

RESOURCES

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

Six-Chamber Aging Oven: The LGB-6 from Benz Materials Testing Instruments is a tabletop six-chamber oven that tests the aging properties of elastomer and plastic compounds for seals, gaskets, bearings, hose, belting, and o-rings. The six chambers are designed for 38-mm-diameter test tubes, requiring 11 in. × 14 in. (~28 cm × 36 cm) of tabletop. Temperature is maintained consistently within +0.2°C. Auto tuning maintains the correct amount of power to stabilize temperature without over- or underheating the aluminum heat sink. Temperature range is ambient to 300°C.

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Self-Priming Miniature Fluid Dispensing Micro Pump: Bio-Chem Valve offers a miniature self-priming 5- μ L micro pump for handling programmed micro dispensing of high-purity or aggressive fluids. The pump provides a discrete dispense to replace pump and valve combinations, or a continuous flow to replace peristaltic pumps. The fixed displacement diaphragm pump can be factory-set to handle discrete fixed output flows in volume from 3-8 μ L per solenoid actuation to provide an inert fluid path for repeatable dispensing with an accuracy of 0.5 μ L.

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Chemistry Software for Windows®: ChemSW® offers a 36-page catalog of chemistry software for Windows®. Packages include chemical databases; ChemArt™ dictionaries and spell checkers; chromatography; environmental methods, regulations, forms, and reporting; organic, synthetic, and analytical chemistry; inventory, maintenance, and MSDS management; lab information management; mass spectrometry biochemistry; and molecular drawing and modeling. Also listed are software packages about statistics, math, training, and quality control.

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Three-Axis Magnetoresistive Sensor: The HMC1023 from Honeywell is a single stand-alone three-axis magnetoresistive sensing system designed for high-volume OEM applications such as compassing, attitude reference, virtual reality, and medical devices. The sensor can convert magnetic fields to a differential output voltage capable of sensing magnetic fields as low as 85 μ G. Configured as three magnetoresistive sensors in *x*, *y*, and *z* orientation, the sensors convert all three magnetic field axes to a differential output voltage.

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Dry Screw Vacuum Pump with Remote PLC: The Cobra DS-80 from Busch Semiconductor Vacuum Group is a 46 CFM dry screw vacuum pump with a remote programmable logic controller (PLC) and integrated monitoring system. Users mount the PLC on top of the pump with a quick release connector, or on the sub-fab wall. Users then can swap out pumps without reprogramming because all programming resides in the remote PLC. The software interfaces with Busch's InstaTrack™ data management and analysis system for vacuum pump preventive maintenance and repair.

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Endpoint Detector: The IMP Series Endpoint Probes from Hiden Analytical enable etch endpoint determinations to 2.5 Å for multiple species in real time. Endpoints are routinely and repetitively identified for layers to 10 Å thick and layers masked to 99%. Inter-layer diffusivity is positively established. The SIMS technique ensures immunity to optical contamination, and long-term and reproducible precision and sensitivity. The EPD control suite is programmable to determine endpoint on both increasing and decreasing species intensity and incorporates an overetch mode selectable for both fixed process time and fixed percentage of total time.

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Tungsten Carbide Coating Process: Conforma Clad's tungsten carbide coating process has extended the life of components in one plastic plant's air conveyor production system by more than 1,000 times. The coating can be applied to most steel components, complex geometries, and internal cavities. Consisting of 70% tungsten carbide embedded in a hard nickel chrome matrix, the coating forms a metallurgical bond with the substrate and has a bond strength of 70,000 psi (480 MPa).

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Material and Process Selection Software: The Cambridge Engineering Selector (CES3) from Granta Design Limited enables users to identify the material required and then the ideal process to be used to manufacture a component. Users can alter the supplied database or build their own to include specific materials or to add details. Each of the 2,500 materials in the materials database has more than 25 attributes associated with it, including general, electrical, mechanical, and thermal attributes. A graphical interface enables users to narrow the selection of materials to the one required. The process database includes similar detail and can be altered.

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1 GHz Oscilloscope: Hewlett-Packard's four-channel 1 GHz HP 54835A Infiniium oscilloscope is designed for engineers working on high-speed digital designs that require sub-nanosecond waveform edge speeds. Maximum sample rate is 4 gigasamples per second (Gsa/s) with two channels and 2 Gsa/s with four channels. Memory depth ranges from 32 to 64 K for four channels and two channels, respectively. The oscilloscope provides high bandwidth to accommodate fast bus and clock speeds in digital design applications.

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Discrete Wavelength Ellipsometer: The Sentech SE400 from Micro Photonics measures thickness and refractive index of single- and double-layer films. The instrument features a series of dialog boxes for setting up ellipsometric measurements, including a library of standard data for known structures. With the laser alignment tool, users align the sample to the instrument by using cross hairs viewed on the computer. The SE400 can measure film thicknesses up to 6000 nm on transparent films and up to 2000 nm on absorbing films.

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Lab Equipment Guide: Free product guide from Hotpack describes eight lines of lab equipment. Products include lab steam sterilizers, biological safety cabinets/laminar flow hoods, environmental rooms, incubators, Heinicke lab glassware washers, environmental stability chambers, ovens, and refrigerator/freezers. Major features are listed by each illustration, and a photograph for each product shows a typical unit.

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For contact information for these products, check www.mrs.org/publications/bulletin/resources