News

Materials/Products

A two-page product data sheet describes Type YMC, a high-temperature (2000 °C, or 3600 °F) chemically resistant ***yttrium oxide (Y_2O_3) microconcrete*** from **Zyp Coatings** for use in fabricating, patching, filling, and bonding; for reactive metal melting and casting crucible/mold coatings; as a lubricant for superplastic forming; as an antistick release/masking coating for diffusion bonding, hot-press de-canning, and sintering; or as a braze stop-off (especially with titanium). For further information, contact: Zyp Coatings, 120 Valley Ct., Oak Ridge, TN 37830; tel: 423/482-5717; fax: 423/482-1281.

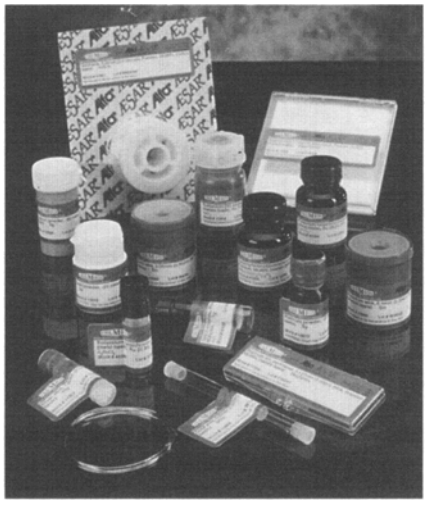
Rust-Oleum Corporation has added eight colors to its line of Labor Saver 5200 ***acrylic water-based enamels:*** 5234 John Deere green, 5235 vista green, 5247 new caterpillar yellow, 5268 tile red, 5274 semi-gloss black, 5288 machine tool gray, 5275 bronzetone, and 5293 semi-gloss white. The coatings are available in one- and five-gallon sizes and provide durable finishes with better resistance to corrosion, chemicals, fading, and weather than oil-based enamels. For more information, contact: Rust-Oleum Corp., Industrial Business Group, c/o ISSI, 28045 Ashley Cir., Libertyville, IL 60048-9517; tel: 1/800/769-6565.

In order to improve abrasion resistance during grit blasting, or thermal resistance during flame spraying, **DeWal Industries** has introduced ***double-ply masking tapes for plasma metal spraying*** applications. These double-ply constructions are produced using different combinations of plasma masking tapes, depending upon the properties desired. For further information, contact: DeWal Industries Inc., 15 Ray Trainor Dr., P.O. Box 372, Saunderstown, RI 02874; tel: 401/789-9736.

3M has introduced three additions to its line of Pronto Instant ***cyanoacrylate adhesives that cure at room temperature without a catalyst:*** a black adhesive, an adhesive with high-temperature resistance and fast-setting characteristics, and another that features nonfrosting attributes. A single drop per square inch can bond materials, such as many plastics, rubber, and metal, with a tensile strength up to 5000 psi. CA-60 is a black adhesive with a slow set speed for bonding porous substrates and materials with different coefficients of thermal expansion. CA-61 is a medium-high viscosity adhesive with a temperature resistance up to 121 °C (250 °F). CA-62 is a methoxyethyl, medium-high viscosity adhesive with nonfrosting characteristics for applications where cosmetically critical bonding methods are required. For more information, contact: 3M Industrial Tape and Specialties Division; tel: 1/800/362-3550.

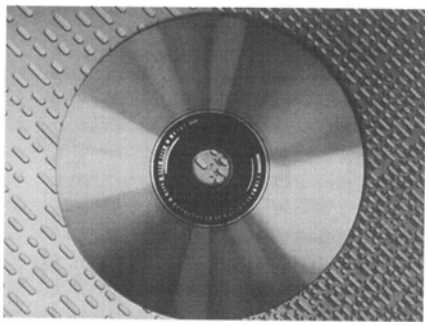
Fiberite Inc. has developed A54 ***cyanate film adhesive,*** for use where low outgassing and moisture gain are required, in applications such as co-curing with cyanate prepreg skins to core or laminate space structures, as well as for secondary bonding. For more information, contact: Fiberite Inc., 2055 E. Technology Cir., Tempe, AZ 85284; tel: 602/730-2000; fax: 602/730-2290; web: http://www.fiberite.com.

Alfa Aesar has introduced the Premion line of ***precious metal compounds and pure elements:*** ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, and gold. There are 130 products in this line available in various forms, sizes, and purity levels. With a minimum purity of 99.99% (metals basis), the elements are designed for use in a variety of applications, such as physical vapor deposition, electronics, and heterogeneous catalysis. The line also includes 70 precious metal compounds, with a minimum purity of 99.95% (metals basis), for use in synthesis and homogeneous catalysis. The compounds are provided with an assay for the respective precious metal element. Alfa Aesar, a Johnson Matthey Co., 30 Bond St., Ward Hill, MA 01835-8099; tel: 508/521-6300; fax: 508/521-6350.



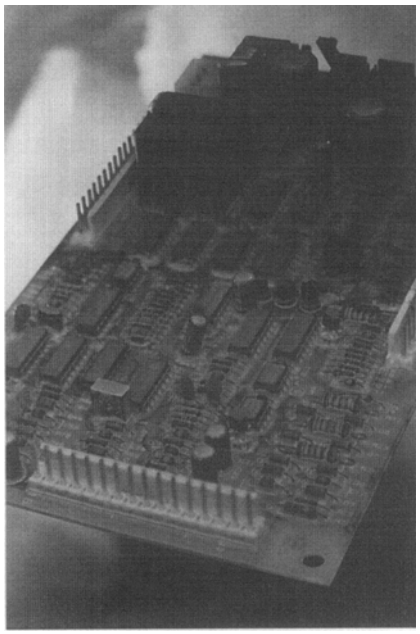
Alfa Aesar

Bayer Corporation has developed Makrolon DP1-1265 ***polycarbonate, expected to become a key material for new digital video disc*** (DVD) and standard compact disc manufacturers who need to push beyond the limits of current CD materials. The polycarbonate, designed to help meet the precise manufacturing standards of the new DVDs, also reduces cycle times for CD and CD-ROM applications. DVDs, feature a thinner substrate and smaller pit size, as well as a higher numerical aperture than CDs. These technical requirements mean DVDs demand a high-performance optical media substrate to control the disc quality parameters of birefringence, dishing, and pit replication, while also reducing cycle time. For more information, contact: Polymers Division, Bayer Corp., 100 Bayer Rd., Pittsburgh, PA 15205-9741; tel: 412/777-2000.



Bayer Corporation

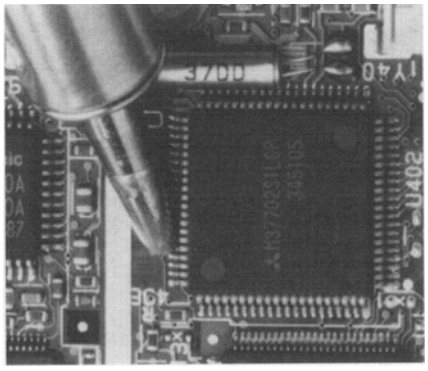
Multi-Cure 984-LVUF from **Dymax Corporation** is ***a UV/visible curing conformal coating for printed circuit board assembly protection.*** Thin-layer coatings cure almost instantly to a depth of 7 mils and fluoresce brightly when exposed to black light. The coating adheres well to a variety of metal, ceramic, and glass-filled epoxy surfaces. Its moderately low viscosity can be cured by exposure to UV light and secondarily with heat for shadowed areas on densely populated circuit boards. The coatings have good electrical properties and can be applied with manual or automated dispense systems. For more information, contact: Dymax Corp., 51 Greenwoods Rd., Torrington, CT 06790; tel: 860/482-1010; fax: 860/496-0608.



