

*A summary of new products and services
for materials research...*

Polyurethane Cleaning: Dynaloy's six-page bulletin addresses cleaning problems found in polyurethane processing. Safety solvents for dissolving urethanes and crystallized isocyanates are described. Cleaning applications covered include flushing of mixing and metering equipment, removing cured urethane from mixing heads, removing hot melt urethane adhesives from roll coating equipment, and removing polymer-based inks from flexographic printing rollers.

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Curved Graphite Heating Elements: Vacuum Furnace Systems' circular hot zone vacuum furnace features curved, thin graphite heating elements. The 1/8-in. (0.32 cm)-thick elements, which consist of rigid curved graphite segments that can be installed in furnace designs incorporating conventional circular hot zones, offer equal stability with conventional graphite heating elements, but less mass and improved reaction time for faster heating and cooling cycles.

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Metals Supplier and Property Database: The ASD database from AlloyTech lists North American suppliers of more than 5,000 industrial metals, including major alloy groups. Also included are complete material property data and a library of machining, fabricating, and forming data. The database can run on any 486 PC with Windows 3.0 or higher and 27 MB of free disk space. A 14-day free trial is available.

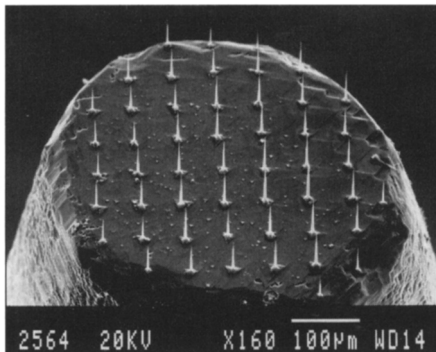
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Ruthenium Oxide Sensors: Scientific Instruments' RO-105 sensors are thick-film resistors that adhere to a single resistance-vs.-temperature curve. The sensors offer a useful temperature range of 2.0–273 K. Nominal sensitivity dR/dT is 17,390 ohms/K at 2.0 K, and 18 ohms/K at 273 K. Nominal resistivity is 239 kohms at 2.0 K and 101 kohms at ambient. The sensors are available as dip-point selected to a standard curve, or calibrated or uncalibrated units.

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Replacement Parts for Semiconductor Process Equipment: Glemco's 88-page catalog lists medium- and high-current components for Eaton Systems and Varian Systems, as well as GSD and sputterer components. Parts also are listed for more than 10 other manufacturers, including Lam Research, Silicon Valley Group, Lumonics, Sumitomo, Thermco, and Watkins Johnson.

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Single-Crystal Whiskers: Micro-whiskers from Containerless Research are silicon single crystals fabricated by the vapor-liquid-solid process. They are available as grown, with diamond coatings, and with sharpened tips. Standard diameters are 2–8 μm , lengths are 10–200 μm , and array spacings are 15–100 μm . Applications include field-emission studies, vacuum microelectronics, microfabrication, and STM.

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Microscope Objective: Carl Zeiss has used the ULTRA Objective from Surface Imaging Systems in applications that combine light microscopy and nanometer-resolution scanning microscopy. With the objective, resolution capability of the light microscope is extended down to 1 nm, enhancing operating convenience and productivity of classical microscopy with new types of contrast such as topography and magnetic and potential contrast. The objective can be combined with various Zeiss microscopes, particularly the Axioplan 2 and Axiophot 2.

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UHV-Compatible Rotary Feedthrough: Rigaku's HotWall[®] combines advanced magnetic fluid sealing and thermal design principles in a rotary feedthrough suitable for high-temperature chambers without water cooling. Features include absolute maximum temperature of 150°C, maximum speed of 3500 rpm, and high pressure capacity (2.5 atm minimum). Applications include semiconductor processing and surface science systems, and processes requiring rotary motion through a heated chamber wall operating in the UHV vacuum region.

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Inorganic Analytical Supplies: LECO's 17-page catalog of supplies for inorganic instrumentation features general combustion and fusion supplies, o-rings, capsules and crucibles, combustion/reaction tubes and glassware, and primary standards

and calibration samples. Included are carbon and sulfur determinators, nitrogen and oxygen determinators, and hydrogen determinators. The catalog also lists ultra-high-purity nickel baskets and hydrogen/titanium pin standards.

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Tandem Accelerator Systems: The HVEE Tandetrans from High Voltage Engineering Europa are available in three beam current versions and are designed to produce MeV ion beams of all periodic-system elements for material modification and analysis. A built-in magnetic suppression system reduces backstreaming electron energy gain. Three types of ion sources (RF, duoplasmatron, and negative sputter) are available. Applications include ion implantation, RBS, and particle induced x-ray emission.

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Fiber-Optic Sensor: Photonetics' MetriCor 2000 offers 1–64 channel modular measurement capabilities for parameters such as temperature, pressure, refractive index, current, chemical concentration, volumetric void fraction, and on/off switching. The modular instrument consists of a mainframe unit, plug-in conditioner, and an optional multiplexer. It connects to fiber-optic sensing probes. Applications include microwave and radio frequency field processing, chemical processing, and electromagnetic compatibility testing.

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Scanning Probe Microscopy: Park Scientific Instruments' 75-page guide covers the basics of scanning microscopy, including STM, AFM, and magnetic and lateral force microscopy. Also discussed are microscopy techniques of force modulation, phase detection, electrostatic force, scanning capacitance, thermal scanning, near-field scanning, and nanolithography. Other topics include configuration of an SPM, cantilevers, and image artifacts.

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Aluminum Nitride Fillers: Three grades of aluminum nitride powders are available from Advanced Refractory Technologies for enhanced thermal management in polymer composites. The A500-FX20 has an average particle size of 5–7 μm . The A500-FX50 has a top particle size of 50 μm and an average of 10–12 μm . The A500-FX150 can tolerate an average particle size of 25 μm . The three grades are available in a water-resistant form and can be customized.

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