

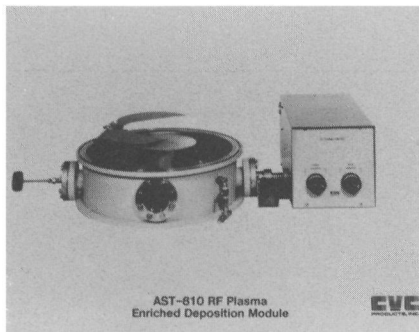
## RESEARCH RESOURCES

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

### **Reusable CVD Source Bubbler:**

Brochure details the specifications, handling, and use of a chemical vapor deposition (CVD) source bubbler, which is the only reusable stainless steel bubbler available for the liquid or volatile solid chemicals employed in CVD and MOCVD (metalorganic CVD) processes in the silicon and compound semiconductor industries. Pressure rating is ensured through x-ray inspection and helium leak detection, and single-block valve assembly eliminates the traditional extended-arm bubbler shape, thus reducing the possibility of breakage during handling. Electronic Chemicals Department, American Cyanamid Company, Venture Chemicals Division, One Cyanamid Plaza, Wayne, NJ 07470; telephone (201) 831-3647.

**Sputtering Source:** Modular sputtering source economically applies state-of-the-art sputtering technology to existing vacuum systems. The unit employs eight-inch target electrodes which mount on baseplates or accessory feedthrough rings of 18- or 24-inch bell-



jars. Advantages include high deposition rates, continuous coverage of complex surfaces, precise control of film, consistent alloy composition, excellent adhesion, and deposition uniformity. Both rf and dc modes are available. CVC Products, Inc., 525 Lee Road, P.O. Box 1886, Rochester, NY 14603; (716) 458-2550.

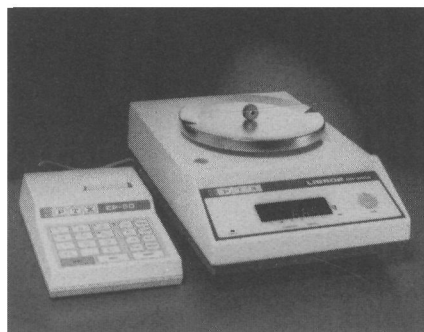
### **Nondestructive Characterization System:**

Ultrasoft 7000 system presents an optimum combination of ultrasonic and computer technologies. Ultrasonic hardware, comprised of transducer excitation and amplification, transducer lateral and vertical translation, has been fully incorporated inside an IBM PC (XT or AT) or compatible hardware, and software enables real-time and spectroscopical analysis, including planar raster scanning of test materials. Capa-

bilities enable users to convert a computer screen into an oscilloscope and eliminate the need for a separate pulser-receiver. Ultrason Laboratories, Inc., 139R North Gill Street, State College, PA 16801; (814) 238-9083.

### **Electronic Top-Loading Balances:**

Series of electronic top-loading balances incorporates high technology and compact size to offer high reliability at low cost. The series is available in single, dual and high range models, with weight ranges from 1 mg–6,200 g. Features include draft and vibration resistance, automatic calibration, weight testing, a warm-up standby circuit, and last-place decimal accuracy. In addition, overload and power failure protection



prevent incorrect data from being displayed should either of these problems occur. When combined with an application keyboard, dedicated printer or RS 232 interface, the balance's capabilities can be expanded to include statistical calculation. Hook-up to the RS 232 or application keyboard permits two-way communication between balance and PC or other external device. PTX-Pentronix, Inc., 1737 Cicotte Lincoln Park, MI 38146-1304; (313) 388-3100.

### **Helium Leak Detector:**

Cabinet model helium leak detector caters to both vacuum and overpressure leak detection methods. Automatic valving sequence provides helium response from atmospheric pressure down through all vacuum ranges. The detector has an almost completely hydrocarbon-free inlet system without the use of LN<sub>2</sub>, making it useful for clean test samples or systems in research and industry. Other features include easy set-up, fast start-up (less than five minutes), simple two-button operation, a bright easy-to-read display, and ease of service. Leybold Inficon, Inc., 6500 Fly Road, East Syracuse, NY 13057.

### **Vacuum System Controller:**

The Tekscan VSC sub-rack system can be positioned in a standard 19-in. rack or on a workbench to provide vacuum system measurements, display, and control. The VSC can also be used as a dedicated process controller with real-time response. A Z8671-based microcomputer provides sequence choice of the events to be monitored and controlled, and a video monitor with systems mimic and RS232 and IEEE488 interfacing are included. Input/output plug-in modules are available, including analog-to-digital and digital-to-analog converters. Microscience, Forbes Business Center, 182 Forbes Road, Braintree, MA; (617) 849-1952.

### **Automatic Scratch Tester:**

The Revetest measures the mechanical strength (adhesion and intrinsic cohesion) of hard and brittle coatings produced by chemical and physical vapor deposition. The load applied to a diamond point is gradually increased and a piezo-electric accelerometer detects the acoustic emissions produced as the coating is damaged. The acoustic signal is recorded as a function of the load applied to the diamond point, and analysis of the resulting graphs provides both qualitative and quantitative information on coating strength. Options include a viewing microscope, chart recorders, and an option for measuring frictional force and the coefficient of friction. Microscience, 41 Accord Park Drive, Norwell, MA; (617) 871-0308.

### **Submicron Mechanical Properties Microprobe:**

Precision diamond microprobe driven by an electromagnetic loading column can probe materials controllably on a submicron scale and extract quantitative information on mechanical properties. Useful data can be obtained from indents as shallow as 20 nanometers. No imaging is required with the NANO Indenter because its dynamic indentation feature allows monitoring and control of stress and strain rates, and differentiation between elastic and plastic strain. All models have a continuous displacement resolution of 0.4 nanometers. Videocam remote operation and an environmentally controlled testing room are optional. Microscience, 41 Accord Park Drive, Norwell MA 02061; (617) 871-0308. □