Dymax Corporation

Korton MFA film from **Norton Performance Plastics** is a product of the perfluoroalkoxy family of resins and delivers the physical performance of FEP at operating temperatures 50 °C (122 °F) higher. The film also has better thermoformability and weldability than FEP films and better chemical resistance than PFA films. Manufactured in a Class 100,000 clean room, ***these MFA films are for applications such as aerospace composites and printed circuit boards, as bonding films in microwave laminates, and as roll covers and tank linings.*** For further information, contact: Norton Performance Plastics Corp., 150 Day Rd., Wayne, NJ 07470-4699; tel: 201/696-4700; fax: 201/696-4056.

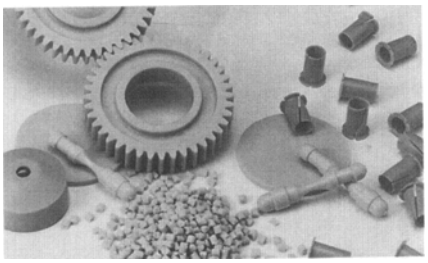
Pace Inc. has released the Mini-Wave ***tip for soldering of surface mount components.*** The tip has a concave elliptical well that holds a miniature reservoir of solder. As the reservoir is drawn across a row of component leads, a "wave" action deposits the right quantity of solder and heat at each lead and land, forming solder joints without bridging. Safe installation is assured since low temperatures are used, and only the molten solder wave, not the tip itself, touches the leads and lands. The tip operates with the company's Sodr-Pen SMT/Thru-hole soldering handpiece. For more information, contact: Pace Inc., 9893 Brewers Ct., Laurel, MD 20723-1990; tel: 301/490-9860; fax: 301/498-3252.



Pace Inc.

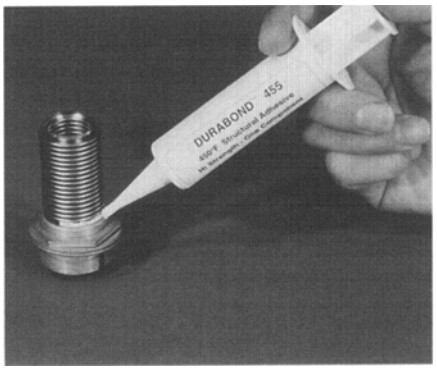
Leco Corporation has printed, ***"Inorganic Analytical Supplies,"*** an eighteen-page catalog of the company's products. The catalog includes carbon/sulfur determinators, nitrogen oxygen determinators, and hydrogen determinators; reagents and catalysts; accelerators and fluxes; O-rings; capsules and crucibles; combustion/reaction tubes and glassware; carbon/sulfur and oxygen/nitrogen primary standards; carbon/sulfur, hydrogen, and oxygen/nitrogen calibration samples; as well as instrumentation accessories. For more information, contact: Leco Corp., 3000 Lakeview Ave., St. Joseph, MI 49085-2396; tel: 616/982-5496; fax: 616/982-8977; web: http://www.leco.com.

DSM Engineering Plastics has introduced ***several specialty grades of lubricated thermoplastics.*** Each aramid fiber-reinforced product has better modulus than neat nylon for load-bearing applications, but without the corresponding increase in abrasiveness that is typical of glass fiber-reinforced compounds. Plaslube nylon 612 grades have 5 to 15% aramid fiber reinforcement, plus additional lubricant additives, for increased dimensional stability over traditional nylons. Stanyl nylon 46 is a high-temperature nylon, with 5 to 15% aramid fiber reinforcement and additional lubricant additives. These thermoplastics can be used in components such as gears, bushings, sheaves/pulleys, tensioners, dampening bands, thrustwashers, chainsnubbers, transmission seals, and transmission rings. For more information, contact: Mark Schireson, Wear and Friction Manager, DSM Engineering Plastics; tel: 610/225-2162.



DSM Engineering Plastics

Durabond 455 from **Cotronics Corporation** is ***a structural adhesive for assembly and production applications.*** Effective to 450 °F, the adhesive bonds most metals, plastics, composites, glasses, ceramics, and dissimilar materials. This machinable adhesive has good bond strength, temperature stability, thermal shock resistance, and chemical resistance. For further information, contact: Cotronics Corp., 3379 Shore Pkwy., Brooklyn, NY 11235; tel: 718/646-7996; fax: 718/646-3028.



Cotronics Corporation

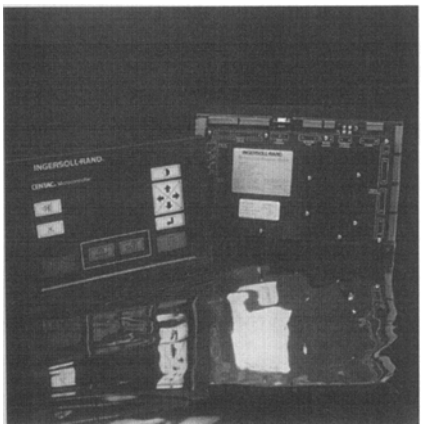
Starfire Systems has developed ***a vapor-phase carbon coating process for ceramic fiber cloth and fiber preforms.*** The proc-

ess deposits adherent 0.05 to 0.3 μm thick carbon coatings onto ceramic cloths or woven preforms with little or no fiber bridging. The carbon-coated cloth can be stacked to produce laminate structures. The preforms are then rigidified by bonding fiber tow contact points using a variable viscosity, near-stoichiometric silicon carbide precursor polymer called HPCS. The rigidified preform is free-standing and can be further densified by other ceramic matrix forming techniques such as chemical vapor infiltration. For more information, contact: Starfire Systems Inc., 877 25th St., Watervliet, NY 12189; tel: 518/276-2112; fax: 518/276-3069.

Celcon TX90 ***acetal copolymer*** from **Hoechst Technical Polymers** formulated for improved impact and fatigue resistance in response to a problem at Dzus, a fastener maker that was experiencing cracking in some of its receptacles. TX90 has 11% elongation at yield in ISO 527-1 and -2 test at room temperature; 280 ksi flexural modulus at ambient temperature; tensile strength of 7.2 ksi at room temperature. 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.

Processing/Equipment

The Centac MicroController, from the **Air Compressor Group of Ingersoll-Rand,** is ***a compressor control system*** that displays operating conditions, alarm and trip status, and control mode data with the touch of a button. The system is the latest generation of control systems to be used on Ingersoll-Rand centrifugal compressors. The new controller, available as an optional package or upgrade, will become the standard control system for all of the company's centrifugal compressors. For more information, contact: Ingersoll-Rand Co., Air Compressor Group, Dept. NR-645, 235 E, Washington Ave., Washington, NJ; fax: 908/689-5580.

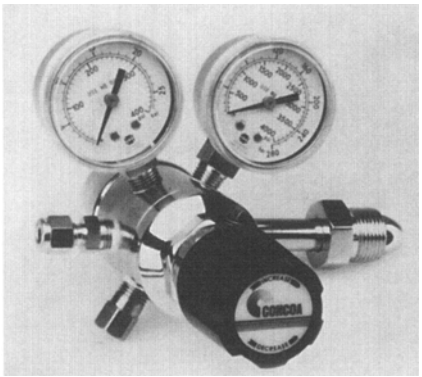


Ingersoll-Rand Company

The 4002 ***ultrasonic cleaning system*** from **L&R Manufacturing** has separate tank and generator systems, so that users can custom design the system for their own needs. A Constant Power Output ensures reliability in industrial cleaning applications. Also available are optional heaters, stainless steel covers and parts baskets, master controllers, pump and filter systems, tank stands, and aqueous or semi-aqueous cleaning solutions. For more information, contact: L&R Manufacturing Co., 577 Elm St., Kearny, NJ 07032-3604; tel: 201/991-5330.

