

## RESOURCES

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

### **Aldehyde Resolution on Thick-Film GC Columns:**

Free GC industrial chemical application note from J&W Scientific demonstrates the effective resolution of aldehydes. One illustration focuses on the analysis of formaldehyde, including chromatograms of underivatized formaldehyde and the DNPH derivative and the PFBHA derivatives. Also described is the effective resolution of other aldehydes that do not require derivatization. Commonly encountered ketones are included in the chromatograms.

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**Flip Chip Bonder:** The SUSS FC150 from Karl Suss can handle bonding technologies ranging from thermocompression to ultrasonic and uv epoxy bonding. With manual configurations that can be extended to full automation, the system is intended for medium-volume processes with a bonding accuracy of 1  $\mu\text{m}$ . Designed for high-precision alignment and bonding applications in the range of high-density ball grid arrays, the system supplies alignment and bonding capabilities from applications on multichip modules, flat panel arrays, chip on chip, and chip on glass to flat panel displays.

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### **Low-Current Matrix Switching Cards:**

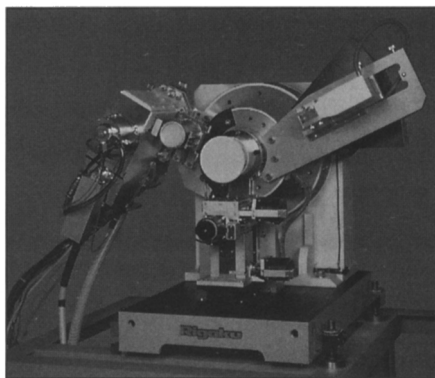
Keithley Instruments offers two matrix switching cards for semiconductor R&D and production. Model 7174 8  $\times$  12, designed for use with Keithley's Model 707 Switching Matrix, offers low leakage (0.01 pA/V pin-to-ground, 0.0005 pA/V pin-to-pin) and minimal dielectric absorption. Model 9174-HSM 8  $\times$  12, designed for use with Keithley's S400 Parametric Test Systems, is suitable for parametric testing applications requiring high-quality, high-speed switching of I-V and C-V signals.

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### **CVD Silicon Carbide Components:**

Morton offers CVD Silicon Carbide<sup>TM</sup> susceptors and slip rings for RTP, CVD, and EPI reactors. The ceramic performs well at temperatures exceeding 1000°C and has >99.9995% purity. The homogeneous bulk material has a high stiffness-to-weight ratio that gives the susceptors a low mass and good surface flatness. The susceptors do not degrade during hot HCL cleaning cycles and are free of graphite and other sources of contamination.

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**X-Ray Diffractometer:** Rigaku's  $\theta/\theta$  system features a direct-drive rotating anode as the x-ray source. In this configuration, the sample remains stationary while the x-ray source and detector move, making the system suitable for analysis of any material that is liquid or that becomes liquid during analysis. Applications include liquid crystals, thin-film materials, and multilayered semiconductor devices. Accessories include an incident beam monochromator, low/high temperature cells, and a choice of detectors.

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### **FTIR Thin-Film Process Monitor:**

On-Line Technologies' Series 300 provides real-time simultaneous data on the thickness, composition, and temperature of thin films during processing. Measurements of combined thickness and composition are made using FTIR reflection spectroscopy. The analysis method uses a parametric model for the wavelength-dependent complex dielectric function and a model for reflection from a multilayer stack. An automated routine simultaneously solves for the thin-film thickness and its dielectric function. The temperature measurement method uses simultaneous measurement of reflection and emission spectra from a sample surface.

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### **Corrosion Reference Database:**

Active Library<sup>®</sup> on Corrosion, created by Elsevier Science Publishers and NACE International, is a hypertext CD-ROM product that contains corrosion reference information, including text and graphics accessible through hypertext linking. A network version is available, and users can store document trails and notebook annotations as local system, remote private, or public/read-only files.

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### **Advanced Specialty Inorganics:**

Free 390-page catalog from CERAC highlights specialty inorganic chemicals, metals, alloys, and ceramics. The firm's manufacturing capabilities, including evaporation materials and sputtering targets, are also outlined. The catalog offers information on R&D lots and production quantities. An alphabetical product listing identifies chemicals by formula, particle size, and purity level.

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### **Position and Scanning Slide Assemblies:**

Velmex's 48-page catalog features more than 235 motor-driven UniSlide Assemblies that are suitable for scanning, feeding, or incremental positioning. Applications include R&D, manufacturing, and testing. The assemblies come in eight cross-section widths from 1.5 to 9 in. (3.8 to 22 cm) and travels from 0.5 to 86 in. (1.3 to 218 cm). Also included is a series of programmable step motor controllers tailored for use with UniSlide Assemblies.

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### **Capillary Electrophoresis:**

J&W Scientific's application note illustrates high resolution of self-complementary oligomers using  $\mu\text{PAGE}^{\text{®}}$  capillary electrophoresis columns. Separation of biological compounds by molecular sieving often requires denaturation. Some oligonucleotides tend to fold back on themselves, and the fragments must be submitted to denaturation to "open" them into a linear configuration. In the case of cross-linked polyacrylimide gel electrophoresis as applied to capillaries, urea and formamide have been useful in maintaining denaturation. Examples of the effects of sample denaturing are shown in electropherograms of a self-complementary 20-mer with an ACGT repeat.

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### **FTIR Software for Process Environ-**

**ments:** On-Line Technologies' VISION<sup>TM</sup> software runs under National Instruments' LabVIEW<sup>TM</sup> for Windows<sup>TM</sup> and enables users to customize data collection, analysis, display, and control of processes monitored by FTIR. Object-oriented programming is performed by linking function icons graphically on the monitor. Auxiliary data can be collected, or devices such as valves and switches can be controlled for sample conditioning or process control.

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