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

PC-Based Function Generator: The PCI-303 from PC Instruments is a half-length XT/AT card that provides a method of generating analog waveforms in a PC-based test system. Standard features include sine, triangle, square, and DC waveforms; amplitude, frequency, and offset controls with three digits of settability; 10 Hz to 5 MHz on all waveforms; and duty cycle adjustment that provides ramps and pulses. BenchCom™ software, which is standard, includes programmer's libraries, DLLs, utilities, and graphics user interfaces.
Circle No. 60 on Reader Service Card.

Polymer Coating Series for Microelectronics: Parylene VIP™ polymers from Specialty Coating Systems are vacuum-deposited, inner-layer dielectric, conformal parylene coatings. These organic vapor-deposited polymers are suitable for use in the manufacture of miniaturized, high-speed microelectronic circuits because of their high temperature resistance and low moisture absorption values. The polymers can be selectively etched, adhere to substrates, and exhibit corrosion resistance. Because the materials are deposited in a vacuum, they have excellent coverage and crevice penetration at the submicron level.
Circle No. 61 on Reader Service Card.

Photomultiplier Tube Power Supplies: Universal Voltronics' Series PMT photomultiplier tube power sources offer a ripple specification of 1 ppm. With a small footprint and low profile of slightly more than one inch (2.54 cm), the sources are one-third smaller than similar products. The Series PMT sources are available with output voltages from 1 to 3 kV at currents up to 4 mA. Input power may be specified as either +24 to +30 Vdc or 12± to 18± Vdc. Control terminals permit control of voltage via local or analog remote controls, as well as remote voltage and current monitoring.
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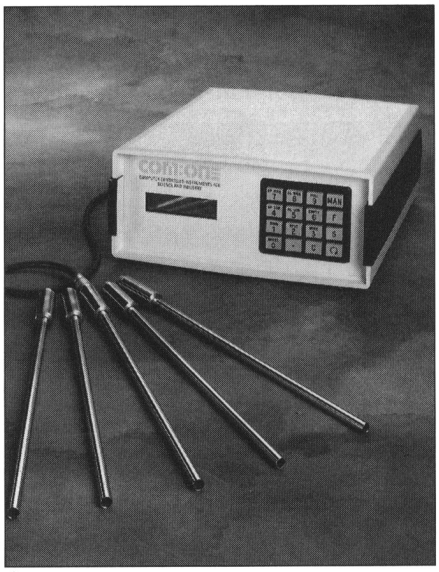
Automated Pressure Regulator: Advanced Pressure Products' computer-controlled APP-100APR can be used to control gas pressures remotely and without operator assistance. System pressure is regulated automatically, based on process conditions for improved system performance. The unit can be controlled by a 0–2 V, 0–5 V, 0–10 V, or 4–20 mA signal from a computer or other controller. The regulator is suitable for laboratory, pilot plant, and process control applications.
Circle No. 63 on Reader Service Card.



Liquid Nitrogen Level Controller and Monitor: The NCS-82 from COM:ONE is a microprocessor-based, multi-input, field programmable instrument. The unit simultaneously controls the level in two different dewars or cold traps, or can simultaneously monitor the level of up to 16 different containers. The controller maintains the liquid level without intervention and has an audible alarm function to alert users to system malfunction. The probe design permits both the LN_2 input and the gas phase to vent, thereby preventing the geyser effect. Applications include cryopumps, cryopreservation refrigerators, detectors, and x-ray spectrometers.
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Ceramics Buyer's Guide: The American Ceramics Society's *ceramicSOURCE*® 1996 features more than 2,000 suppliers to ceramic manufacturers and manufacturers of ceramic components. Listings are cross-referenced geographically, alphabetically, and by product offerings.
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Metals Standards on CD-ROM: The Metals Collection from ASTM includes 2,400 metals standards and an index disk to 10,000 ASTM standards. The package is a subset of the CD-ROM ASTM Standards Source™ and includes portions of the Annual Book of ASTM Standards. Users can search an index by keyword or standard designation, and retrieve the full text of the standard including diagrams and photos. Advanced features include side searching capability and an online notebook.
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Dry Helium Leak Detector: Balzers-Pfeiffer's HLT 160 is an oil-free unit that offers hydrocarbon-free leak testing for clean applications required by the semiconductor and medical industries. The Twin-Flow® port guarantees contamination-free leak testing, and the reverse flow port is suitable for checking clean test objects at high pressures. Features include an internal calibrated leak, hand-held remote control unit, and a design that protects the filament of the ion source in case of accidental venting.
Circle No. 66 on Reader Service Card.