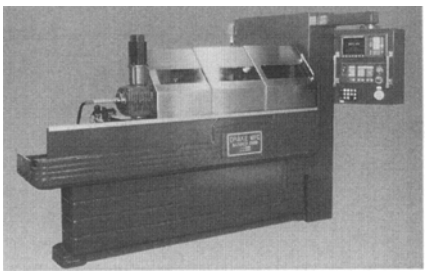
L&R Manufacturing Company

Concoa has introduced a series of ***regulators and a distribution system for metal cutting and welding lasing gas use.*** The 5230/5240 regulators and 523 cryogenic gas distribution system have spring-loaded relief valves that vent excess pressure and reset automatically for return to normal service. The regulators are rated 500 and 250 psig, respectively. For more information, contact: Concoa, 1501 Harpers Rd., Virginia Beach, VA 23454; tel: 1/800/225-0473.



Concoa

Drake Manufacturing has available ***an internal thread CNC grinding machine*** for production of components such as ball nuts, gauges, power steering nuts, and internal thread parts. The machine has size control within ±0.0002 in. Because the machine is customized to each manufacturing environment, to set up for a given part, the operator needs only to enter the workpiece parameters; menu-driven programs take it from there. Factors such as dressing forms, grind paths, and spindle and work SFM are precalculated and stored in memory. CNC-controlled diamond roll dressing is standard. For more information, contact: Drake Manufacturing, 4371 N. Leavitt Rd., Warren, OH 44485; tel: 330/847-7291; fax: 330/847-6323.



Drake Manufacturing

Bridgeport Machines is producing the Powerpath 15 ***CNC lathe.*** The machine has a high-torque spindle and a 35° slant bed design. The casting design maintains thermal stability in the headstock, even after hours of high-production cutting. The 15 hp, AC , variable-speed spindle motor is coupled with a two-range, programmable-speed automatic gear box, with induction-hardened and ground gears. Torque ranges of 15 to 1500 or 45 to 4500 are possible, and the lathe has a 2 in. bar capacity with a 17.32 in. (440 mm) swing over the "Z" cover, for travel of

21.26 in. (540 mm) on the Z-axis and 7.28 in. (185 mm) on the X-axis, with a rapid traverse of 590 ipm (15 mpm) on each. For more information, contact: Bridgeport Machines Inc., 500 Lindley St., Bridgeport, CT 06606; tel: 1/800/243-4292.

Bridgeport Machines

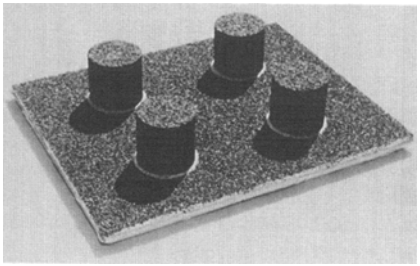
Seco/Warwick Corporation has available ***two brochures on furnaces for the aluminum industry.*** "Controlled Atmosphere Aluminum Brazing Systems" describes the controlled atmosphere brazing process and equipment options offered by the company's radiation, convection, batch, and vacuum purge furnaces. "Aluminum Log Homogenizing Furnaces" describes the aluminum-processing capabilities of the company's batch designs using cars or trays, traveling furnaces, and continuous operating systems. Airflow, temperature control, and cooling systems are discussed. For a copy of either brochure, contact: Seco/Warwick Corp., 180 Mercer St., Meadville, PA 16335.

Computational Systems Inc.'s PeakVue is a feature on the 2120 Machinery Analyzer that ***recognizes low-energy vibration signals on machinery*** of any speed, exposing faults associated with improper gear meshing, damaged gear teeth, and antifriction bearing defects. The effectiveness of the function is independent of analysis bandwidth. The function can also be used by attaching a SPV-305 PeakVue box to any FFT machinery analyzer. For more information, contact: Computational Systems Inc., 835 Innovation Dr., Knoxville, TN 37932; tel: 423/675-2400, ext. 2333; fax: 423/675-3100.

Ingersoll-Rand Company has available ***a filter system for continuous compressed air.*** The high-efficiency coalescing, coarse coalescer/particulate, and activated charcoal filter systems help prevent contaminants—such as oil, dust, dirt, rust, and water—from attacking compressed air systems, clogging pneumatic instruments, reducing air-operated tool efficiency, wearing out seals, or eroding system components. For further information, contact: Ingersoll-Rand Co., Dept. NR-631, 253 E. Washington Ave., Washington, NJ 07882; fax: 908/689-5580.

Ingersoll-Rand Company

The MC Multicast ***filtration system*** from **Metaullics Systems Company L.P.** performs multiple-cast filtering for extrusion billet, ingot, and rolling slab. The system is particularly suited to casthouses in which efficient degassing is employed upstream to provide particulate removal by flotation. When needed, the system design allows for easy scarfing with nitrogen between drops and skimming through an optional skim door. The machine is available in two sizes: the MC-24 for flow rates to 270 kg/min (600 lb/min), and the MC-30 for flow rates to 730 kg/min (1600 lb/min). For more information, contact: Metaullics Systems Co. L.P., 31935 Aurora Rd., Solon, OH 44139; tel: 216/349-8800; fax: 216/248-3432.



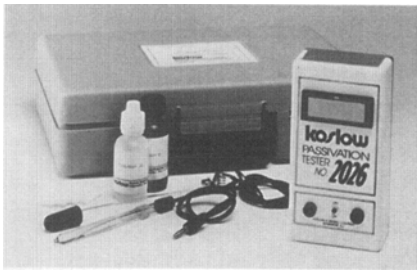
Metaullics Systems Company

A Big Bed configuration for EtO-Abator systems, rather than the traditional catalyst tray design, allows for a smaller quantity of large fill-in-place catalyst beds to be used, thus reducing costs. The process for these systems developed by **Donaldson Company** converts the EtO to carbon dioxide and water vapor by means of a catalyst. The catalyst destroys 99.9% of the EtO encountered. The company produces a full range of EtO emission control products. For more information, contact: Donaldson Co., 1400 W. 94th St., P.O. Box 1299, Mailstop 341, Minneapolis, MN 55440-1299; tel: 1/800/727-5665; fax: 612/887-3612.

Measurement/Testing/Evaluation

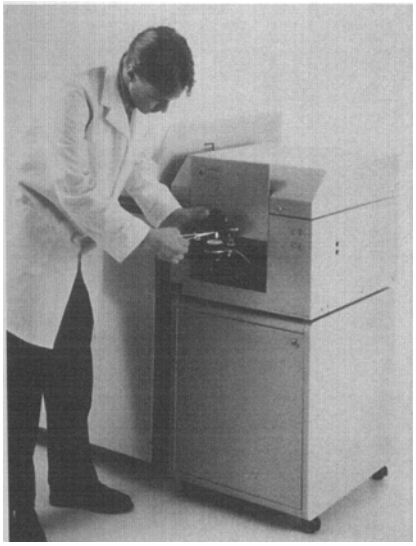
Centurion NDT has introduced the FM-140XL ***digital conductivity tester.*** The device is useful for sorting nonferrous materials and for measuring small changes in a material's conductivity that may take place during engineering processes such as hardening, annealing, and heat treating. For sorting applications, the tester lets the operator preset the range of acceptable readings. For more information, contact: Centurion NDT, 707 Remington Rd., Ste. 9, Schaumburg, IL 60173; tel: 847/884-4949; fax: 847/884-8772.

Koslow Scientific has printed a two-page information sheet on the Passivation Tester 2026, a handheld device that determines ***if stainless steel is passivated, or nonreactive with its environment, by confirming the removal of surface-free iron.*** In a test, electrical contact is made via a moist pad on the test surface and a probe pressed onto the pad to complete the circuit. For more information, contact: Koslow Scientific Co., 75 Gorge Rd., Edgewater, NJ 07020; tel: 1/800/556-7569; fax: 201/941-4485; e-mail: qkos@aol.com.



