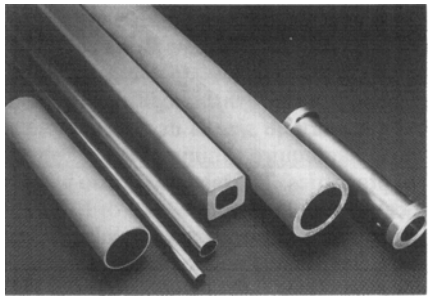
## Materials/Products

Custom-fabricated, ***seamless, extruded beryllium tubing*** is available from **Nuclear Metals.** The tubing has a high strength-to-weight ratio, with extreme stiffness, and can be supplied in cylindrical and rectangular shapes in sizes from 0.32 to 15 cm (0.125 to 6 in.) OD. It can be fabricated with lighter and thinner walls while maintaining equal or better strength and rigidity than graphite composites. For information, contact: John Nicholson, Mgr.—Specialty Products, Nuclear Metals Inc., 2229 Main St., Concord, MA 01742; tel: 508/369-5410; fax: 508/369-4045; e-mail: sales@nucmet.com.



Nuclear Metals

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**3M** has available ***new structural adhesives.*** DP-805 is a two-part, 1:1 mix ratio, toughened acrylic adhesive with a 5-min worklife that is available in 200 and 400 mL Duo-Pack sizes. DP-820 is similar to DP-805, but with a 20-min worklife. Both adhesives have excellent shear and peel strength, good impact and durability, and bond well to many metals, ceramics, woods, and most plastics, as well as to many unprepared surfaces. DP-640 is a brown, two-part, 1:1 mix ratio nonsag urethane adhesive similar to DP-605, but with a 40-min worklife. It has tough, flexible bonds with good adhesion to a variety of substrates, especially wood and many properly cleaned and abraded plastics. For further information, contact: 3M Industrial Tape and Specialties; tel: 1/800/362-3550.

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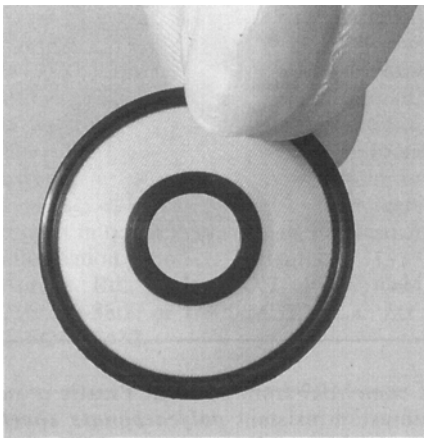
FilterSeal from **Apple Rubber** is ***a custom part for automotive applications that combines the function of a plastic mesh screen with the sealing performance of an elastomer.*** The elastomer seal is available separately for use on components. For further information, contact: Apple Rubber Products, 310 Erie St., Lancaster, NY 14086; tel: 1/800/828-7745; fax: 716/684-8302.



Apple Rubber

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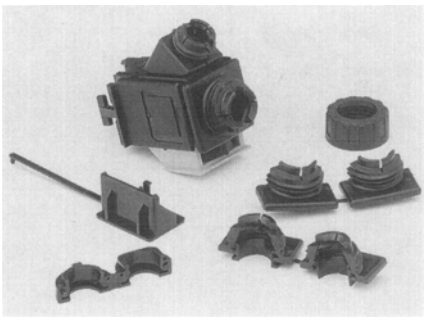
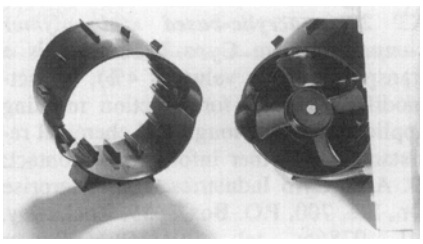
**DSM Engineering Plastics** has introduced two Arnitel ***flame-retardant thermoplastic polyester elastomers.*** PL720-S withstands temperatures from –40 to 126 °C (–40 to 260 °F) and can be used in electrical and electronic applications, such as connectors that incorporate living hinges. PL460-S is for use in devices where odor-free operation is critical, such



DSM Engineering Plastics



DSM Engineering Plastics

as nebulizer motor housing. For information, contact: DSM Engineering Plastics, P.O. Box 3333, 2267 W. Mill Rd., Evansville, IN 47732-3333; tel: 1/800/333-4237.

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A pressure-sensitive masking ***tape for plasma flame spraying by high-velocity oxyfuel*** equipment is available from **DeWal Industries.** D/W 411 uses heavy-gage (4 mil) aluminum foil combined with glass fabric for resistance to heat and a specially formulated silicone adhesive that provides excellent adhesion at high temperatures, yet removes cleanly after use. For information, contact: DeWal Industries Inc., 15 Ray Trainor Dr., P.O. Box 372, Saunderstown, RI 02874; tel: 401/789-9736.

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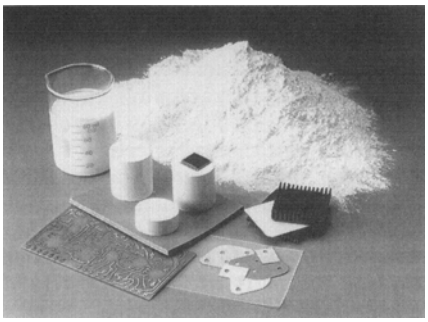
With its high thermal conductivity, PolarTherm ***boron-nitride-based fillers*** from **Advanced Ceramics** dissipate heat in electronic assemblies better than aluminum oxide, aluminum nitride, or fused silica. The chemically inert powder resists moisture and provides high-volume resistivity (above $10^{15}$ ohm-cm). Particle size



Advanced Ceramics

distribution is controllable from fine particles to large agglomerates, and the filler materials can be specially modified to allow high loading levels for conductivity without diminished workability. For information, contact: Advanced Ceramics, Sales Office, 11907 Madison Ave., Cleveland, OH 44107-5026; tel: 216/529-3900 or 1/800/822-4322.

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XT 2000 ***acrylic-based multipolymer compound*** from **Cyro Industries** is a transparent (haze value of 4%), impact-modified product for injection molding applications. It is tough and chemical resistant. For further information, contact: D. Artz, Cyro Industries, 100 Enterprise Dr., Ste. 700, P.O. Box 5055, Rockaway, NJ 07866; tel: 201/442-6000 or 1/800/631-5384.

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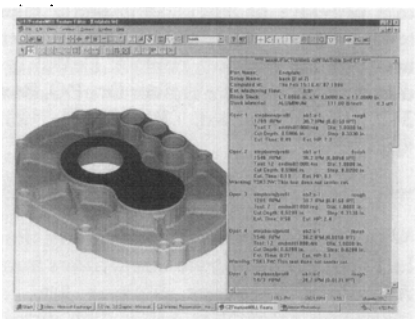
EZ-FeatureMill 3.0 from **Bridgeport Machines Inc.** is ***CAM software for the creation of NC programs for CNC milling operations from 3D models.*** This version has a geometry mode that uses on-screen icons such as a tool pallet to snap to end-, mid-, or tangent points. When the user changes an element's value or dimension, the program updates the entire model. For more information, contact: Bridgeport Machines Inc., 500 Lindley St., Bridgeport, CT 06606; tel: 1/800/243-4292.



Bridgeport Machines Inc.

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**Innovative Material Solutions Inc.** can formulate and supply ***custom-designed feedstocks for the powder injection molding industry.*** Feedstock development is a complex process that requires knowledge of material selection, powder characteristics, surfactant selection, powder:binder ratio, mixing techniques, and debinding science. For more information, contact Robert Cornwall, Innovative Material Solutions, 649 Belmont Circle, State College, PA 16803; tel/fax: 814/234-1874; e-mail: IMS_Inc._PA@aol.com.