Automated Sampling System: The Pyrolysis Autosampler from CDS Analytical interfaces a CDS 2000 Pyroprobe® with any GC or GC-MS system for unattended analysis of up to 36 samples. The system is mounted on top of the GC injection port and uses a carousel of quartz tubes to hold solid samples. After each analysis, the device automatically delivers the next tube to the pyrolyzer. The number of tubes in the carousel is automatically recognized; sampling stops at the last tube. A multiport valve isolates the pyrolysis zone from the GC inlet and intuitively provides purge gas to remove air and to clean the pyrolysis zone to vent between runs.
Circle No. 67 on Reader Service Card.

Glassware Catalog: Chemglass' 50th anniversary edition catalog features 433 pages of scientific glassware and laboratory equipment. Each listing in the 45 sections of products includes technical data, replacement components, accessories, and other product information. New products include Chem-Thread universal adapters, stainless steel oil baths, LPLC columns, reflux condensers, 47- and 90-mm membrane filtration glassware, NMR tube cleaners, and vacuum gauges.
Circle No. 68 on Reader Service Card.

Scanning Probe/Atomic Force Microscopy Software Update: Digital Instruments' NanoScope® V4.2 update includes Force Volume software which enables users to measure cantilever deflection at a grid of points across a sample while measuring forces between the tip and sample. Surface forces change the cantilever deflection, amplitude, and phase as the cantilever tip moves toward the sample, contacts it, and retracts from the sample. By measuring changes over a 2-D grid, users can compare tip-sample force variations across the sample surface and can gain information on other sample properties.
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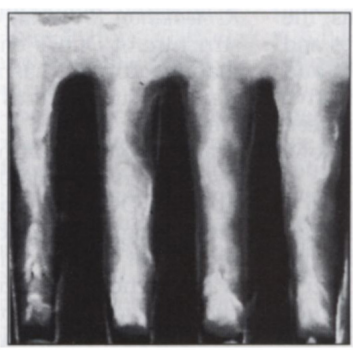
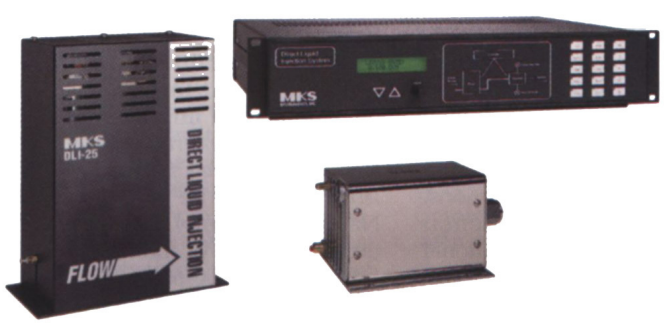
Depositing diffusion barriers, metal interconnects, intermetal dielectrics, or gate stack oxides?



Metal interconnect via fill of copper (Cu^1) showing 0.2 μm line width and 6:1 aspect ratio.

If you've been following the road map, you're probably facing new challenges with your traditional delivery tools. Thermal MFC's, liquid flow meters and bubblers can't provide the precise delivery today's CVD applications demand. You need a Direct Liquid Injection subsystem from MKS. Call the Materials Delivery Products Division of MKS Instruments, Inc., give us your most challenging delivery problem and we'll give you a cost-effective solution.



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