. For more information, contact: Prof. Merton Flemings, Department of Materials Science, MIT, Cambridge, MA; tel: 617/253-3233; e-mail: flemings@mit.edu.

The **North American Die Casting Association** is seeking contributions to assist in funding scholarships for die-casting education. The Harvill Foundation program provides funding to qualified NADCA chapters, which then determine their own criteria for awarding the scholarships. The Laine Scholarship Fund provides financial assistance to college students interested in pursuing a career in die casting. For more information, con-

Literature/Data Sources

The **Institute of Materials** has published *Materials for Engineering* (230 pp, \$17.00) by John Martin, Emeritus Reader in Physical Metallurgy, Oxford, a brief overview of materials science. The book deals with the four important classes of engineering materials (metals, ceramics, polymers, and composites), with emphasis placed on the relationship between the structure and properties of materials. The contents cover the structure of engineering materials, the determination of mechanical properties, metals and alloys, glasses and ceramics, organic polymeric materials, and composite materials. For more information, contact: IOM, 1 Carlton House Terrace, London SW1Y 5DB, Eng-

land; tel: 44/(0)171/839-4071; fax: 44/(0)171/976-2026.

"*The Effect of Non-Metallic Inclusions (NMIs) on the Properties of Die-Cast Magnesium*," a paper by Andrew Haerle, a senior researcher at **Dow Chemical**, details the impact of NMIs on basic mechanical properties, machining, corrosion, and paint adhesion of magnesium die casting alloys with varying NMI content. Data generated on AM60B alloy corroborated previously generated data for AZ91D and AM50A alloys. Laboratory tests also showed no differences in final die-cast properties between virgin and argon-re-

fined material. For more information, contact: Dow Chemical Co., 690 Bldg., Midland, MI 48640; tel: 1/800/447-4DOW.

The **ASM Specialty Handbook: Heat-Resistant Metals** (500 pp, \$138.40 ASM member, \$173.00 nonmember), published by **ASM International**, is a one-volume compendium of information on heat-resistant materials used in industrial applications, such as carbon and stainless steels, superalloys, and refractory metals. Topics include high-temperature characteristics, effects of processing and microstructure on high-temperature properties, materials-selection guidelines for industrial applica-

tions, and life-assessment methods. For more information, contact: ASM Member Services Center, Materials Park, OH 44073-0002; tel: 1/800/336-5152, ext. 300; fax: 216/338-4634; e-mail: memserv@po.asm-intl.org.

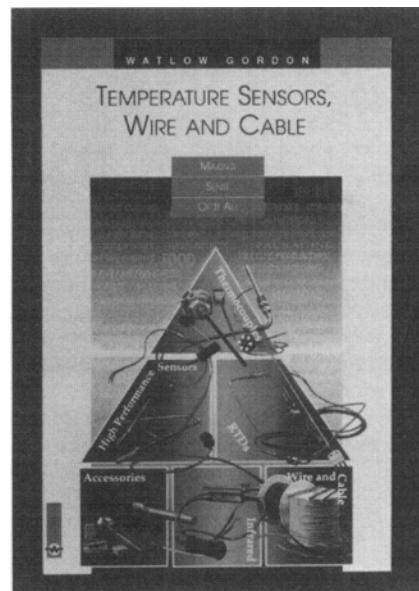
ISA has published its *Standards Library for Measurement and Control*. The seven volumes in the series cover symbols, specification forms, and general terminology; environmental conditions, instrument air quality, and control centers; control valves; electrical and process systems safety; measurement devices and transducers; digital fieldbus, computer-related topics, and plant floor communications; and nuclear and fossil power plants. The series is intended to help processing and manufacturing plants achieve greater uniformity in specifications, increase the efficiency of testing and maintenance, improve communication with uniform symbols and terminology, and improve safety through proper equipment design. For more information, contact: International Society for Measurement and Control, 67 Alexander Dr., P.O. Box 12277, Research Triangle Park, NC 27709; tel: 919/549-8411; fax: 919/549-8288; web: <http://www.isa.org>.

The Institute of Materials has published three titles in its *Profiles* series of introductions to engineering materials and processes. *Polyurethanes* describes the properties and breadth of applications of these engineering materials. *Sealing Materials* discusses the important factors for designers to consider when introducing seals into structures. *Powder Metallurgy* is an introduction to this metal fabrication technique. For more information, contact: IOM, 1 Carlton House Terrace, London SW1Y 5DB, England; tel: 44/(0)171/839-4071; fax: 44/(0)171/976-2026.