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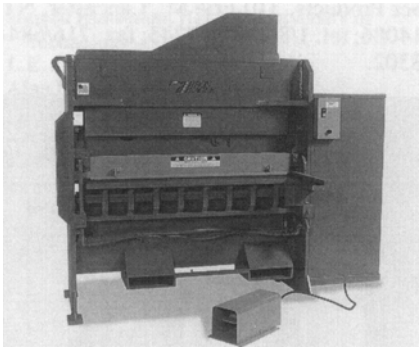
**Multi-Tool** is manufacturing ***plate shears*** that have a single, center-placed cylinder instead of the conventional dual-cylinder arrangement. By adding a pivot arm, the single cylinder transfers energy uniformly to four pressure points for smooth, even cutting with less flexing of the blade; nor does the design require adjustment of blade gaps when switching from thin to thick materials. The machines have 0.75 × 4 in. blades either 51 in. or 74 in. long and offer operators good visibility while shearing materials to 0.375 in. thick. For further information, contact: Multi-Tool, 18358 203rd St., Hutchinson, MN 55350; tel: 1/800/433-5394; fax: 320/234-7971.



Multi-Tool

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Lexan MR7 from **Cadillac Plastic** is an abrasion-resistant ***polycarbonate sheet*** material covered by a 7-year warranty. The sheet is covered by Margard graffiti-resistant surface treatment and has 30× the impact strength of acrylic materials. MR7 is available in 0.118, 0.177, 0.236, and 0.500 gages. For more information, contact: Cadillac Plastic, 143 Indusco Ct., P.O. Box 7035, Troy, MI 48007-7035; tel: 313/583-1200 or 1/800/CPG-1000.

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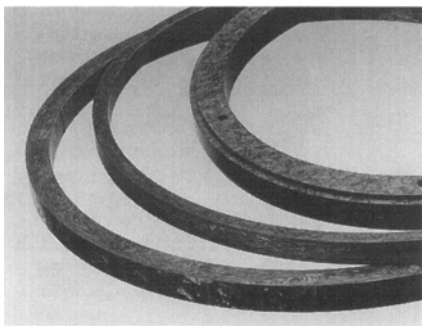
FibreComp, ***a self-lubricating composite,*** from **Hycomp Inc.,** has improved the performance of seal rings use in large pumps, mixers, and compressors. The material, a combination of polyimide resin and short graphite fibers, reduces lubricant contamination of fluids and provide 4 to 10 times the wear of metal, plastic, and other composites. For more information, contact HyComp Inc., 17960 Englewood Dr., Cleveland, OH 44130; tel: 216/234-2002; fax: 216/234-4911.



Hycomp Inc.

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Actube from **ACT Medical Inc.** is extruded from liquid crystal polymer through a process that puts a controlled multiaxial orientation like molecular braiding to the material. ***This tubing has good stiffness and strength, as well as a high melt temperature.*** Applications include devices where high levels of electrical insulation are important and products where resistance to heat and electrical arcing is an issue. For more information, contact: ACT Medical Inc., 100 Beaver St., Waltham, MA 02154; tel: 617/894-6620; fax: 617/894-6885.

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UltraFine RII antimony oxide from **Laurel Industries** is used as ***a flame retardant in the manufacture of thermoplastics, thermosets, and synthetic fibers.*** Its 0.2 to 0.4 μm particle size is useful in applications that require a minimal loss of physical properties. The material is also used as a catalyst in the manufacture of PET. For more information, contact: Laurel Industries, Sales and Technical Support, 30195 Chagrin Blvd., Cleveland, OH 44124-5794; tel: 1/800/221-1304; fax: 216/831-8479.

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**Houghton International** has introduced a line of ***die-lubricant sprays for die-casting.*** Die Kote 7270 is water-based and for aluminum die casting. 7270M is a heavy-duty formula; 7280 is for zinc die casting; and 7290 for magnesium die casting. Die Therm 7166 is a thermally stable heat transfer oil. Plunger Tip Lube 7176 is a nongraphitic lubricant that withstands heat to 1300 °F. Quench Kote 7250 is a semisynthetic product for water quench systems that protects zinc and aluminum die cast parts. For more information, contact: Richard Brasch, Houghton International Inc., Madison and Van Buren Aves., Valley Forge, PA 19482; tel: 610/666-4086; fax: 610/666-4004.

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CTH ***catheter-bonding adhesives*** from **Dymax Corp.** has good adhesion and flexibility, and high cure speeds and proc-

essibility. The adhesives bond to a variety of rigid and flexible plastics, glass, and metals. For more information, contact: Dymax Corp., 51 Greenwoods Rd., Torrington, CT 06790; tel: 860/482-1010; fax: 860/496-0608.

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***Acrylite FF sheet*** from **Cyro Industries** is now available in 18.0 and 24.0 mm gages, for use in the display, furniture, and fabrication markets. For more information, contact: D. Artz, Cyro Industries, P.O. Box 5055, Rockaway, NJ 07866; tel: 1/800/631-5384.

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**Zyp Coatings Inc.** has three new products. Grade 99 ***boron nitride powder*** has a hexagonal, platy morphology like graphite and is for use as a lubricant and release agent, or an additive to oils, greases, potting compounds, friction plates, release agents, and coatings to enhance thermal conductivity, lubricity, chemical resistance, or release properties. MW-50 ***paste*** can be used to repair eroded graphite parts, to stop oxidation of graphite, or to form a wear-resistant layer on soft ceramics. ***Alumina ($Al_2O_3$)*** coatings come in two varieties. A-1 is a paint for R&D uses where purity is most important. A-2 is a silica-free formula that yields an abrasion-resistant coating with minimal reduction in alumina purity, for multiple-use applications. For further information, contact: Zyp Coatings Inc., 120 Valley Ct., Oak Ridge, TN 37830; tel: 423/482-5717; fax: 423/482-1281.

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## Processing/Equipment

With a wide 11:1 zoom range, the Stemi SV 11 Apo ***stereomicroscope*** from **Carl Zeiss Inc., Microscope Div.** gives brilliant, high-contrast, deep-field, color images. The Plan-Aprochromat S 1.0 and 1.6 objectives, which provide a magnification range of 6 to 264 and working distance of 40 to 80 mm (1.57 to 3.15 in.), allow ample room for illumination and manipulation of a specimen. For information, contact: Carl Zeiss Inc., One Zeiss Dr., Thornwood, NY 10594; tel: 1/800/233-2343; fax: 914/681-7446.

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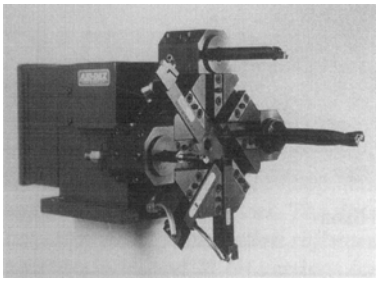
The ***Air-Dex automated turret for Ezpath I/II and engine lathes*** from **Bridgeport Machines** enhances productivity by eliminating manual tool changes. The machine is air-powered, requires no electrical interface, and may be installed on any type of lathe. The turret provides precision indexing with an accuracy of 10 arc sec. and 0.0001 in. repeatability, and it runs on standard shop air at 80 psi. For more information, contact: Steve Miller, Romi Product Manager, Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606; tel: 203/367-3651 or 1/800/242-2404.



Bridgeport Machines

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The ***Electromagnetic Metal Pumping System*** from **Metaullics Molten Metal Systems** is for use on direct-charge reverberatory, top-charge, tilting, open-well reverberatory, and closed-hearth furnaces, or for metals transfer/lifting applications. The company can adopt the system to an existing furnace configuration, layout, or application, with technical support from project initiation to operation. For further information, contact: Metaullics, 31935 Aurora Rd., Solon, OH 44139; tel: 216/349-8800 or 1/800/METAULX; fax: 216/248-3432.

