

## RESOURCES

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

### **Waterproof Radiometer Detectors:**

International Light's underwater radiometer detectors are designed for use with IL1400A and IL1700 research radiometers and permit real-time integration without data loss. They feature heavy-duty quartz diffusers for cosine spatial response, anodized aluminum housings with O-ring seals, and water-blocked polypropylene reinforced cables up to 600 ft long. The detectors are suitable for spectral studies from 200 to 1100 nm and low light levels down to 0.5 pW/cm<sup>2</sup>.

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**Spot Welder:** The OM97 from Omicron Associates was designed for welding applications in the fields of UHV and microstructure technology. The welder weighs 3 lb, and it has an input power of 20 W, maximum energy per shot of 16 J, and a repetition rate of 10 shots/minute. The "weld pen-head" allows access to confined spaces and is suitable for assembly of thin wires, metal foils, STM tips, and thermocouples. The welding power can be tuned to avoid sparking. Exchangeable electrodes provide flexibility for various applications and materials.

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### **Portable Xenon Pressure Chamber:**

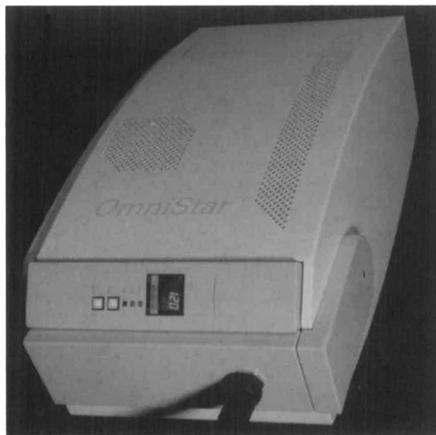
The Xcell from Oxford Cryosystems and the University of Oxford is designed to produce heavy atom derivatives for macromolecular x-ray crystallography. The Xcell encloses the crystal sample in a small chamber, which then is pressurized with xenon from a cylinder to a maximum of 25 bar. A quick-release connector allows the Xcell to be isolated from the gas supply while under pressure, making it portable. Controlled inlet and vent valves enable the chamber to be pressurized and vented without damage to the sample.

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### **Specific Gravity Tester for Elastomeric Compounds:**

The SG 2100 from Benz Materials Testing Instruments automatically measures the dry weight of a sample compound, then its wet weight, and then computes the sample's specific gravity. Benzwin 2000 software allows users to correct for bath fluids by entering the density at startup. This eliminates discrepancies caused by not calculating for different bath fluid densities. The system also can store and compare data to previous test results.

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### **Mass Spectrometry System for Corrosive and Explosive Gas Monitoring:**

Pfeiffer Vacuum's OmniStar™ is suitable for exhaust monitoring of CVD processes, process control during production, and maintenance of CVD tools. The system monitors key functions, including purge gas flow, and ensures that the scrubber is functioning properly. Included are pumps, gauges, and Prisma™ gas analyzer for interlocked startup/shutdown and operation as well as Windows®-based Quadstar™ 422 software. The gas analyzer wiring can be adapted to measure specific gases.

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**Plastics References:** Free catalog from Plastics Design Library features 40 technical reference books and CD-ROMs, 16 of which are new. Topics include additives, mold shrinkage and warpage, medical plastics, metallocenes, joining, paint and coatings, chemical resistance, film properties, performance properties, environmental stress cracking, adhesives, fatigue, and wear.

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### **Raman Imaging Microscope:**

Renishaw's Raman imaging microscope combines scanning spectroscopy and 2-D imaging in one system. The microscope scans to a spatial resolution of 1 μm and a spectral resolution down to 0.2 cm<sup>-1</sup>, providing graphic output in the form of 2-D Raman images and 2-D and 3-D spectral plots. Choices for the 25-mW laser used for scanning are Ar<sup>+</sup>, doubled Ar<sup>+</sup>, HeNe, and semiconductor lasers. Standard scans range from 200 to 4000 cm<sup>-1</sup>, but optional extensions provide ranges of 100-4000 cm<sup>-1</sup> and 5000-7000 cm<sup>-1</sup>. The microscope can be customized for measurement up to 1500°C or down to 4 K.

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### **Sub-50 Femtosecond Optical Parametric Amplifier System:**

Spectra-Physics's sub-50-fs OPA is based on all diode-pumped solid-state technology. With its wavelength extension options, the system provides high-energy output up to 35 μJ with no gap wavelength tuning from 300 nm to 10 μm at 1 kHz repetition rate. The OPA is pumped by a sub 50 fs Ti:sapphire amplifier Spitfire (>0.5 mJ, 1 kHz, 800 nm) which is in turn pumped by Evolution, the diode-pumped solid-state intra-cavity doubled Q-switched Nd:YLF laser.

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### **Ozonated Water Process:**

Semitool's HydrOzone™ process is designed for post-plasma strip and post-ash cleans, organic cleans, and photoresist applications. Using a mixture of ozone and water for cleaning, the process eliminates H<sub>2</sub>SO<sub>4</sub> and H<sub>2</sub>O<sub>2</sub> and reduces water consumption by up to 99%. Operating at elevated temperatures, the process increases reaction rates and results in resist removal rates up to 15 times greater than subambient processes. Semitool offers the process in its Class 1, Magnum™, and Spectrum™ product lines, but it also can be retrofitted to existing equipment through an upgrade kit.

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### **Automated Dissolution HPLC System:**

Shimadzu's Tablet Dissolution HPLC Analysis System provides PC control of dissolution and HPLC parameters. Automated simultaneous sampling and sample transfer from six vessels to the HPLC ensures sample integrity with no cross contamination. Five report options include raw data, raw data summary, percent dissolved, amount dissolved, and graphic dissolution profile. Multipoint and single-point dissolution tests can be performed, and HPLC reports can be created for individual and batch runs.

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### **Inductively Coupled Plasma-Mass Spectrometry Instrumentation:**

VG Elemental's Axiom offers high resolution and multi-collector functionality. The Axiom interfaces a double-focusing magnetic-sector mass spectrometer to an optimized ICP ion source. Features include a computer-modeled design, user-selectable resolution, and M-PlasmaScreen™. Options include accessories that simplify analysis of small sample volumes, complex matrices, corrosive reagents, organic solvents, and solid samples.

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