The Society of Manufacturing Engineers has printed *Rapid Prototyping State of the Industry: 1997 Worldwide Progress Report* by Terry Wohlers, President, Wohlers Assoc., Fort Collins, CO. The report examines how companies are using rapid prototyping, three-dimensional printing for concept modeling, educational and research programs, software developments, trends in CAD solid modeling, reverse engineering, and market growth figures and forecasts. For a copy, contact: SME, One SME Dr., P.O. Box 930, Dearborn, MI 48121-0930; tel:

313/271-1500; fax: 313/271-2861; web: <http://www.sme.org>.

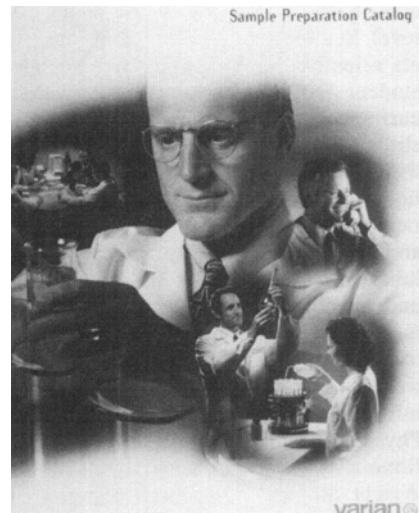
A 275-page *Sensors Catalog* is available from **Watlow Gordon**. The catalog contains information on thermocouples; RTDs and thermistors; infrared instruments; insulated wires and cables; and mineral-insulated, metal-sheathed cable. For a copy, contact: Watlow Gordon, 5710 Kenosha St., P.O. Box 500, Richmond, IL 60071; tel: 815/678-2211; fax: 815/678-3961.



Watlow Gordon

milling. For a copy, contact: Widia North America, 4701 Marburg Ave., P.O. Box 92950, Cincinnati, OH 45209; tel: 1/888/872-9434; fax: 513/841-8329; e-mail: tushar_desai@milacron.com.

Varian has available a *sample preparation products catalog* that covers products such as polymer-based sorbents, vacuum manifolds, HPLC products, and an SPE that processes 96 samples simultaneously. For a copy, contact: Varian Assoc. Inc., 3050 Hansen Way, Palo Alto, CA 94304-1000; tel: 1/800/421-2825.



Varian Associates Inc.

A 116-page catalog from **Widia** covers the company's *face mills, end mills, slotting mills, and indexable carbide inserts for*

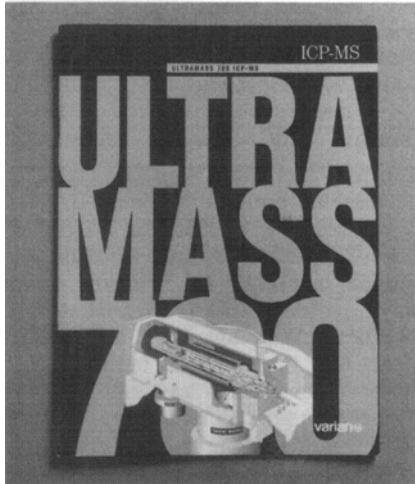


Widia North America

Surface Engineering to Combat Wear and Corrosion, a Design Guide from **The Institute of Materials**, covers techniques for providing a component with a variety of special properties, ranging from minimizing corrosion or wear to acting as a thermal insulator. The guide helps in selecting the most appropriate process by working through a series of logical steps leading to a list of options. The book discusses surface engineering options, understanding the application and performance requirements of the component and its intended application, and available solutions to different wear types and corrosion. Appendices cover surface engineering processes, check lists for defining surface engineering requirements, principles of corrosion and associated mechanical failures, and different wear types. For more information, contact: IOM, 1 Carlton House Terrace, London SW1Y 5DB, England; tel: 44/(0)171/839-4071; fax: 44/(0)171/976-2026.

The Society of Manufacturing Engineers has released two training videos. *Cutting Tool Materials* is a 25-min examination of cutting tools and tool materials. The video focuses on selecting a tool material and when to consider superhard materials. *Cutting Tool Geometries*, a 27-min video intended for machine operators and shop floor employees, demonstrates efficient cutting tool geometry that minimizes heat in the cut and achieves a cool, properly formed chip. For more information, contact: SME, One SME Dr., P.O. Box 930, Dearborn, MI 48121-0930; tel: 313/271-1500; fax: 313/271-2861; web: <http://www.sme.org>.