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The CV-2 ***centrifugal air compressor*** from **Ingersoll-Rand** is now available in an elevated-pressure model, with 200 to 250 psig to 1000 to 2300 icfm, for use on such applications as textiles, plastic blow molding, automotive tires, and process air. The pressure range allows manufacturers in high-altitude facilities to meet their pressure requirements. An MP-3 microprocessor provides operation data and remote communication capabilities for off-site monitoring, compressor control, and energy management. For further information, contact: Ingersoll-Rand Co., Air Compressor Group, Dept. NR-627, 235 E. Washington Ave., Washington, NJ 07882; fax: 908/689-5580.

Ingersoll-Rand

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The AQE2000 ***portable cartridge dust collector*** from **Air Quality Engineering** is an air cleaner that can be used for removal of welding fumes, grinding dust, plasma cutting dust, plastic dust, or other dry particles. A reverse pulse system provides self-cleaning of filter cartridges. The hood and arm assembly are externally supported with a 360° rotation range and an


Air Quality Engineering

11 ft reach. For further information, contact: Bill Reed, Air Quality Engineering Inc., 3340 Winpark Dr., Minneapolis, MN 55427-2083; tel: 612/544-4426; fax: 612/544-4013.

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**Plymouth Extruded Shapes** provides ***near-net extrusion of complex steel shapes*** for original equipment manufacturers and parts suppliers in the automotive, aerospace, defense, machine tool, and industrial equipment manufacturing industries, as an alternative to welding, forging, casting, or machining of parts. For more information, contact: Don Ferguson, Marketing Manager, Plymouth Extruded Shapes, Plymouth Tube Co., P.O. Box 768, Warrenville, IL 60555; tel: 1/800/323-9506; fax: 708/393-3552.

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A ***UV/Visible curing system*** that bonds plastics parts in one step is available from **Xenon Corp.** A circular, quartz lamp cures the entire circumference, simultaneously, of plastic or metal parts to be bonded. The lamp is centered around a glass channel through which parts to be cured pass in the device's housing. For further information, contact: Xenon Corp., 20 Commerce Way, Woburn, MA 01801; tel: 1/800/XENON-XL.


Xenon Corp.

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A process developed by **Scientific Machine and Supply Co.** manufactures high-purity Scilon ***fluoropolymer agitators blades and core as a single part.*** Scilon provides better thermomechanical performance than other plastics and fluoropolymers and than stainless steel in high-purity and corrosive OEM applications. For more information, contact: James Landau, Scientific Machine and Supply Co., 700 Cedar Ave., Middlesex, NJ 08846; tel: 908/356-1553.

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The 105 Ton Peddiworker 1050 ***universal steelworker*** from **Peddinghaus Corp.** features an actual machined slide that is guided with precision ground surfaces for assuring accurate guidance of the punch, notch, or shear tool to the workpiece; a rapid star wheel adjustment of the stripper height for making possible the change of material thickness in as little as 1 s; a perpendicular approach of the angle shear blade that provides the best sheared cut quality available; and a standard punch holder that accommodates up to 1.25 in. punches with optional oversize punch adapters available. For a product brochure, contact: Adrian Morrall, Peddinghaus Corp., 300 N. Washington, Bradley, IL 60915; tel: 815/937-3800; fax: 815/937-4003.

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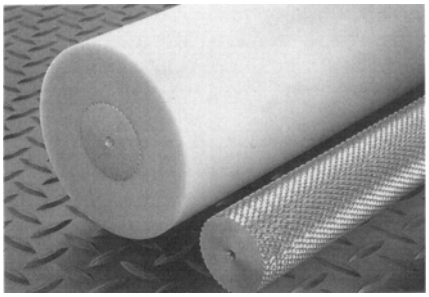
The Power Core ***roller*** from **Intech** was designed to outperform steel rollers, run more quietly, and absorb vibration and shock without placing undue wear on the rail. With low rolling resistance, the product is suitable for high-precision and high-load applications. Its bearing fit is maintained from –40 to 140 °F. For further information, contact: Georg Bartosch, Intech Corp., 250 Herbert Ave., Closter, NJ 07624; tel: 201/767-8066.



Intech

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The EZ-MIX 750 ***fixed-ratio, positive displacement Meter Mix Dispensing system for two-part adhesives, sealants, or compounds*** from **Dispensing Technologies International** provides the accuracy of a bulk system but uses preloaded disposable cartridges for convenience. The system is effective with low- and high-viscosity compounds and with abrasive or reactive systems. It can double or triple the output of a manual system. For further information, contact: David Gavin, Dispensing Technologies, P.O. Box 1204, 835 Sterling Rd., So. Lancaster, MA 01561; tel: 508/365-1884; fax: 508/365-9874.

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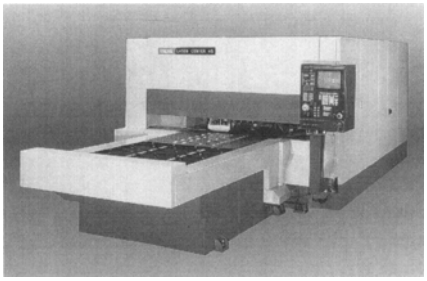
The Laser Center 48 from **Mazak Nissho Iwai Corp.** is ***the first dedicated laser to add forming and tapping to its processing capability,*** for use by precision chassis and cabinet fabricators. With a 1000 W laser, five forming, and six tapping tools, the machine provides ten times the accuracy of combination punch/lasers. The tools and laser have the same positioning accuracy and repeatability: ±0.0004 and ±0.0002 in. Lead times are reduced since several operations are performed on the same machine. For further information, contact: Bob St. Aubin, Mazak Nissho Iwai National Sales Manager, 140 E. State Pkwy., Schaumburg, IL 60173; tel: 847/882-8777; fax: 847/882-0191.



Mazak Missho Iwai

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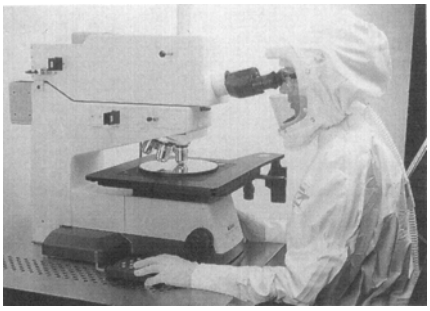
**Nikon** has developed the Optiphot 200C ***confocal microscope system,*** for use in the production and inspection of megabit integrated circuits (IC). The system uses confocal, brightfield, darkfield, differential interference contrast, and epi-fluorescence image forming techniques. The lenses have good resolving power, image flatness, and color reproduction. With an internal 2:1 zoom, object magnifications can be increased without loss of resolution and viewfields can be varied. For information, contact: Nikon Inc., 1300 Walt Whitman Rd., Melville, NY 11747-3064; tel: 516/547-4200.



Nikon

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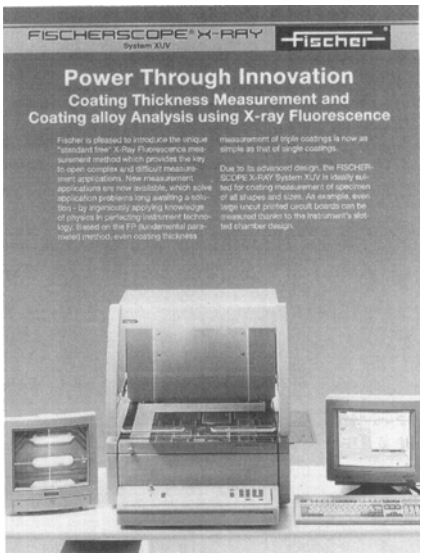
A program posted on the World Wide Web from the Microscope Division of **Carl**

**Zeiss Inc.** offers a ***wide array of used and demonstration microscopes, components, and accessories,*** for sale at reduced prices. All equipment is sold on a first-come, first-served basis and is warranted to be fully functional, though no long-term warranty will apply. A full refund less shipping will be provided if the products do not perform to expectations. To view, contact: Carl Zeiss Inc., One Zeiss Dr., Thornwood, NY 10594; web: http://www.zeiss.com.

