

RESEARCH RESOURCES

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

Infrared Accessories and Supplies: Catalog provides complete ordering information on company's line of sampling accessories and supplies for FT-IR (Fourier transform infrared) spectroscopy. Featuring products that cover the broadest range of infrared applications in the industry, the catalog contains descriptions, charts, photos, and diagrams to facilitate selection and ordering. Many items are available for 24-hour delivery. Catalog includes information on company's line of highest-performance sampling accessories; products addressing all aspects of FT-IR liquid, solid, gas, and high-temperature sampling; general-use basics; special techniques; selecting IR crystal materials; and a library of available reference materials. Spectra-Tech, Inc., 652 Glenbrook Road, Stamford, CT 06906; (203)3577055.

Federal R&D Funding: This 125-page report, *Federal R&D Funding by Budget Function: Fiscal Years 1989-91*, prepared by the National Science Foundation provides information on federal funding of research and development (R&D) by federal budget function categories. The report focuses exclusively on the R&D components of agency programs as proposed by the administration for fiscal year 1991. Descriptions of more than 500 individual R&D programs are included. Proposed FY 1991 funding levels are given in budget authority which is the basis for initial congressional action. Detailed data are also included on actual federal funds directed toward R&D in FY 1989 and estimated funding in FY 1990. NSF 90-311 is available from: Government Studies Group, Division of Science Resources Studies, National Science Foundation, Washington, DC 20550; (202)634-4636.

Cryosectioning for Electron and Optical Microscopy: CR-21 Universal Cryosectioning Attachment fits any modern ultramicrotome, and can be installed or removed in less than 5 minutes even when cold. This enables the ultramicrotome to be used in its more normal, plastic sectioning mode. Featuring a compact, lightweight, microprocessor controller and a noncontact, nonpressurized liquid nitrogen system, the CR-21 offers ease of use and economic operation from +55 to -170°C, with $\pm 0.1^\circ\text{C}$ stability. The attachment is also ideally suited for cryostat sectioning at -20 to -40°C when used with an appropriate ultramicrotome. RMC, 4400 South Santa Rita Avenue, Tucson, AZ 85714; (602)889-7900. In Europe: RMC Ltd., P.O. Box 633, Swindon, Wiltshire SN1 4TB, United Kingdom; 44-793-541095.

Diamond and Diamond-Like Materials: Ninety-five-page National Materials Advisory Board report, *Status and Applications of Diamond and Diamond-Like Materials: An Emerging Technology*, takes a broad look at the state of the technology in relation to other allied materials, such as high-pressure diamond and cubic boron nitride. Growth processes are reviewed, and techniques for characterizing the resulting materials' properties are discussed. Crystalline diamond is emphasized, but other diamond-like materials (silicon, carbide, amorphous carbon containing hydrogen) are also examined. Scientific, technical, and economic problem areas that could impede the rapid exploitation of these materials are identified. Recommendations are presented covering broad areas of research and development. Price \$15. National Academy Press, 2101 Constitution Avenue, NW, Washington, DC 20418; (202)334-3313 or (800)624-6242.

Ultramicrotome: Instrument allows thin sectioning of specimens for analytical electron microscopy. Normally used with a diamond knife, the MT7 will produce single or serial sections from 10 nm up to 10 microns thick in 1 nm increments of ceramics, high T_c superconductors, metal oxides, bone, teeth, and composite materials. The MT7 features a single-unit instrument design, microprocessor-controlled mechanical specimen advance, stereozoom optics, multifunction adjustable lighting, swiveling/tilting stereomicroscope, built-in digital section counter and specimen advance totalizer. Built-in vibration isolation eliminates the need for a microtomy air table in all but the harshest environments. RMC, 4400 South Santa Rita Ave. 85714, Tucson, AZ; (602)889-7900; In Europe: RMC Ltd., P.O. Box 633, Swindon, Wiltshire SN1 4TB, United Kingdom; 44-793-541095.

Vacuum Components and Products: Free 192-page catalog describes more than 3,700 vacuum components and products. Virtually everything necessary for developing state-of-the-art vacuum systems is included, from chambers to valves, fittings to feedthroughs. Dozens of new and patented manipulators, motion feedthroughs, and motion mounting platforms are introduced. Included with these are more than 200 UHV positioning devices. Standard and custom vacuum chambers are also featured, as are special bellows assemblies, cryostats, and custom sample heating and cooling assemblies. Huntington Laboratories, 1040 L'Avenida, Mountain View, CA 94043; (800)227-8059; in California (415)964-3323.

Automated Scanning Electron Microscope: Instrument features digital electronics and a new level of automation, speed, and one-button operation for a broad range of scanning electron microscope (SEM) applications. The ABT-32 is especially well suited where consistent high-quality SEM analysis is required, but where operators may change from day-to-day or vary in efficiency. An operator only needs to insert a specimen and press one button. Procedures that previously required considerable operator skill—evacuation, emission activation, beam alignment, astigmatism correction and contrast, brightness, and focus setting—have all been automated. The ABT-32 provides high-performance 5 nm resolution and magnifications from 15 to 300,000x; and a unique Wet-SEM option allows the instrument to accept wet or delicate samples without coating. An RS232C interface is provided and numerous accessories are available. An RS232C interface is provided and numerous accessories are available. International Scientific Instruments, 6940 Koll Center Parkway, Pleasanton, CA 94566; (800)538-6850; In California: (415)462-2212.

Molecular Micromapping: Integrated molecular microanalysis system, the *Irus™*, features molecular mapping which provides direct correlation of molecular microanalysis in addition to the sample's microstructure. The system incorporates research light microscopy and FT-IR spectroscopy with innovative computer software and a precision micropositioning stage. The user can map up to thousands of individual points (in a linear or pattern sequence) to obtain a chemical profile of the sample. This provides molecular characterization of microscopic samples, even those smaller than the molecular vibrational wavelengths. The resulting FT-IR spectra can be searched through software reference libraries or user-generated libraries to determine the specific molecular structure of the points that have been analyzed. The molecular map allows the user to obtain information on the composition of materials such as polymeric substances, biological tissues, inorganic biological by-products, coatings, and thin films. Data can be displayed or plotted in several formats to show particular areas of interest. Typical results are displayed in surface plot format or in combination with singular or overlaid contour maps. Spectra-Tech, Inc., 652 Glenbrook Road, Stamford, CT. 06906; (203)3577055. □