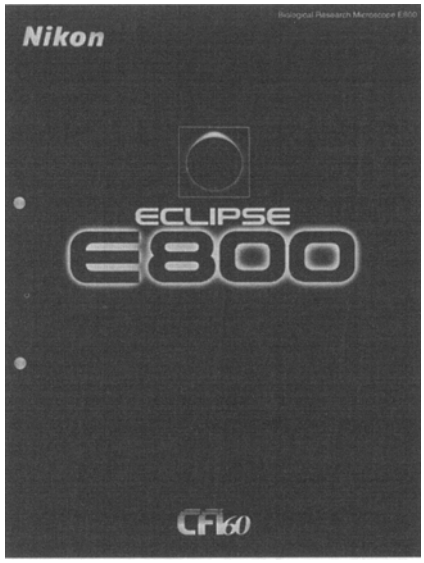
Koslow Scientific Company

Varian Analytical Instruments has designed the Ultramass-700 ***inductively coupled plasma mass spectrometer*** for use with the Cetac Technologies' 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 more information, contact: Varian Analytical Instruments, Dept. VIC017, P.O. Box 9000, San Fernando, CA 91341-9981; tel: 800/926-3000.



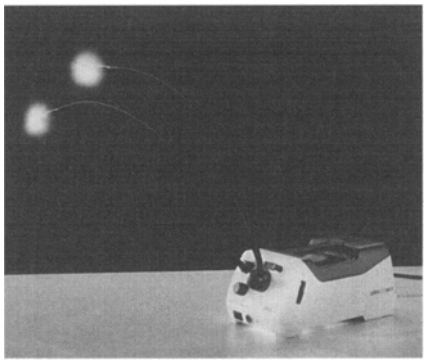
Varian Analytical Instruments

Nikon Instrument Group has available the Eclipse E800. The CFI60 optical system of this ***research microscope*** uses conventional infinity optics to observe fields up to 50 mm in diameter. Objectives are available from 0.5× to 100× magnification, for techniques such as brightfield, phase contrast, DIC, fluorescence, and confocal observation. A 24-page brochure from the company describes the microscope and its optical system. For further information, contact: Instrument Group, Nikon Inc., 1300 Walt Whitman Rd., Melville, NY 11747-3064; tel: 516/547-4200; web: http://www.nikonusa.com.



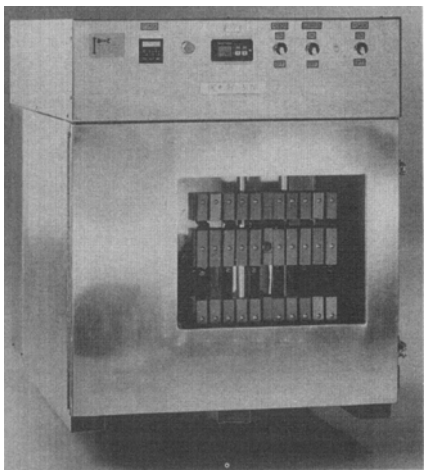
Nikon Instrument Group

Leica Inc. has introduced the CLS series ***cold-light sources for the company's stereomicroscopes.*** The light sources produce high-intensity, flicker-free white light within a small space, combined with minimal heat on the specimen or object viewed. Deprived of its heat-generating infrared components, the light is guided along bundles of glass fibers to the object viewed. For further information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.



Leica Inc.

The **Edwin H. Benz Company** is producing the DeMattia ***flex testing instrument for measuring resistance to dynamic fatigue of vulcanized rubber and elastomer compounds.*** The flex tester subjects parts to repeated bending and extension under controlled conditions to determine the expected number of test cycles until failure. The instrument has been designed to conform to ASTM D-430B and D-813 specifications. For further information, contact: Edwin H. Benz Co. Inc., 73 Maplehurst Ave., Providence, RI 02908-5398; tel: 401/331-5650; telex: 499-4383; fax: 401/331-5685.

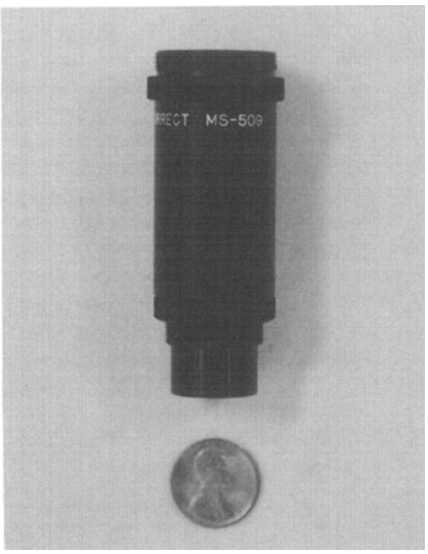


Edwin H. Benz Co. Inc.

"Frequently Asked Questions: Utilizing Glow Discharge in Optical Emission Spectroscopy," a booklet from **Leco Corporation,** provides technical information on the company's ***glow discharge spectrometers,*** for analysis of metals, alloys, and other materials. For a copy, contact: Leco Corp., 3000 Lakeview Ave., St. Joseph, MI 49085-2396; tel: 616/982-5496; fax: 616/982-8977; web: http://www.leco.com.

Two ***wide-field video zoom tubes*** are available from **Seiwa Optical Company.** The MS-3 has a 3:1 zoom ratio, optical magnification ranges from 0.13× to 0.39×,

and a working distance of 200 mm. The MS-509 has a 1:5:1 zoom ratio, optical magnification ranges from 1× to 1.5×, and a working distance of 75 mm. Both are 66 mm (2.6 in.) long and 25 mm (1 in.) wide. For more information, contact: Sal Cortorillo, Seiwa Optical Co. Ltd., One Blue Hill Pl., Pearl River, NY 10965-8667; tel: 914/620-1999, ext. 12; fax: 914/620-1950; e-mail: hsalm@aol.com.



Seiwa Optical Company

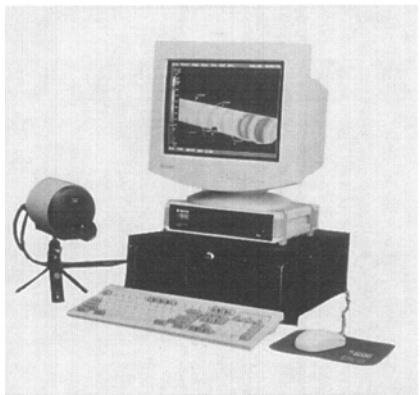
The 5073PR broadband 75 MHz ***ultrasonic pulser-receiver,*** from **Panametrics Inc.,** is used with an oscilloscope and transducers in the 10 to 50 MHz range. Applications include high-resolution flaw detection or identification of disbonded conditions in critical parts, C-scanning, thin material thickness measurements, spectrum analysis, and transducer characterization. For further information, contact: Panametrics Inc., NDT Division, 221 Crescent St., Waltham, MA 02154; tel: 1/800/225-8330; fax: 617/899-1552; telex: 6817337.

Panametrics Inc.

Zumbach Electronics Corporation's ODAC-2 is ***a noncontact laser-based gaging sensor*** that can measure diameters to 0.012 mm (0.0005 in.) of opaque products. The instrument has a repeatability of ±0.1 μm (±4 μin.) 3 sigma with a scanning frequency of 240 scans/s and a measuring field of 2 mm (0.08 in). Applications include measurement processes such as wire drawing, extrusion, grinding, and polishing. For more information, contact: Marketing Department, Zumbach Electronics Corp., 140 Kisco Ave., Mt. Kisco, NY 10549; tel: 914/241-7080; fax: 914/241-7096.

An x-ray system, from **Starfire Systems Inc.,** ***nondestructively evaluates ceramics, composite, and light metal components.*** The desktop system requires no film and stores images on computer disks. Current resolution is 0.0019 in., and image acquisition takes 4 s. The x-ray head produces a focused beam that allows the systems to operate with little or no shielding. The Windows/DOS-compatible software enhances images with features such as contrast and brightness control, distance measurement, and zoom/pan. The images can be imported into commercially available imaging software or word-processing programs. For more information, contact: Starfire Systems Inc., 877 25th St., Watervliet, NY 12189; tel: 518/276-2112; fax: 518/276-3069.