## Measurement/Testing/Evaluation

**Fischer Technology** has free literature on the Fischerscope XUV, which performs ***X-ray fluorescence coating thickness measurement and coating alloy analysis.*** Integrated software reduces the number of standards required for calibration, simplifies the measurement process, and saves time during repetitive tasks. The unit has multiple-focal planes, a dual-magnification optical system, and a housing design that accommodates a range of shapes and sizes. For information, 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.




Fischer Technology

**Microcal Software** has released Origin 4.1. Included are a large selection of technical graphics and data analysis tools, ternary diagram and bubble charts, a calibration template, sigmoidal fit, FFT smoothing, and extended development support of LabTalk script users. The ***data analysis/graphical presentation software*** is available in 16- and 32-bit versions for Windows 3.1 and 95. For more information, contact: Microcal Software Inc., One Roundhouse Plaza, Northampton, MA 01060; tel: 1/800/969-7720 or 413/586-2013; fax: 413/585-0126.

**CargoCaire** has available PsyCalc, a Windows-based program that provides users with the essential ***psychrometric functions*** to design and regulate temperature and humidity control systems. Values can be returned for: dry bulb temperature, wet bulb temperature, relative humidity, dew point temperature, specific humidity, enthalpy, vapor pressure, specific volume. The program also converts from metric to English units and back. For further information, contact: Munter Corp., Cargocaire Division, 79 Monroe St., P.O. Box 640, Amesbury, MA 01913; tel: 508/388-0600 or 1/800/843-5360; fax: 508/388-0292.

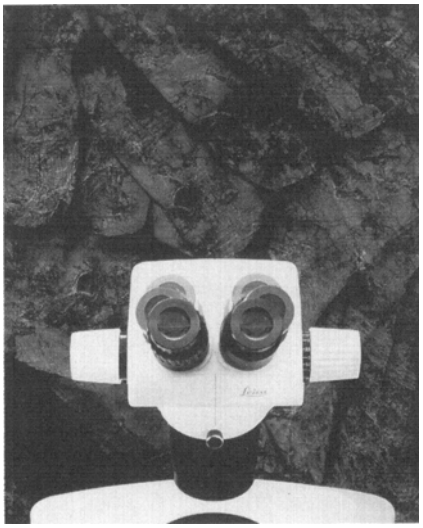
The System 1010 from **Controlotron** is a line of clamp-on ***ultrasonic flowmeters,*** available in a portable model (1010DP) for light industrial use and a waterproof model (1010WDP) for heavy industrial use. Their backlit displays can be read from 40 feet away, and both units have pipe wall thickness gage, flaw detection capability, and broadbanded transducers for operation on a range of pipes. For further information, contact: Controlotron, 155 Plant Ave., Hauppauge, NY 11788; tel: 516/231-3600 or 1/800/275-8479.

**Computational Systems Inc.** has developed the OilView 51DV ***digital viscometer*** for on-site measurements of viscosity, the primary indicator of a fluid's lubricating property. The device detects misapplication of lubricants, including wrong or mixed oils; fuel dilution in liquid engine applications; and the lubricant viscosity for trending. For further information, contact: CSI, 835 Innovation Dr., Knoxville, TN 37932; tel: 1/800/675-8033, ext. 231; fax: 423/675-3100.

**AutoSimulations Inc.** has released AutoStat, a statistical analysis program packaged with AutoMod software. The two programs ***execute simulation models and statistical analyses,*** including: warm-up determination, design of experiments, factor response analysis, confidence intervals, and automated execution. For further information, contact: AutoSimulations Inc., 655 Medical Dr., Bountiful, UT 84010; tel: 801/298-1398 ext. 312; fax: 801/298-8186; web: http://www.autosim.com.

**IRD Mechanalysis Inc.** has available IQ2000 software and Datapac 1500 version 2.01 for ***predictive maintenance.*** The two programs have reduced data collection and analysis by 400%, with increased data resolution. The former program is for condition monitoring of factors such as oil analysis, thermographic, pressure, flow, or stiffness. The latter program performs data analysis. For further information, contact: IRD, 6150 Huntley Rd., Columbus, OH 43229; tel: 614/885-5376; telex: 24-5318; fax: 614/885-7668.

The GZ6E ***stereomicroscope*** from **Leica** has both 45 and 60° viewing angles that can be easily changed due to rotatable eyepieces. Working distance is 40 to 350 mm (115 mm is standard); magnification runs from 2 to 160× (6.7 to 40× is standard). The 6:1 zoom with precentered optical mounting system assures consistent alignment, and the machine zooms smoothly. For further information, contact: Leica Inc., 111 Deer Lake Rd., Deer-



Leica

field, IL 60015; tel: 847/405-0123; fax: 847/405-0147.

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**Glenbrook Technologies'** RTX Mini ***real-time x-ray inspection system*** has high-sensitivity x-ray capability in a small, portable unit. The system can produce x-ray images using anode voltages as low as 15 kV to reveal voids in plastic moldings that would not be apparent using conventional real-time x-ray techniques. Defects can be as small as 0.001 in. Systems may be upgraded with image processors, video micrometers, and printers. For more information, contact: Glenbrook Technologies Inc., P.O. Box 468, Morris Plains, NJ 07950; tel: 201/361-8866; fax: 201/361-9286.

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**Nikon** has introduced two ***measuring microscopes***—the MM-40 and MM-60—that have z-axis measuring, a focus aid accessory, and ergonomic design. A linear scale built into the microscope stand permits accurate measurement over the entire range of vertical movements (6 in. in the former and 8 in. in the latter). In other news, the company has introduced a programmable tilting illuminator and a high-magnification zoom optics system for the Veritas line of video-measuring systems. A 2× objective for the Veritas system is also available. For a brochure on these products, contact: Industrial Department, Nikon Inc., 1300 Walt Whitman Rd., Melville, NY 11747; tel: 1/800/52-NIKON ext. P626 (microscope), P621 (objective), or P625 (illuminator/optics).

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**Dynatek Dalta,** Galena, Mo., has available the LB50 Latour-Black Micromechanical Tester for materials research, which uses LabView graphical instrumentation software from National Instruments, Austin, TX. The instrument can ***test single fibers and the interfacial properties of their composites.*** Displacement can be resolved to 1 μm (0.00005 in.) and load to 23 mg (0.00005 lb). For information, contact: National Instruments, 6504 Bridge Point Pkwy., Austin, TX 78730-5039; tel: 512/794-0100; fax: 512/794-8411; e-mail: info@natinst.com; web: http://www.natinst.com/.

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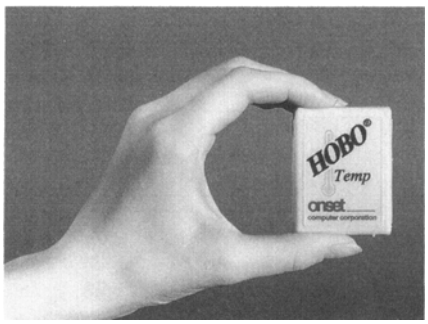
The Hobo Temp data logger from **Onset Computer** ***records temperature for HVAC system verification, energy surveys, and quality control.*** Data can be off-loaded into BoxCar software for Windows or Mac. The device measures temperature from –4 to 150 °F (–20 to 70 °C) and stores 1800 data points in the 2K of EEPROM memory. For information, contact: Onset Computer Corp., 536 MacArthur Blvd., Box 3450, Pocasset, MA 02559-3450; tel: 508/563-9000; fax: 508/563-9477; e-mail: sales@onsetcomp.com.



Onset Computer

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**NSL Analytical Services Inc.,** a full-spectrum chemical testing commercial laboratory, has printed a capabilities brochure. Included is a quick reference chart of nine instrumental testing techniques, and their applications, detection limits, necessary materials and samples, analytical range, and test standards. The chart should help in deciding which type of ***industrial or environmental testing*** will provide the desired data. For a copy, contact: NSL Analytical Services Inc., 7650 Hub Pkwy., Cleveland, OH 44125; tel: 216/447-1550 or 1/800/497-6752; fax: 216/447-0716.