A brochure, from **Varian Assoc.**, depicts the **Ultramass-700 inductively coupled plasma mass spectrometer** for use with the Cetac Technologies's LSX-100 Laser Ablation accessory in the analysis of metals, alloys, ceramics, glass, polymers, and graphite composite materials. The spectrometer provides PC control of plasma gas flows; X, Y, Z torch positioning; an ion lens; and RF power. For a copy, contact: Varian Analytical Instruments, Varian Assoc., Dept. VNM029, P.O. Box 9000, San Fernando, CA 91341-9981; tel: 1/800/926-3000.



Varian Analytical Instruments

To show when each could be used, products on the **Pyrotek web site**, at <http://www.pyrotek-inc.com>, are listed next to diagrams of the typical operations of four industries: aluminum (smelting, aluminum transfer, and casting), foundry (melting, molding, pouring, heat treat), glass (glass container manufacturers and float glass plants), and steel (metal mold-

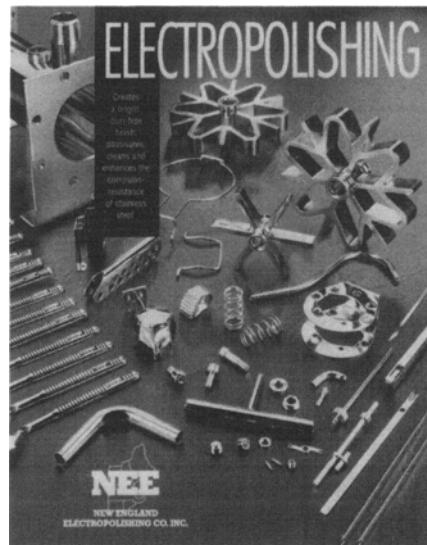
ing). For more information, contact: Pyrotek, E. 9503 Montgomery, Spokane, WA 99206; tel: 509/926-6212; fax: 509/927-2408.

Plastics Recycling, a 186-page report, published by the **Freedonia Group**, projects demand for recycled plastics to increase 10% annually to 1.3 billion kg (2.8 billion lb) in the year 2000. High-density polyethylene and polyethylene terephthalate will account for two-thirds of all recycled resins. Packaging will remain the leading market. The report is available for \$3300.00 from The Freedonia Group Inc., 3570 Warrensville Center Rd., Ste. 201, Cleveland, OH 44122-5226; tel: 216/921-6800; fax: 216/921-5459.

Solutions for Windows is a software database from **Hoechst Technical Polymers** on Celcon acetal copolymer, Fortron linear polyphenylene sulfide, Vectra liquid crystal polymer, Celanese nylon 6 and 6/6, Celanex thermoplastic polyester, Vandar polyester alloys, Celstran long-fiber reinforced thermoplastics, Riteflex polyester elastomers, and Impet recycled polyester resin. The user enters desired material properties, and the software names a resin and estimates part costs. For more information, contact: Hoechst Technical Polymers, Hoechst Celanese Corp., 90 Morris Ave., Summit, NJ 07901-3914; tel: 908/598-4162; fax: 908/598-4165.

The **web site** of **Sermatech International** at <http://www.sermatech.com> has information on protective coatings and component repair for turbomachinery, as well as news, a trade show schedule, a corporate overview, and summaries of technical articles written by company personnel. For more information, contact: Sermatech International, 155 S. Limerick Rd., Limerick, PA 19468; tel: 610/948-5100; fax: 610/948-0811.

A four-page brochure from **New England Electropolishing** describes the **electropolishing of stainless steel parts**, a reverse plating process that removes burrs and improves surface finish without buffing or tumbling. The brochure explains how the process improves the fatigue life of stampings and springs. For a copy, contact: New England Electropolishing Co. Inc., 220 Shove St., P.O. Box 845, Fall River, MA



New England Electropolishing Company Inc.

02722; tel: 1/800/672-6616; fax: 508/673-5252.

Research Triangle Institute has released updated **Solvent Alternatives Guides** for Windows and Macintosh, available free at <http://clean.rti.org>, for use either to evaluate process and chemistry alternatives for a particular situation or as a hypertext manual on cleaning alternatives. The company also maintains the **Coatings Alternatives Guide**, at <http://clean.rti.org/cage>. For more information, contact: Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709-2194.