The M9000 Pyrovision ***infrared imaging system,*** from **Mikon Instrument Company Inc.,** measures temperature and shows temperature distribution of continuous cast strands. The system has a narrow band of spectral response in the near-infrared region that minimizes measurement errors due to variations in target emissivity. For more information, contact: Mikron Instrument Company Inc., 16 Thornton Rd., Oakland, NJ 07436; tel: 1/800/631-0176; fax: 201/405-0090.



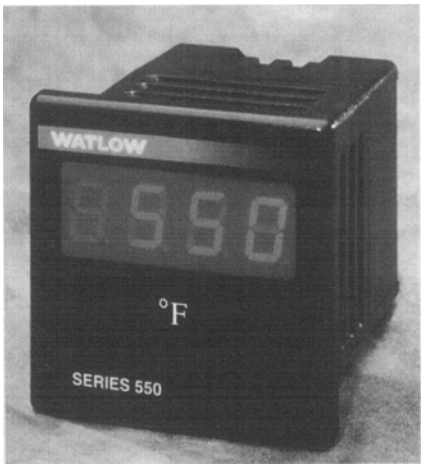
Mikron Instrument Company Inc.

Varian Associates Inc.'s Star Custom Report Writer for Windows 3.11 or 95 software ***transcribes detailed chromatographic results into report format.*** Program users develop custom report templates for each type of sample and standard. Direct visual layout of report templates allows for on-screen editing of report layout and design. Several chromatograms can be arranged side-by-side or overlaid on a single-page report. For further information, contact: Varian Analytical Instruments, Dept. VWC089, P.O. Box 9000, San Fernando, CA 91341-9981; tel: 1/800/926-3000.

Origin Professional for Windows, from **Microcal Software Inc.,** ***analyzes, graphs, and professionally presents data for scientific and engineering applications.*** The program features graph types such as bubble plots, and ternary, line, scatter, area, bar, pie, polar, vector, and statistical charts. The program's analytical features include smoothing, regression, and ANOVA, baseline and peak analysis, Fast Fourier Transform for digital signal processing, and a nonlinear curve fitter. For more information, contact: Microcal Software Inc., One Roundhouse Pl., Northampton, MA 01060; tel: 1/800/969-7720; fax: 413/585-0126.

Fischer Technology's Sigmascope SMP1B is a handheld ***instrument for measuring the electrical conductivity of nonferrous metals and alloys.*** A pencil probe is placed on an object, and the measured value in MS/m or %IACS is immediately displayed on the LCD. Appropriate uses include aluminum and copper production, aircraft maintenance, incoming product inspection, process monitoring, and metal wholesale and scrap. A scaled-down version of the instrument, the SMP1BS, does not have the SPC capabilities of the SMP1B. For further information, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 1/800/243-8417; fax: 860/688-8496; e-mail: fischer-technology @worldnet.att.net.

The **Watlow Electric Manufacturing Company** is manufacturing the 550 ***temperature indicator.*** The 1/16 DIN case features a NEMA 4X (IP65) front panel that provides the controller with water and corrosion resistance. When properly in-



Watlow Electric Manufacturing Company

stalled, the front panel can be hosed down without causing damage to the indicator, making the device ideal for applications where equipment needs to be cleaned frequently. The unit has a 10 mm (0.4 in.) LED display for viewing at a distance. For further information, contact: Watlow Electric Manufacturing Co., 12001 Lackland Rd., St. Louis, MO 63146; tel: 314/878-4600; fax: 314/878-6814.

The MPS 60 camera system, from **Leica Inc.,** allows the photomicrographer ***to take routine pictures as well as record objects on film quickly and reliably.*** The system produces results even with fluorescing specimens, faint objects, or fine structures. Automatic functions make the photomicrography faster, in situations when the object viewed is changing or when a work sequence frequently varies.

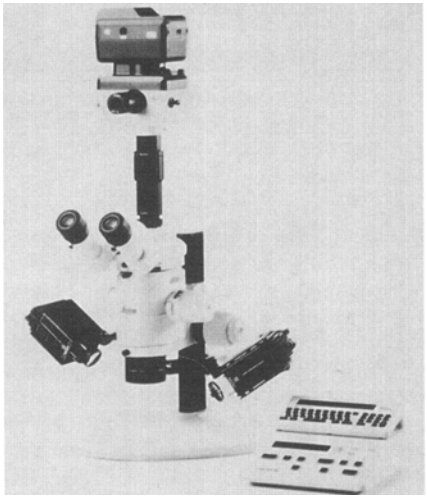


Fig. 24—Leica Inc.

The camera system captures signals from the photodiode, applies the variables (film speed, individual exposure, brightfield/darkfield/fluorescence), and inspects the results automatically. For further information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.

MTS Systems Corporation is producing the TestStarIIs control system and Windows NT-based applications software for materials and component testing. The ***digital servohydraulic test control system*** incorporates a single-channel, single-station controller and a personal computer with Basic TestWare, an application that enables users to configure and run simple tests. An optional software package runs a variety of test programs, and specialized applications for elastomeric properties, fatigue, and fracture are being developed. For more information, contact: MTS Systems Corp., 14000 Technology Dr., Eden Prairie, MN 55344-2290; tel: 612/937-4000; fax: 612/937-4515; web: http://www.mts.com.

International Research/Manufacturing Centers

Sandia National Laboratories has developed ***a simple method to monitor thin-film stress to improve electronic, magnetic, and optical devices.*** The method to determine stresses in very thin films of materials requires the use of a low-power laser and a half-dollar-sized piece of specially coated optical glass. From a single laser beam, the coated glass creates an array of parallel beams aligned like the teeth on a comb. By monitoring small deflections of the beams after they bounce off a target, its warp and hence its stress can be measured. Since the method is impervious to outside vibrations, researchers can measure stress as it builds in a noisy environment rather than interrupt the process to remove the product for off-line analysis. For more information, contact: Eric Chason, Sandia National Laboratories, Livermore, CA; tel: 505/844-8951; e-mail: ehchaso@sandia.gov.

Congress departed from the cuts projected in its fiscal year (FY) 1997 budget resolution and approved appropriations providing a 4.1% increase for R&D for FY 1997. Nevertheless, a preliminary analysis by the **American Association for the Advancement of Science** indicates that ***the increase only begins to make up ground lost in the previous three years to spending cuts and inflation.*** Congress approved a total of $74 billion for R&D programs for FY 1997, an increase of $2.9 billion over FY 1996. Every major R&D funding agency except NASA and the Department of the Interior received increases. However, the overall boost for R&D in FY 1997 was not enough to overcome three years of level funding at $71 billion, resulting in a net loss to inflation of 1.9% between FY 1994 and FY 1997. A report on the issue, *Congressional Action on the R&D in the FY 1997 Budget,* is available. For more information, contact: AAAS, 1200 New York Ave., NW, Washington, DC 20005; tel: 202/326-6440; fax: 202/789-0455; web: http://www.aaas.org/spp/dspp/rd/rdwwwpg.htm.

University View

The **Fabricators & Manufacturers Association International** and the **Tube & Pipe Association International** will award to high-school seniors and college juniors and seniors ***scholarships in engineering or manufacturing-related fields.*** Applicants must be full-time students, with a 3.0 grade point average, and have a parent who is a member of one of these societies. For more information, contact: Fabricators & Manufacturers Association International, 833 Featherstrone Rd., Rockford, IL 61107-6302; tel: 815/399-8700; fax: 815/399-7279.

George Washington University's School of Engineering and Applied Science is halfway through ***a $10 million fundraising campaign.*** The campaign is being led by David Wang, a mechanical engineering graduate of the school and a retired International Paper Company executive. The endowment increase will be used in part to fund scholarships for undergraduate and graduate students. For more information, contact: GW University, Washington, DC 20052; tel: 202/994-6460.