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The MP4 from **Fischer Technology** uses both the ***magnetic induction and eddy current methods for coating thickness measurement.*** The instrument works with metallic and nonmetallic coatings on steel and iron and for nonconductive coatings on nonferrous base metals. Thirty interchangeable probes allow a variety of applications. For information, 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.

Fischer Technology

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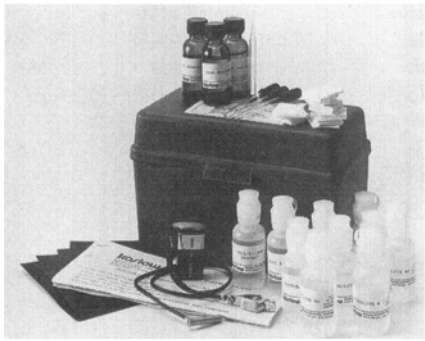
A test kit from **Koslow Scientific** allows ***identification of aluminum alloys*** in minutes. Alloy groups are separated based on content of magnesium, zinc, manganese, copper, and magnesium silicide. The portable kit requires no chemical or metallurgical training. A magnesium test is included that can identify 5000 and 6000 series aluminum. For information, contact: Koslow Scientific Co., 75 Gorge Rd., Edgewater, NJ 07020; tel: 201/941-4484 or 1/800/556-7569; fax: 201/941-4485.


Koslow

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The Feritscope MP3C from **Fischer Technology Inc.** uses magnetic induction to ***measure ferrite content in steel*** with austenitic chrome steel welded cladding, austenitic stainless steel, and duplex steel, to help determine future mechanical and corrosion-resistant behavior. The unit fea-

Fischer Technology

tures nondestructive measurement of ferrite content in range 0 to 80% Fe or 0 to 110 WRC number, and an RS232 interface for downloading measurement statistics. For information, 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.

## International Research/Manufacturing Centers

**Sandia National Laboratories** is commercializing an ***energy beam of lightweight ions*** (atoms with positive electrical charges). Bombardment makes surfaces smoother or harder and is expected to double or triple the life of products from tools and dies to jet engine blades. The beam also better bonds and hardens plastics. The beam's ions expend their energy as they strike the first few micrometers of most materials, melting their surfaces. The cooling rate exceeds a billion degrees a second and realigns the surface atoms. Two researchers from the lab are forming Quantum Manufacturing Technologies Inc., with $4.2 million from Rainbow Technologies of California. For further information, contact: Sandia National Laboratories, Albuquerque, NM 87185-0167; tel: 505/844-8066; fax: 505/844-6367.

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**Battelle**'s Great Lakes Industrial Technology Center and the **NASA Lewis Research Center** are launching a consortium for the ***design and analysis of composite materials.*** The consortium will assess the potential of predictive software to improve design capabilities. At the project's conclusion, participating companies will have a proprietary design tool to use in-house and perhaps license. For further information, contact: Battelle, 505 King Ave., Columbus, OH 43201-2693; tel: 614/424-5544; fax: 614/424-3889.

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**Magnifoam Technology International** will build a 30,000 $ft^2$ ***Silicone Foam Technology Center*** in Barrie, Ontario, Canada. The facility will focus on the research and development of new formulations, products, applications, and patented process technology. Initial goals include breaking the 4 $lb/ft^3$ barrier for ultralow density foam and the development of a spray process for MF1 silicon foam. For more information, contact: Thomas R. Ambeau Sr., President, 17-106 Saunders Rd., Barrie, Ontario, Canada L4M 6E7; tel: 705/725-0900; fax: 705/725-9055; e-mail: mti@magnifoam.on.ca.

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***Electron-beam welding and high-temperature ceramic joining*** may benefit from a computer program designed by **Sandia National Laboratories.** The program is a version of the Integrated Tiger Series enhanced via parallel processing (a method that distributes work among a number of computers working simultaneously toward a solution) that runs 300 times faster than the original and was designed originally to simulate the effects of radiation, especially nuclear explosions. For further information, contact: Sandia National Laboratories, Albuquerque, NM 87185-0167; tel: 505/844-8066; fax: 505/844-6367.

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## University View

With funding from the National Science Foundation and other groups, **Southern Illinois University** will found the ***Center for Advanced Friction Studies*** to conduct research on improved materials useful in the manufacture of high-friction components. Aircraft Braking Systems, Allied Signal Aerospace, BF Goodrich Aerospace, Hitco Technologies, Friction Products, Link Engineering, and Rockwell International will be industrial partners to the foundation. For information, contact: University News Service, Southern Illinois University, Carbondale, IL 62901-6519; tel: 618/453-2276; fax: 618/453-2278.

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A team of Canadian students from the **University of Guelph,** Ontario, has designed a Solar Distillation Unit that ***boosts the average rate of fresh water production by 22%*** over existing technologies. The project, which won Owens-Corning's Design Challenge, used Aura superinsulation as the primary material to maximize distillation. The resulting unit produces an average 3.05 L of fresh water per square meter per day, compared to the standard 2.5 $L/m^2$/day. For further information, contact: Owens-Corning, Fiberglas Tower, Toledo, OH 43659; tel: 419/248-8000.

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The **National Technology Transfer Center at Wheeling Jesuit College** had fourteen students from historically black colleges and other minority institutions on its campus from 16 June to 9 August 1996 to train for technology careers in the Entrepreneurial Technology Apprenticeship Program. These eight weeks of study are intended ***to prepare the students for nine-month paid apprenticeships in technology transfer offices at federal and university laboratories.*** For further information, contact: NTTC, Wheeling Jesuit College, 316 Washington Ave., Wheeling, WV 26003; tel: 304/243-2455; fax: 304/243-2463.

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Sixteen students won prizes or honorable mention status in the ***1996 DuPont Plunkett Student Award for Innovation with Teflon.*** The first place winner, Jennifer Alexander, Colorado State University, won a $10,000 internship with DuPont. The second place winner, Anuraag Singh, North Carolina State University, won $2000 and a plaque. The nine third place winners each won $1000 and a plaque. Five Honorable Mention candidates won $500 and a plaque. The program is intended to encourage students to consider a career in industry. For information, contact: Anne McIntosh, **DuPont**; tel: 302/999-6738; web: www.dupont.com/corp/whats-new/releases/950921.html.

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**George Washington University,** with support from the National Science Foundation, has developed an Internet-based computer application, Virtual Technology Market, ***for transfer of information be-***

***tween those with industrial production problems and potential sources of solutions*** from industry, academia, government labs or inventors. Users are able to submit a problem or a potential solution to a posted problem. The page's administrator will advise the source of the problem when a possible solution is available. The topic for the pilot project is the field of particle technology and multiphase processes. The initial audience includes the Particle Technology Forum of the American Institute of Chemical Engineers. For information, contact: Prof. Lan Xue, Department of Engineering Management, GWU, Washington, DC 20052; tel: 202/994-0179; fax: 202/994-4606; e-mail: xue@seas.gwu.edu; web: http://www.seas.gwu.edu/guest/vtm/.

## Literature/Data Sources

**ZYP Coatings** has a two-page product sheet on its line of high-temperature ***ceramic paints*** for R&D evaluations. The 36 paints include oxides, nitrides, carbides, and fluorides, and are usable to 1100+ °C (2012 °F) in all atmospheres. When applied to most metals, ceramics, or graphite, the surface takes on many properties of the paint. For a copy, contact Zyp Coatings Inc., 120 Valley Ct., Oak Ridge, TN 37830; tel: 423/482-5717; fax: 423/482-1281.

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**Technomic Publishing** has available a 16-page catalog of ***40 books on advanced materials.*** Topics include: intelligent materials, adaptive structures, surface engineering, active control of sound and vibration, energy dissipation in composite materials, fiber reinforced composites, rapid solidification of technology, thermal conductivity, and stress concentrations in laminated composites. For a copy, contact: Technomic Publishing Co. Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604; tel: 717/291-5609 (in U.S./Territories and Canada: 1/800/233-9936); fax: 717/295-4538; e-mail: marketing@techpub.com.; web: http://www.techpub.com.