This **web site** of the **European Powder Metallurgy Association** at <http://www.epma.com> contains industry news, a publications catalog, conference diaries, and information on member organizations. Technical information covers P/M materials and manufacturing techniques, component design tips, and data on properties and tolerances. For more information, contact: EPMA, Old Bank Buildings, Bellstone, Shrewsbury SY1 1HU, UK; tel: 44/(0)1743/248899; fax: 44/(0)1743/362968; e-mail: info@epma.com.

A Materials Properties section, at the web site of **Metal Suppliers On-Line** at <http://www.supplieronline.com>, includes data on 5000 ferrous and nonferrous metals in wrought and cast form, with chemistry, mechanical and physical properties, and links to additional data planned for the future. A Metal Supplier search engine lets the user select a family, grade, and

form for a search that covers the inventory and production capabilities of 2500 North American metals producers and distribu-

tors. For more information, contact: AlloyTech Inc., Salem, NH; tel: 603/890-6500; fax: 603/890-6222; e-mail:

info@alloytech.com; web: <http://www.suppliersonline.com>.

In Business

Carpenter Technology Corporation, Reading, PA, has closed on its acquisition of **Dynamet Inc.**, Washington, PA, a manufacturer of titanium bar and wire and powder alloys. Carpenter sold back Dynamet's McMurray, PA, Forged Products Division to Peter Stephans, the former president and chief operating officer of Dynamet, for \$4 million in cash and assumption of debt.

Endeavour Capital Corporation, New York, will invest \$1.65 million for an 80% stake in **Urethane Technologies Inc.**, Orange, CA, a producer of specialty chemicals and polyurethane systems.

The Freeport, TX, production facility of **Dow Chemical Company**, Midland, MI, has begun production of glycidyl methacrylate (GMA), a monomer for coatings and resins. The plant's production capacity of 6.8 million kg (15 million lb) raises Dow's annual GMA output to 7.9 million kg (17.5 million lb).

ICI Surfactants, subsidiary ICI Performance Chemicals, Wilmington, DE, raised prices by 5% on all products 15 April 1997. The company sells such specialty surfactants as Span, Tween, Brij, Myrij, Arlacel, Atmer, Atlox, and Atlas G.

VWR Scientific Products Corporation, West Chester, PA, will distribute the chemicals, metals, and materials of **Alfa Aesar**, a Johnson Matthey Company, Ward Hill, MA, to the North American market.

BIEC International Inc., Bethlehem, PA, has licensed **Galvak S.A. de C.V.**, Monterrey, Mexico, to produce Galvalume and Zincalume 55% Al-Zn coated sheet steel. Galvak is the sixth Latin American company and fortieth company worldwide to produce the steel.

DG & Assoc. Inc., Vienna, OH, has purchased a Citizen-32 Swiss turning ma-

chine from **Marubeni Citizen-Cincom Inc.**, Japan. The purchase is the culmination of an 18-month, \$800,000 program to expand the company's milling and turning capabilities.

Noran Instruments Inc., subsidiary of ThermoSpectra, Middleton, WI, a manufacturer of imaging, inspection, and measurement instrumentation, has moved its Pacific Rim operations from Tokyo to Kawasaki, Japan. The company can be contacted at Noran Instruments Japan, Parale Mitsui Bldg. 15 Floor, 8 Higashida-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa-ken 210, Japan; tel: 81/44/246-6190; fax: 81/44/246-6191.

MAAC Machinery Corporation, Itasca, IL, has purchased **Comet Industries Inc.**, Sanford, FL. The combined company will have a 15% share of the \$80 million worldwide market for sheet-fed thermoforming equipment.

Macbeth Div., London, England, subsidiary of Kollmorgen Corporation, Waltham, MA, and **Gretag Color Control Systems Div.**, Gretag AG, Regensdorf, Switzerland, are merging. The combined company, GretagMacbeth, New Windsor, NY, will manufacture spectrophotometers and related equipment used in plastics and coating color evaluation.

PPG Industries, Pittsburgh, PA, has acquired 25% of **Cristal Laminado o Templado S.A. de C.V. (CITSA)**, Tepeji del Rio, Mexico, an automotive glass fabricator. PPG's other Mexican operations include coatings plants in Tlalnepantla and San Juan del Rio and an amorphous silicas facility in Altamira.