While participating in the **American Iron and Steel Institute's** summer intern program, ***students design vehicles*** that are aesthetically appealing, safe, lightweight, and inexpensive. With assistance from steel industry application specialists and Big Three automotive designers, students learn the design and engineering potential of steel and gain a better understanding of how to work with the material. For more information, contact: the Center for Creative Studies, 201 E. Kirby, Detroit, MI 48202-4034; tel: 313/872-3118; fax: 313/872-8377.

The current issue of ***Rare-Earth Information Center News*** (Vol 31, No. 3), published by **Iowa State University's Ames Laboratory,** has a profile of the Solution Chemistry Group, Meiji University, Kawasaki, Japan; reviews of the *Handbook on the Physics and Chemistry of Rare Earths* (Vol. 20) and *Rare Earth Elements and Their Applications;* and an update on new materials, from the *Japan New Materials Report.* For more information, contact: The Center for Rare Earths and Magnetics, Ames Laboratory, Institute for Physical Research and Technology, Iowa State University, Ames, IA 50011-3020.

Literature/Data Sources

By the year 2000, 4 billion kg (9 billion lb) of ***plastic container resin*** will be used in the United States annually. Over the next five years, use of PET in containers will grow faster (at 7.8%) than HDPE (2.1%) or other resins (2.7%). However, the projected annual container resin growth rate of 3.9% remains lower than the 5.7% posted from 1985 to 1995. A report on the industry, *Plastic Containers,* is available for $3200 from **The Freedonia Group Inc.,** 3570 Warrensville Center Rd., Ste. 201, Cleveland, OH 44122-5226; tel: 216/921-6800; fax: 216/921-5459.

Advanced Polymer Sciences has available five product data sheets on Siloxirane-based products. Siloxirane is the company's ***polymer resin.*** The data sheets focus on: Powerline, a polymer resin for handling the high temperatures and abrasion requirements of the power industry; Siloxirane 2031, a two-component force cure system that can withstand temperatures of 260 °C (500 °F); Siloxirane 2032, a two-component, ambient or low-temperature force cure that has good chemical resistance; Siloxirane 2431, an abrasion-resistant heat-cured polymer lining system that has good abrasion and chemical resistance at high temperatures; and Siloxirane 2432, an abrasion- and chemical-resistant, two-compound ambient-cured polymer lining system. For more information, contact: Advanced Polymer Sciences, P.O. Box 269, Avon, OH 44011; tel: 1/800/334-7193; fax: 216/937-5046.

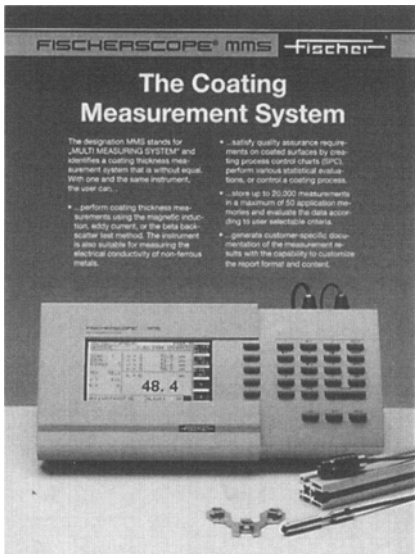
A 15-page booklet from **LOI Gruppe** contains ***an overview of enameling technology.*** The brochure describes the processes involved in enameling from the treatment of the base material: welding, degreasing, processing, application, spraying, drying, firing, assembly, and packing. The range of products that can be enameled in plants are also describes: boilers, tubes, heating registers, panels, valves, ovens, and other industrial equipment. For a copy, contact: Tom Zamanski, LOI Inc. USA, 200 Oxford Dr., Bethel Pk., Pittsburgh, PA 15102; tel: 412/835-4646; fax: 412/835-6740.

The **Metal Powder Industries Federation** has printed the ***1996 Powder/Metallurgy Buyers' Guide.*** This 126-page directory gives the production capabilities of 115 manufacturers of P/M products made from steel, stainless steel, copper, brass, bronze, aluminum, titanium, nickel, tool steel, superalloy, and tungsten metal powders. For a copy, contact: the Metal Powder Industries Federation, 105 College Rd. E., Princeton, NJ 08540-6692; tel: 609/452-7700; fax: 609/987-8523.

International Carbide Data has published the ***World Directory and Handbook of Hardmetals and Hard Materials (6th ed.).*** The volume combines an illustrated explanatory text handbook with a comprehensive technical and commercial directory that covers manufacturers, material grades and properties, products, and principal users and suppliers of raw materials. Also included are charts of ISO machining codes, coated hardmetals, and grades for wear resistance. For a copy ($395.00), contact: Ken Brookes, International Carbide Data, 33 Oakhurst Ave., East Barnet, Herts., UK EN4 8DN; tel/fax: 44/181/368-4997.

Technomic Publishing Company Inc. has printed the ***Proceedings of the American Society for Composites (11th Technical Conference, October, 1996, Atlanta, GA).*** The 1125-page book covers design/analysis, damage mechanics and tolerance, PMC durability, micromechanics, compressive behavior, polymers/fibers, functionally graded composites, textile composites, joints, constituent materials, manufacturing processes, and applications. For a copy ($295.00), contact: Technomic Publishing Co. Inc., 851 New Holland Ave., P.O. Box 3535, Lancaster, PA 17604; tel: 717/291-5609; fax: 717/295-4538; e-mail: marketing@techpub.com.; web: http://www.techpub.com.

Fischer Technology offers a 14-page brochure on the Multi-Measurement System. ***This instrument uses the magnetic induc-***

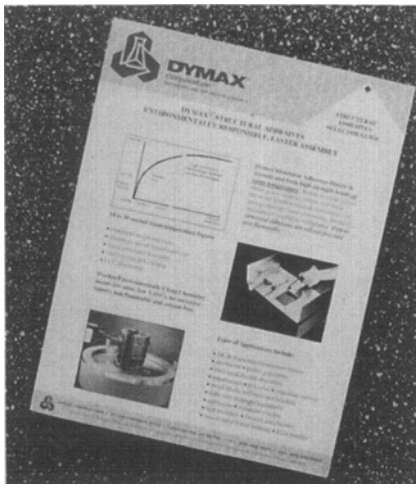


Fischer Technology Inc.

tion, eddy current, and beta backscatter test methods to measure coating thickness. The unit can also measure the electrical conductivity of nonferrous metals. The brochure contains a table for selection of the correct test method for a given application. For a copy, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 1/800/243-8417 (in CT: 860/683-0781); fax: 860/688-8496.

A four-page report from **General Magnaplate** describes how the company's ***surface enhancement coatings resist corrosion, abrasion, and wear of metal parts used in mining, drilling, and oil and gas operations.*** Case histories spotlight the Channel Tunnel, Ekofisk drilling platforms in the North Sea, cutting tools, and air moving equipment. For more information, contact: General Magnaplate Corp., 1331 Rte. 1, Linden, NJ 07036; tel: 1/800/852-3301; fax: 908/862-6110; e-mail: info@magnaplate.com; web: http://www.magnaplate.com.

A structural adhesive selector guide from **Dymax Corporation** contains information on a variety of metals, plated metals, glass, ceramics, and filled thermoset plastics that can be assembled with the company's structural adhesives. These are solvent-free aerobic acrylic adhesives with a thermal range of –50 to 150 °C (–65 to 300 °F). For a copy, contact: Dymax Corp., 51 Greenwoods Rd., Torrington, CT 06790; tel: 860/482-1010; fax: 860/496-0608.



Dymax Corporation

The **Aluminum Extruders Council** has available ***a wall chart that depicts the key steps of various processes required to produce aluminum profiles:*** design, extrusion, fabrication, and finishing. The chart, titled "The Life Cycle of Aluminum Extrusions," measures 60 90 cm (24 36 in.) and is printed on heavy stock paper for display. The council also distributes a notebook-sized chart to schools. For more information, contact: Aluminum Extruders Council, 1000 N. Rand Rd., Ste. 214, Wauconda, IL 60084; tel: 847/526-2010; fax: 847/526-3993; e-mail: aec@mc.net.