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A 14-page technical paper from **Dow Chemical Co.,** "Magnesium Hydroxide: Technical Grade—The preferred waste treatment alkali for acid neutralization...for greater process control and efficient metal removal at lower cost," discusses ***the use of magnesium hydroxide for neutralizing acidic waste streams.*** The paper explains the chemistry of magnesium hydroxide neutralization and compares the methodologies, results, and costs of acid neutralization using caustic soda, soda ash, and lime. For a copy, contact: Dow Chemical Co., Magnesium Hydroxide Technical Grade Products, P.O. Box 1206, Midland, MI 48641-1206; tel: 1/800/447-4369.

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**The Institute of Materials** has available three books and a lecture. ***Structural Materials: Engineering Application through Scientific Insight*** contains the proceedings of a meeting held at the National Physical Laboratory to honor the contributions of Donald McLean to physical metallurgy, especially his work in the application of quantitative analysis of micromechanisms to engineering design and life assessment. ***Towards the Millennium—A Materials Perspective*** contains the proceeds of a meeting held to celebrate Professor Smallman's 65th birthday and 30th year as a professor of metallurgy and materials science at the University of Birmingham. The contributed papers encompass the broad aspects of industrial and social change and their effects on materials usage and technological developments, along with papers on the structure and properties of intermetallics, electron microscopy, and microstructure. ***Surface Modification Technologies IX*** contains the proceedings of the Ninth International Conference held in Ohio during October and November 1995. The 43 papers in the volume cover ultrahard coatings, surface treatment and alternative processes, corrosion-resistant coatings, characterization of coatings, surface engineering of powders, laser processing, vapor deposition and plasma methods, and thermal spray coatings and coatings for composites. For further information, contact: IOM, 1 Carlton House Terrace, London SW1Y 5DB, U.K.; tel: 0171/839-4071; fax: 0171/976-2026.

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An eight-page brochure from **Houghton,** "Rust Veto: Rust Preventive Selector—A guide to the right preventive for your application," contains ***a series of charts on rust prevention***: in-process, indoor, indoor/concentrate additives, long-term indoor, and outdoor/severe conditions. Short sections are provided as well on "How To Use This Guide," "Primary Factors Affecting Selection," "Important Questions To Ask," and "Tips on Cleaning." For a copy, contact: Houghton International Inc., Madison and Van Buren Aves., P.O. Box 930, Valley Forge, PA 19482-0930; tel: 610/666-4000.

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"United States Super Alloy Producers: The World's Premier Sources of High Performance Alloys" is a 12-page brochure from the **Specialty Steel Industry of North America** that provides a basic understanding of the ***different types of superalloys,*** how they are manufactured, and why superalloys are acclaimed for their technological sophistication and highly specialized applications. For a copy, contact: Specialty Steel Industry of North America, 3050 K St. N.W., Washington, DC 20007.

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"RIM Part and Mold Design," from **Bayer** is an 84-page introductory guide that explains ***part design and mold making with reaction injection molding polyurethane systems.*** The thirteen chapters cover aspects of material selection, part design, mold design, mold finishing, technical support, and the advantages of this processing. For a copy, contact: Polymers Division, Marketing Communications Group, Bayer Corp., 100 Bayer Rd., Pittsburgh, PA 15205-9741; tel: 412/777-2000.

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**Astrolite Alloys** has available a corporate capabilities brochure. The company produces ***nickel alloy, cobalt alloy, aluminum, stainless steel, and titanium welding wire*** that meets AMS, AWS, and MIL specifications, for industrial applications and aircraft engine maintenance. For a copy, contact: Astrolite Alloys, 1201 Vanguard Dr., Oxnard, CA 93033; tel: 1/800/235-5935; fax: 805/487-9694.

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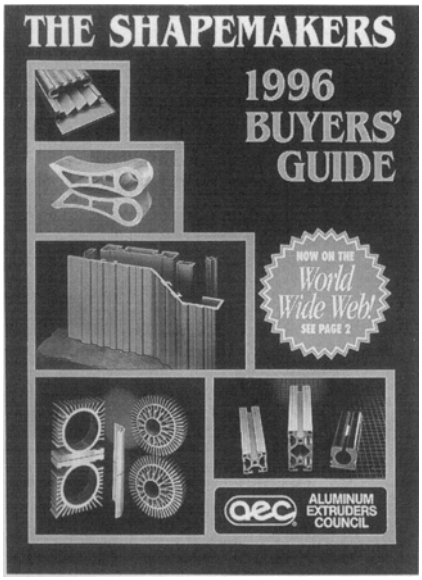
The 1996 Shapemakers Buyers' Guide is a 36-page directory of **Aluminum Extruders Council** members. The booklet provides ***locations of aluminum extruders,*** as well as information on maximum circle size of extrusion presses,

forms produced, finishing and fabrication, and special services. Designers and engineers can use this free directory to find aluminum extruders in a given area that meet their needs. For a copy, contact: AEC, 1000 N. Rand Road, Ste. 214, Wauconda, IL 60084; tel: 847/526-2010; fax: 847/526-3993; e-mail: aec@mc.net.




Aluminum Extruders Council

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**Anomet Products** has printed four-page data sheets on ***copper-cored steels*** for glass sealing, precious-metal-clad wire, nickel-clad copper, and platinum-clad anodes. These products, for use in electronic devices and connectors, have a hermetically sealed metallurgical bond with uniform density coatings for high strength and conductivity. ***Clad wire,*** from 0.005 cm (0.002 in.) diameter, can be supplied as rods, spools, reels, and wrapped coils. For a copy, contact: Anomet Products Inc., 830 Boston Tpk., Shrewsbury, MA 01545; tel: 508/842-3069; fax: 508/842-0847.

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The **Metal Powder Industries Federation** has printed a 16-page catalog containing ***books on the international powder metallurgy and particulate materials industries.*** New publications listed in the catalog cover: advances in particulate materials, cutting tools, ferrous powder metallurgy, cemented carbides, ceramic injection molding, tungsten and refractory metals, high-temperature mechanical behavior of ceramic composites, sintering theory and practice, sintered machine elements, and liquid phase sintering. For a copy, contact: MPIF, 105 College Rd. East, Princeton, NJ 08540-6692; tel: 609/452-7700; fax: 609/987-8523.

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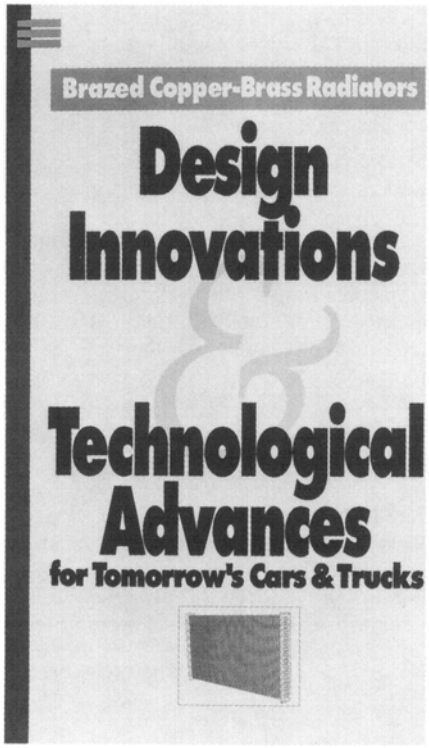
An eight-page brochure from the **International Copper Association** describes ***brazed copper-brass radiators*** that use less material than aluminum models for comparable weight and performance. Manufactured by a simple process, the radiators can be designed with reformed tube-header joints and a flexible side assembly. A list of research papers on the subject is provided. For a copy, contact: ICA, 260 Madison Ave., New York, NY 10016; tel: 212/251-7240; fax: 212/251-7245.