The Aerospace Industries Association, Washington, DC, has formed the Supplier Management Council, an organization for aerospace suppliers to work with aerospace companies on solutions to common problems, such as the shift to nongovernment standards, performance specifica-

tions, preferred supplier status, participation in multiple design teams, electronic data interchange, and noncompatible systems. For more information, contact: Bill Lewandowski, AIA Vice President, Supplier Management; tel: 202/371-8432.

Republic Engineered Steels, Massillon, OH, reported a net loss of \$0.36 per share for the second quarter of fiscal 1997, versus a loss of \$0.03 for the comparable period in 1996. The company said its disappointing financial results reflected a continuing decline in selling prices, which dropped by an average of \$96 a ton from a year ago. A larger percentage of shipments were of low-margin semifinished carbon and alloy steels (as opposed to higher margin cold-finished and specialty steels). Downward price pressures from new entrants into the SBQ bar market also affected pricing as the company defended its market share. In response to these results, the company will restructure into three divisions (focused on hot-roll bar, cold-finished bar, and stainless/specialty steels), cut 200 jobs, and begin several capital investment projects.

Hoechst Technical Polymers, Hoechst Celanese Corporation, Summit, NJ, and a joint venture partner, **Kureha Industries**, Tokyo, Japan, have increased their production capacity for Fortron linear polyphenylene sulfide (PPS) production at facilities in Wilmington, NC, and Nishiki, Japan, to 9 million kg (20 million lb) per year. A planned debottlenecking will raise Wilmington production capacity an additional 1 million kg (2 million lb) by early 1998. Global demand for PPS is growing 13% annually.

The Steel Parts business unit of **Timken Company**, Canton, OH, will open in May its fourth plant, a 7000 m² (75,000 ft²) hot-forming facility in Winchester, KY, to produce forged bearing components from the company's steel bars. The business unit has doubled in size since its 1993 creation.

Kudos



Dr. A. Haq

Dr. Anwar ul Haq, a member of the International Board of Review of *JMEP*, has been elected to the **Pakistan Academy of Sciences**, the highest scientific organization in Pakistan. The organization, modeled on the Royal Society, England, was founded in 1947 and lists several Nobel Laureates among its 100 members.

Clint Atwood has been named 1997 chairman of the Rapid Prototyping Association of the **Society of Manufacturing Engineers**, Dearborn, MI. Mr. Atwood tests rapid prototyping technologies for Sandia National Laboratories, Albuquerque, NM.

Tocco Inc., Boaz, AL, has appointed **Joe Castelli**, a metallurgical engineer with 14 years experience in manufacturing, as Quality Assurance Director.



B. Chambers

Nikon Inc., White Plains, NY, has promoted **Bill Chambers**, formerly technical manager of the Industrial Instruments section, to product manager for industrial microscopes: stereomicroscopes, microscopes for the materials sciences and semiconductor industries, and various OEM products.



C. Faulkner

Charles Faulkner has been promoted to the position of Marketing Manager for the Heat Treating Department at **Houghton International Inc.**, Valley Forge, PA. Mr. Faulkner had been a Technical Specialist for Heat Treating since 1995.

HI TecMetal Group, Cleveland, OH, has appointed **Randy Miller** as Strategic Business Manager, Brazing & Metal Treating,

MN. Mr. Miller was previously Plant Superintendent at Thermo Fusion, Hayward, CA.

The Tooling and Manufacturing Association, Park Ridge, IL, has announced additions to its board: **Anthony Dupasquier**, Aro Metal Stamping, Chairman; **Richard Steininger**, Sko-Die Inc., Vice Chairman; **James Baumbich**, Diemasters Manufacturing Company, Treasurer; **Timothy Doran**, Tristate Machinery Inc., Director; **Edwin Hedeon**, Cox Automation Systems, Director; **Manfred Mueller**, Northwestern Tool & Die Manufacturing, Director; and **Paul Wagner**, CMI Industries, Director.



G. Zerlaut

Gene Zerlaut, President of SC International Inc., will serve as Senior Technical Consultant to Dset Laboratories, **Atlas Weathering Services Group**, Phoenix, AZ. Mr. Zerlaut will provide technical support in radiometry, optical property measurements, and materials weathering.



H. Shelton

SE Technologies Inc., subsidiary of Vanadium Group, Bridgeville, PA, has appointed **Harold Shelton**, Senior Business Leader, Environmental Engineering, and has appointed **Mastafa Kamal**, Business Leader, Environmental Engineering. Mr. Shelton holds an M.S. in materials engineering from Drexel University. Both men had worked for Con Serve Inc., a Pittsburgh, PA, environmental engineering firm that SE Technologies has acquired.