A chart produced by **Pelmor Laboratories Inc.** ***rates the hardness, tensile strength, elongation, heat and chemical resistance, and other properties of elastomers:*** natural rubber, butyl, EPDM, epichlorohydrin, ethylene/acrylic, fluoroelastomer, fluorosilicone, chlorosulfonated polyethylene, polychloroprene, nitrile, polybutadiene, polyisoprene, polysulfide, SBR, silicone, and urethane. For a copy, contact: Pelmor Laboratories Inc., 401 Lafayette St., Newtown, PA 18940-0309; tel: 1/800/772-6969; fax: 215/968-6415.

NSL Analytical Services, a laboratory, has posted on the World Wide Web at http://www.nslanalytical.com, ***information on its materials and environmental testing capabilities,*** accreditations, credentials, and quality control. Links provide access to related service companies, current events, upcoming trade shows, technical articles, and other reference sites. "Message Center" contains e-mail links to several laboratory employees. For more information, contact: NSL Analytical Services Inc., 7650 Hub Pkwy., Cleveland, OH 44125; tel: 216/447-1550; fax: 216/447-0716.

A two-sided chart from **Corro Therm Protective Coatings Inc.** rates ***the resistance of nine commonly used polymers and metals to 67 chemicals and corrosive liquids.*** Ryton, Kynar, Teflon, polysulfide, nylon, polycarbonate, stainless steel, carbon steel, and aluminum are judged "acceptable," "questionable," or "not recommended." For a chart, contact: Corro Therm Protective Coatings Inc., 175 Philmont Ave., Feasterville, PA 19053; tel: 1/800/726-7948; fax: 215/322-3023.

"Advanced Engineering Plastics for the Semiconductor Industry" is a ten-page brochure published by **DSM Engineering Plastic Products.** Text and comparison charts cover performance characteristics and typical applications of the company's materials, for use in applications that require electrostatic dissipation, chemical resistance, dimensional stability, high purity, and thermal resistance. For more information, contact: DSM Engineering Plastic Products Inc., Polymer Corp., 2120 Fairmont Ave., P.O. Box 14235, Reading, PA 19612-4235; tel: 610/320-6600; fax: 610/320-6868.

Rephosphorized ultralow carbon steel is the subject of the eight-page Summer 1996 *High-Strength Steel Bulletin* from the **Auto/Steel Partnership.** A study by researchers at Chrysler Corporation, Detroit, MI, of an outer door panel concluded that using the thinner gage steel while maximizing press settings for strain in the stamping process resulted in a lighter, more dent-resistant automotive body panel. For a copy, contact: Auto/Steel Partnership, 2000 Town Center, Ste. 1900, Southfield, MI 48075-1137; tel: 810/351-2661; fax: 810/351-2691.

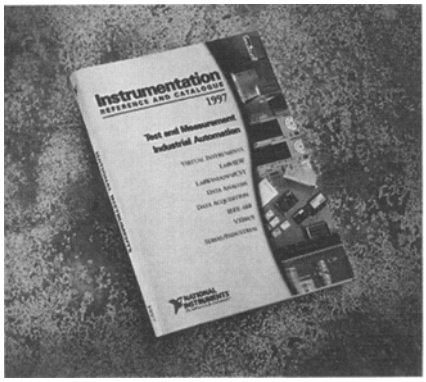
L&R Manufacturing Company has published a catalog of its ***ultrasonic cleaning systems, solutions, and accessories.*** All sizes of systems are available, as well as multichambered and recessed units, and immersible transducers. The aqueous, semi-aqueous and petroleum-based solutions are formulated for specific cleaning tasks. Beakers, baskets, and auxiliary pans are also covered. For more information, contact: L&R Manufacturing Co., 577 Elm St., Kearny, NJ 07032-3604; tel: 201/991-5330.

Http://www.sae.org/apn is the address of *Auto Product News,* a **Society of Automotive Engineers** Web publication that is ***an electronic library of the automotive industry's most recent product announcements.*** Announcements are posted for one week and then archived for one year. A similar service is *Auto Headline News,* which disseminates ***automotive news from published sources around the world via e-mail.*** For information, contact: SAE, 400 Commonwealth Dr., Warrendale, PA 15096-0001; tel: 412/776-4841; fax: 412/776-2103; e-mail: apn@sae.org.

Arnold Engineering Company has published a 20-page booklet on ***selection of the proper material for a specific core***

application. The booklet reviews magnetic theory and core applications from DC to 100 kHz. Materials covered include silicon steel, powdered iron, Sendust, Molypermalloy, Hi-Flux, Super-MSS, and ferrites. For a copy, contact: Arnold Engineering Co., 300 N. West St., Marengo, IL 60152; tel: 1/800/545-4578; fax: 815/568-2228.

National Instruments has available its 696-page *1997 Instrumentation Reference and Catalog,* describing the company's



National Instruments

500 computer software and hardware products for testing, measurement, and industrial automation. The catalog has six sections: software, data acquisition, GPIB, VXI/MXI, industrial communications, and customer education. Tutorials and selection guides are included. For more information, contact: National Instruments, 6504 Bridge Point Pkwy., Austin, TX 78730-5039; tel: 1/800/433-3488; fax: 512/794-8411; e-mail: info@natinst.com; www: http://www.natinst.com.

In Business

Aavid Thermal Technologies Inc. has opened its new corporate headquarters at One Eagle Square, Ste. 509, Concord, NH 03301; tel: 603/224-1117; fax: 603/224-6673.

The **American Society for Nondestructive Testing,** Columbus, OH, has introduced a certification program for NDT personnel. The purpose of the program is to provide independent assessment of NDT personnel qualifications by examination.

Cadillac Plastic, Troy, MI, has opened a branch in Hanoi, Vietnam. The branch will serve as a liaison office with the company's other Asia-Pacific operations in Singapore, Malaysia, Hong Kong, China, Taiwan, Korea, Australia, and New Zealand.

Bridgeport Machines, Bridgeport, CT, has chosen Favel, SA, as its distributor in Argentina. Favel, Buenos Aires, is affiliated with Industrias ROMI, SA, Santa Barbara d'Oeste, Brazil. Bridgeport and ROMI produce lathes together under the Bridgeport/ROMI name.

Eurotherm Controls Inc., Reston, VA, has purchased the rights to the Dimension line of multiloop control systems from Research Inc., Minneapolis, MN. The systems are used for environmental chamber, heat treating, and semiconductor applications.

PPG Industries, Pittsburgh, PA, has selected Advance Paint & Chemicals plc, Bangpa-in, Thailand, to distribute PPG's original equipment automotive coatings in Thailand. PPG will supply the products and train AP&C's personnel.

In a ceremony at Buckingham Palace, the **Institute of Materials'** (London, United Kingdom) Prince Philip Award for Polymers in the Service of Mankind was presented by the Duke of Edinburgh to Maunsell Structural Plastics Ltd., for the company's work in the development of an advanced composite construction system for use in buildings and bridges. Previous winners of the award include Michelin Tire Company and E.I. Du Pont de Nemours & Company, Inc.

Liberty Tool Company, Rochester, NY, has changed its name to **Liberty Precision Industries.** The change reflects the company's expanded range of products and services: flex automation, coating products, mold solutions, and rapid response (technical support).

Materials Resources International, Lansdale, PA, has signed a technology sharing agreement with Euromat, Huckelhoven, Germany, a private technology transfer company formed for marketing developments from the Materials Institute at the University of Aachen and other German materials R&D organizations.

AGA Gas Inc., Cleveland, OH, has completed the purchase of four Liquid Carbonic air separation plants from Praxair Inc., Danbury, CT. Located in Madison, WI, Bozrah, CT, Vacaville, CA, and Irwindale, CA, the plants produce 1800 tons/day of oxygen, nitrogen, and argon.