International Copper Association

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**Hoechst Technical Polymers, Hoechst Celanese Corp.,** has published "Designing with Celcon ***Acetal Copolymer,***" an 84-page design manual. The twelve chapters cover general characteristics; short- and long-term physical, thermal, mechanical and electrical properties; dimensional stability; environmental resistance; the design of gears, bearings, and molds; and processing and assembly. Tables, graphs, charts, and photos supplement the information. For a copy, contact: Hoechst Celanese Information Center, 114 Mayfield Ave., Edison, NJ 08837; tel: 1/800/235-2637.

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A two-page bulletin describes ***copper- and nickel-base master alloys, deoxidizers, and degasifiers*** available from **Belmont Metals.** Forms, shapes, and applications are listed for 31 products designed to introduce various elements into copper alloys and other nonferrous metals and alloys to improve mechanical or physical properties. For a copy, contact: Belmont Metals Inc., 338MS Belmont Ave., Brooklyn, NY 11207; tel: 212/342-4900; fax: 718/342-0175.

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A ***catalog of advanced materials*** from **MarkeTech International** has been posted on the World Wide Web, with descriptive information, physical properties, and standard sizes. Products include single crystals and substrates for superconductors, III-V compounds, electro-optics, and electronic applications, as well as evaporation materials, engineered ceramics, composites, and nanophase powders. Contact MarkeTech, 5869 Beacon St., Pittsburgh, PA 15217; tel: 412/421-3103; fax: 412/421-1826; web: http://www.stl.com/marketech.

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A two-page specifications sheet from **ZYP Coatings** introduces a line of nonfluorocarbon ***aerosol high-temperature ceramic paints,*** and covers their physical and chemical properties. The $Y_2O_3$, $ZrO_2$, $Al_2O_3$, BN, and TiN paints can protect metals, ceramics, and graphite from reactions with reactive molten metals, glasses, and salts; provide high-temperature lubrication; or add electrical/thermal insulation or conduction. For a copy, contact Zyp Coatings Inc., 120 Valley Ct., Oak Ridge, TN 37830; tel: 423/482-5717; fax: 423/482-1281.

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## In Business

Praxair Inc.'s subsidiary **Praxair Surface Technologies,** Danbury, Conn., has signed a letter of intent to purchase Illinois Tool Works' **Miller Thermal Inc.,** a supplier of thermal spray equipment to the aerospace, automotive, and industrial markets. The purchase will greatly expand Praxair's specialty powders business.

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**Ansul Inc.,** Marinette, WI, has purchased Preferred $CO_2$ Systems, Fairfield, OH. The acquired company makes low-pressure carbon dioxide equipment and Mini-Bulk tanks.

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**The Institute of Materials,** London, U.K., and **The Institution of Electrical Engineers** will collaborate on a study of electronic materials. The study, sponsored by the British government, will identify current and future markets, assess system and product opportunities, and establish key materials technology requirements.

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Intercim, a division of **Effective Management Systems Inc.,** Milwaukee, WI, has signed a marketing agreement with **DLoG USA,** a subsidiary of DLoG GmbH. EMS will use in its software DLoG's production-monitoring technology.

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The director of the **Metal Power Industries Federation,** Princeton, NJ, reported in a speech at the 1996 World Congress on Powder Metallurgy & Particulate Materials that powder metallurgy is enjoying strong growth as a net-shape precision-forming process in such applications as automobile engines, aerospace hardware, electronics, and manufacturing tools. In 1995, North American metal powder shipments grew about 2%.

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**Branson Ultrasonics Corp.,** a manufacturer of plastics joining technology, has established a web site at http://www.Branson-plasticsjoin/com. The site includes company profile, equipment data and applications, company office addresses, literature, seminar information, news, and an e-mail link.

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The **Ingersoll-Rand Air Compressor Group,** Washington, NJ, has launched a web site at http://www.air.ingersoll-rand.com. The page allows plant and design engineers to view the latest compressed air system products, receive system design assistance, find the nearest technical service facility, and send questions via e-mail to Ingersoll-Rand.

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The **American Association for the Advancement of Science** has moved to 1200 New York Ave, NW, Washington, DC 20005; tel: 202/326-6400. Their current telephone and fax numbers will remain the same.

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**Siderar,** Argentina, has licensed 55%Al-Zn · Galvalume/Zincalume coated sheet steel production technology from **BIEC,** Chicago, IL, a subsidiary of Broken Hill Proprietary Co. Ltd., Australia. Siderar is Argentina's largest steel producer.

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**LabelMaster,** Chicago, IL, a manufacturer of industrial compliance products, has merged with **Text-Trieve,** a producer of regulatory information technology. The combined company will be American Labelmark.

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According to the **International Magnesium Association,** primary magnesium shipments were 75,100 MT during the first quarter of 1996, up from 1995's first quarter of 75,500, but 1500 short of 1995's fourth quarter of 76,600. Inventories jumped 7500 MT to end the quarter at 30,300 MT.

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The Polymers Division of **Bayer Corp.,** Pittsburgh, PA, has installed processing equipment at its appliance laboratory to handle the variety of proposed third-generation blowing agent candidates, including gases and flammable liquids such as cyclopentane. The lab is the most comprehensive foam test facility in North America.

Bayer Corp.

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As announced at the **International Aluminum Extrusion Technology Seminar and Exposition,** Chicago, IL, 14-17 May 1996, a house to be built in Virginia designed by Forest J. Myers of Hayes, VA, will be made entirely of aluminum. Raised 12 ft above the ground on nine aluminum columns anchored in concrete, the 30 by 45 ft house will be situated above the 100-year flood level and is designed to withstand 160-mph hurricane winds. To reduce electrolytic corrosion, no plated steel fasteners will be used, although stainless steel anchor bolts are planned.

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**Osram Sylvania Inc.,** Danvers, MA, has opened a web site at http://www.sylvania.com that gives access to on-line information about the company and its lighting and precision materials products.

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**DTM Corp.,** Austin, TX, a subsidiary of BF Goodrich, Akron, OH, has filed with the Securities and Exchange Commission for an initial public offering of 1,330,000 shares of common stock. An additional 1,184,000 shares will be sold by BF Goodrich and DTM Holdings Ltd. at an anticipated initial price will be $11 to 13/share. DTM, a manufacturer of rapid prototyping and tooling systems, will use the proceeds to reduce debt, finance operations, and expand its business.

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Aavid Thermal Technologies, a subsidiary of **Fluent Inc.,** Lebanon, NH, has purchased **Fluid Dynamics International,** Evanston, IL, the producer of Fluid Dynamics Analysis Package software.

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**Aldan Rubber Co.,** Philadelphia, PA, an 87-year-old manufacturer of industrial fabrics, has changed its name to Aldan Industries Inc. At the same time, the company realigned its operations into three divisions: Engineered Coated Fabrics, Safety Products, and Americare Products.

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**Wilcoxon Research,** Gaithersburg, MD, has a new web page and e-mail address.

Their home page is located at http://www.wilcoxon.com, and the address is sensors @wilcoxon.com.

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**PPG Industries Inc.,** Pittsburgh, PA, reported first-quarter 1996 net income of $172.3 million, or $0.90/share, on sales of $1.75 billion. Chairman Jerry Dempsey told shareholders that company earnings could double by the year 2000.

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**IHS Group,** Englewood, CO, intends to use the World Wide Web as the delivery path for its information databases. The company sees the web as the means to "provide total access to updated information that our customers need, in the form they need, and when they need it."

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The **Society of Vacuum Coaters,** Albuquerque, NM, has opened a web site at http://www.svc.org. It is divided into several sections: About SVC, Technical Conference, Education Programs, Publications, Membership, Questions and Answers, What's New, and How to Contact SVC.

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**4th State Inc.,** San Carlos, CA, is a new company that specializes in advising clients on gas plasma issues and developing and installing plasma processing systems. Industrial applications of gas plasma—the fourth state of matter—are said to include "environmentally clean and workplace-safe" surface modification and cleaning of metals, ceramics, plastics, and elastomers.