American Foundrymen's Society, Des Plaines, IL, has awarded the Thomas W. Pangborn Gold Medal to **Daryl Hoyt**, Vice President, Research & Technology, Fairmont Minerals, Wedron Silica Company, Wedron, IL, in recognition of his efforts as a speaker and teacher to foster technology transfer.

Dr. Steven Kubisen, **Dr. Ashok Nayak**, and **Dr. Gregory Smith** have been appointed Directors of the Alcoa Technical Center, Alcoa Center, PA. Dr. Kubisen had been Vice President, Business Development, Werner-Gershon Associates; Dr. Nayak was Technology Director, Corning Inc.; and Dr. Smith was Vice President, Corporate Research & Technology, AlliedSignal Inc.

Neural Applications Corporation, Coralville, IA, has made several appointments: **Santosh Ananthraman**, Group Vice President, Intelligent Systems Services; **Norman Bliss**, Group Vice President, Metal Industry Products; **Paul Juffer**, Vice President, Finance and Administration; **Harry Hefter**, Vice Chairman of the Board; and **Robert Staib**, CEO and Chairman of the Board.

Dr. Robert Eagan has been elected President for 1997 to 1998 of the **Federation of Materials Societies**. Dr. Eagan is Vice President, Electronics, Materials Research and Component Engineering Division, Sandia National Laboratories, Albuquerque, NM.

Dr. David Moran has been named the executive director of the **National Technology Transfer Center**, Wheeling Jesuit College, Wheeling, WV. Dr. Moran is the director of Industrial Outreach for the Office of Naval Research.

The Institute of Scrap Recycling Industries Inc., Washington, DC, has appointed **Patricia Adair** as director of programs and services and **Kent Kiser** as editor of *Scrap* magazine. Ms. Adair came to ISRI from the National Wooden Pallet and Container Association. Mr. Kiser had been managing editor of the magazine.



J. Vaught

Republic Engineered Steels, Massillon, OH, has appointed **John Vaught** as President, Stainless and Specialty Steels Division; **Joseph Lapinsky** as President, Hot Rolled Bar Division; and **Stephen Higley** as



J. Lapinsky



S. Higley

President Cold Finished Bar Division. Mr. Vaught had been Assistant to the Chairman; Mr. Lapinsky had been General Manager, Hot Rolled Bar Operations; and Mr. Higley had been President, Specialty Steel Division.



E. Carozza

Carpenter Technology Corporation, Reading, PA, has named *Eugene Carozza* as president of its Cartech business. Mr. Carozza, who holds a bachelor's degree in metallurgical engineering from Rensselaer Polytechnic Institute, will be responsible for four ceramics engineering and manufacturing operations, in Wood-Ridge and

Carlstadt, NJ; Wilkes-Barre, PA; and Corby, U.K.

Stephanie Kwolek, a retired DuPont chemist, has been named the 1997 recipient of the Perkin Medal by the **Society of Chemical Industry American Section**. Ms. Kwolek will receive the medal in recognition of her discoveries, inventions, and development work that supplied the basis for DuPont's Kevlar fiber. Winners are selected by a jury from the American Section of SCI, the American Chemical Society, the American Institute of Chemists, the American Institute of Chemical Engineers, the Electrochemical Society, and the America Section of the Societe de Chimie Industrielle.



S. DeSimone

Sal DeSimone has been promoted to Group Leader, Rust Preventives & Cleaners, **Houghton International Inc.**, Valley Forge, PA. Mr. DeSimone has been Manager, Rust Preventives, since 1988.



D. Orr

Del Orr has been named General Manager, **Universal Alloy Corporation**, Anaheim, CA. Mr. Orr was formerly President and CEO of Broderick Company, Muncie, IN, a commercial forging company. Mr. Orr had also served as general manager of the Titanium Div., International Light Metals, Martin Marietta, Torrance, CA.

Oxnard Operations, Lumonics, Oxnard, CA, has named **Charles Souder** engineering manager. Mr. Souder will be responsible for engineering and development of the company's laser marking systems.

David Martino has been appointed Vice President of Engineering at **Baker Motion Control Systems Inc.**, Seekonk, MA. Mr. Martino will head a team of engineers focused on improved manufacturing techniques through motion control products.