The corporate office of **Precision Castparts Corporation** has moved to a new address: Ste. 440, 4650 S.W. Macadam, Portland, OR 97201; tel: 503/417-4855; fax: 503/417-4817.

Ausimont USA Inc., Thorofare, NJ, has completed an expansion at its plant in Spinetta Marengo, Italy. The additional production capacity will be used to increase output of Hyflon MFA and PFA perfluoropolymers. The characteristics of these materials are similar to PTFE but can be processed using the same technologies as traditional thermoplastic polymers.

To reflect its recent acquisition of Cosmos Minerals Corporation, **Astro Metallurgical,** Wooster, OH, has renamed itself AstroCosmos Metallurgical Inc. The company produces corrosion-resistant chemical processing equipment, such as heat exchangers, reactors, piping systems, distillation columns, lined vessels, fans, and ducts.

In response to a 50% drop in the market price of the common stock of **Urethane Technologies Inc. (UTI),** Orange, CA, **PMC Inc.,** Sun Valley, CA, and UTI have canceled their letter of intent to merge PMC's IPI division, Elkton, MD, with UTI. The purchase price to be paid by UTI for IPI was to have been UTI common stock sufficient to provide PMC with 45% ownership of the combined company.

Ciba Additives, **Ciba-Geigy Corporation,** Tarrytown, NY, will cooperate with Roche in the development of vitamin E as a stabilizer for polymers. Under the terms of the agreement, Ciba will purchase the

rights for Roche's vitamin E antioxidant line for polymers, including several commercial products: Ronotec 201, CF-120, and Dry 17. Ciba will market these under the Irganox tradename.

Degussa AG, Frankfurt am Main, Germany, has sold its subsidiary Grassau Multilayer GmbH, a producer of multilayer and double-sided printed circuits, to Ruwel-Werke, Gerldern, Germany. Degussa will continue to manufacture printed-circuit boards at Degussa Electronics Pte. Ltd., Singapore.

Owens Corning, Toledo, OH, has opened a Noise and Vibration Control Laboratory at the company's Science and Technology Center, Granville, OH. The laboratory's two types of acoustic chambers (anechoic and reverberant) will be used to research and develop acoustic control equipment and materials for use in automotive, aerospace, and workspace partition paneling applications.

For second quarter 1997, **Precision Castparts Corporation,** Portland, OR, reported 83% sales growth (to $244.9 million), and earnings of $0.64 per share (up from $0.47 in the second quarter of 1996). Sales growth was due both to acquisitions and to growth in aerospace and industrial gas turbine products.

Air Liquide America Corporation, Houston, TX, will build a 500 ton/day separation unit in northern California to supply pipeline nitrogen to the USS-Posco steel finishing plant in Pittsburg, CA, as well as supply liquid nitrogen and oxygen to the area merchant market. The plant is expected to be operational by the first quarter of 1999.

Hoechst Technical Polymers, Hoechst Celanese Corporation, Summit, NJ, has decided to reduce list prices on popular grades of Vectra liquid crystal polymers used in high-density SMT connectors by up to 22%. The LCP resins will cost less then $0.40/in.^{3}. The LCPs affected will include E130i, K130XL, K140XI, L130XL, and L140.

Effective Management Systems Inc., Milwaukee, WI, has signed a technology-sharing agreement with **Pritsker Corporation,** Indianapolis, IN. The partnership will join EMS's *Time Critical Manufacturing* data-collection software with Pritsker's *OrderLinX* manufacturing/scheduling products.

The **American Institute of Steel Construction,** Chicago, IL, has broadened categories in its quality certification program to assist specifiers who ask structural steel fabricators to bid on bridge and building projects. The revised certification categories that specifiers can ask for are: major steel bridges, simple steel bridge structures, complex steel buildings, conventional steel buildings, and metal building systems.

Kudos

Dr. Tim O'Brien

Dr. Tim O'Brien has been promoted to Vice President for Technical Innovation at ***MasterBrand Industries,*** Deerfield, IL. Dr. O'Brien has a Ph.D. in metallurgy and materials science from the Imperial College of Science and Technology, London, United Kingdom.

Samuel Venneri has been named Chief Technologist at **NASA Headquarters,** Washington, DC. Mr. Venneri will serve as the principal advisor to NASA Administrator Daniel Goldin on matters concerning Agencywide technology policy and programs.

Dr. Jonathan French has been named the Director of Research and development at **Advanced Cerametrics,** a producer of advanced materials. Dr. French holds M.S. and Ph.D. degrees in materials science and engineering from Lehigh University.

David Kasputis has been named general manager of **Hoeganaes'** Gallatin, TN, plant. Mr. Kasputis previously worked for Bethlehem Steel for seven years as a metallurgical supervisor.

Bill Pitcher has been promoted to Lexan Specialist for **Cadillac Plastic,** Troy, MI. Lexan, a registered trademark of the General Electric Company, is a clear, high-impact resistant polycarbonate product available in sheet and film form. Mr. Pitcher's territory will be Minneapolis, Milwaukee, Green Bay, Davenport, and Omaha.

Dr. James Leslie received the 1997 J.H. Hall Composites Manufacturing Award from the **Society of Manufacturing Engineers,** Dearborn, MI, for his work on the advanced propulsion systems for solid rocket motors. Dr. Leslie also directed development of the first graphite parts to fly on aircraft and spacecraft: a wing tip for the Northrop F-5 fighter, a spoiler for the Boeing 737, and the truss for the ATS satellite.

Hector Marchand

Hector Marchand has been appointed Product Manager at **LFE Industrial Systems,** Clinton, MA. Mr. Marchand holds a B.S. in plastics engineering from the University of Massachusetts.

Jonathan Ernst

Concoa, Virginia Beach, VA, has named ***Edwin Waldbusser*** as Director of Engineering and ***Jonathan Ernst*** as Marketing Manager for Scientific Products.

Houghton has promoted ***Richard Brasch*** to the position, Assistant Marketing Manager for Metal Forming. Mr. Brasch will be responsible for managing and directing the activities of the company's Metal Forming Product Group.

Alon Processing Inc., Tarentum, PA, has named ***Sermin Caola*** as Technical Director. Ms. Caola holds a B.S. in chemistry from Middle East Technical University, Ankara, Turkey, and a Ph.D. in chemistry from Worcester Polytechnical Institute.

John Lewensky has been appointed Vice President of Technology for the **American Foundrymen's Society,** Des Plaines, IL. Mr. Lewensky received his B.S. in metallurgical engineering from the University of Illinois and has had 24 years of experience in the metalcasting industry.

Joseph Ribble has joined **CLI International,** Houston, TX, as Senior Engineer. Mr. Ribble received his B.S. in metallurgical engineering from California Polytechnic State University and has 13 years of experience in metallurgy.

Dr. Roderick Quick will be the inaugural holder of the Kumbo Endowed Professorship in polymer science at the **University of Akron,** Akron, OH. The **Kumbo Group of Korea** endowed the chair with $500,000 to help further polymer research.

The **Aluminum Association,** Washington, DC, has elected ***Joseph Viland,*** president of Wabash Alloys Inc., Wabash IN, and ***Chris Barnes,*** chief operating officer of Spectrulite Consortium Inc., Madison, IL, as new board members.

Bill Hartline is the new Director of Operations at the Bradley manufacturing facility of **Peddinghaus Corporation,** Bradley, IL. Mr. Hartline had previous worked in supplying fabricated steel and in machine tool manufacturing.

The **Aluminum Extruders Council,** Wauconda, IL, has named ***Keith Carruthers*** as Vice Chairman of Finance, ***John Parrish*** as Vice Chairman of the Executive Committee, and ***Douglas Monk*** as an Independent Extruder Director.

Michael White has been appointed the plant manager at **Diemakers'** Hannibal, MO, facility. Mr. White has previously held positions with the company as a statistical process control engineer and product engineering manager.