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**Nalco Chemical Co.,** Naperville, IL, will acquire the water treatment business of **Diversey Corp.,** Chagrin Falls, OH, for $82 million. The move will expand Nalco's sales in the water treatment middle market to $300 million per year.

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**Arco Chemical,** Newtown Square, PA, has established a technical laboratory in Santos, Brazil, to test products for its growing customer base in the region. The lab will conduct bench-scale tests on product performance and quality and adjust formulas to customers' needs. The region's markets are expanding for polyols and toluene di-isocyanate, components of polyurethane foam.

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**Degussa,** Frankfurt, Germany, has bought **Italbras S.p.A.,** Vicenza, Italy, a producer of silver brazing alloys for metal-processing industries. According to Degussa, the Italian market is one of the world's largest consumers of precious metals, and its metal-processing industries are likely to grow rapidly due to the country's attractive industrial production costs.

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**Aavid Thermal Technologies,** Laconia, NH, is reporting first-quarter 1996 earnings of $26 million, up 37% from 1995. The Fluent software business earnings were on target, but the company's heat dissipation device business were down 6% from the previous quarter.

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**Eitel Presses** will expand its Orwigsburg, PA, plant. The addition will double the floor capacity of the present facility and provide additional machining and assembly capability for production of its straightening presses.

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**Precision Castparts Corp.,** Portland, OR, will sell its vacuum-cast, nickel-base alloys and superalloys to customers throughout the United States, in a $90 million market. The company had previously produced the alloys for their own use only.

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**AT&T Istel, AutoSimulations, F&H Simulations Inc., Imagine That Inc., Pritsker Corp., Micro Analysis & Design Inc.,** and **Systems Modeling Corp.** have become charter members of **Sim.Tech,** the Simulation Software Vendors Association, a new trade association formed to expand awareness of the benefits and use of simulation tools.

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**Astro Metallurgical,** Wooster, OH, purchased **Cosmos Minerals Corp.,** Camarillo, Calif., for an undisclosed sum. Both companies supply corrosion-resistant equipment and reactive metals (titanium, tantalum, and zirconium): Astro to the chemical processing and aerospace industries; and Cosmos to the chemical processing, pharmaceutical, and metal finishing industries. Combined sales are $50 million per annum.

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## Kudos

**Houghton International Inc.,** Valley Forge, PA, has elected ***Dr. Joseph F. Warchol*** its VP—Technical. In the position, Dr. Warchol will have responsibility for the company's Valley Forge Technical Center.

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***Seth Silverman*** is now editor of **Materials Performance** magazine. Mr. Silverman was previously owner of Materials Testing Services Inc., Houston, TX.

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**ICI Surfactants,** Wilmington, DE, has named ***Martin N. Hochheiser*** as Technology Planning Manager. The position is responsible for the company's focus of surfactants technology.

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***Peter Gregory*** has been made a Fellow of the **Royal Society of Chemistry,** London, U.K. Mr. Gregory is editor of *Advanced Materials,* a journal, and *Euromaterials,* a news magazine.

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The **Institute of Scrap Recycling Industries,** Washington, DC, has elected ***James A. Fisher*** to a two-year term as president. Mr. Fisher is CEO of Fisher Steel and Supply Co., Muskegon, MI.

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**Acme Metals Inc.,** Riverdale, IL, has elected ***Stephen D. Bennett*** as President and COO. Mr. Bennett had spent 15 years at USX Corp. before joining Acme as Vice President.

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***Russell W. Maier,*** Chairman and CEO of **Republic Engineered Steels Inc.,** Massillon, OH, is featured in a recently published book, *Leading People: Transforming Business from the Inside Out.* The book identifies eight principles that help leaders tap employee's potential.

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***William C. Plumstead Sr.,*** PQT Services, Greenville, SC, has been elected

chairman by the **American Society for Nondestructive Testing.** The company Mr. Plumstead founded provides NDT services.

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**Brush Wellman Inc.,** Warren, OH, has appointed ***Guy Shapland*** as managing director and ***Craig Harlan*** as VP—business development for Brush Wellman U.K., Reading, Berkshire. Mr. Shapland is a metallurgist by training.

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The **Industrial Heating Equipment Association** has elected ***Carl I. Hayes*** as First Vice President for 1996 and ***Douglas C. Perks*** as Treasurer. Mr. Hayes is President of C.I. Hayes and Hayes Heat Treating Corp., Cranston, RI. Mr. Perks is President of Eclipse, Inc., Rockford, IL.

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***David M. Baldwin*** has been appointed Wire Division Vice President at **National Standard,** Niles, MI. Mr. Baldwin has thirty years' experience with General Motors in engineering and emerging market operations.

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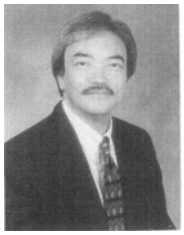

Percey Caceres

**Howmet Corp.,** Greenwich, CT, has named ***Percy Caceres*** as General Manager of Cercon and ***Mark Lasker*** as President of Howmet S.A., Paris, France. Cercon is an affiliate of Howmet's subsidiary Howmet-Cercast USA, a manufacturer of aluminum and copper-base investment castings.

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**Bethlehem Steel Corp.,** Bethlehem, PA, has elected ***Dr. Malcolm J. Roberts*** as Chief Technology Officer and ***Robert A. Rudzki*** as Chief Procurement Officer. Dr. Roberts, who holds a Ph.D. in metallurgical engineering was previously director of research.

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**Cabot Corp.,** Boston, MA, has named ***Roger Weems*** as Director of Cabot Performance Fluids. This new division will develop and market cesium formate-based drilling, completion, and workover fluids to the oil drilling services industry.

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The **American Ceramic Society** has named ***Edward P. McNamara Jr.*** as a fellow. Mr. McNamara is a Deputy Director of Clarkson University's Center for Advanced Materials Processing.

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**Ames Laboratory Institute for Physical Research and Technology,** Iowa State University, Ames, IA, has given its Creative Invention Award to ***Lothar H. Brixner,*** a retired DuPont research scientist. Mr. Brixner developed rare earth phosphors that improved the safety and sensitivity of x-ray film and screen systems.

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**RMI Titanium Co.,** Niles, OH, has elected ***Harry B. Watkins*** as Vice President for its Technical Marketing and Tubular Group. His responsibilities include development of nonaerospace markets for titanium tubulars and systems, particularly in energy exploration and production.

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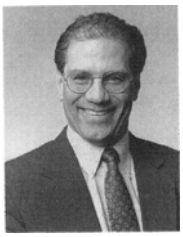
Gregory Wotell

LTV Corp., Cleveland, OH, has filled six positions at its Indiana Harbor Works. The company appointed ***Gregory M. Wotell*** as manager of steel producing operations, ***Lawrence J. Bogner*** as manager of flat-rolled finishing operations, ***William M. Remley*** as manager of the 84 in. hot strip mill, ***David J. Pacella*** as manager of central maintenance and planning, ***F. David Moore*** as manager of operations control and customer service, and ***Suzanne M. Eckstein*** as manager of information technology business processing.



William Remley

David Moore

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At its Annual Dinner, **The Institute of Materials,** London, U.K., presented ***Brian Moffat,*** Chairman, British Steel, with the Bessemer Gold Medal for his work at the company; ***Prof. A.J. Kinloch,*** Imperial College, with the Griffith Medal and Prize for his work on engineering adhesives; ***Prof. D.R.F. West,*** Imperial College, with the Platinum Medal for contributions to physical metallurgy; and an Honorary Fellowship to ***Dr. Donald McLean*** for work on the science and engineering of materials for structural applications.

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The **American Welding Society** presented ***Harvey Castner*** with its James F. Lincoln Gold Medal for his article, "Gas Metal Arc Welding Fume Generation Using Pulsed Current." Mr. Castner, an engineer at Edison Welding Institute, Columbus, OH, is the author of the *ASM Handbook* chapter on Welding Procedure Qualification and chairman of the Welding Handbook Committee for Copper Alloys.

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