

RESOURCES

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

Leak Repair for Vacuum Systems:

Varian's epoxy-based Torr Seal® Mixing System will seal leaks in all common vacuum systems and components at pressures of 10^9 torr and below, and temperatures from -45°C to 120°C . The process uses no solvents so vapors cannot contaminate the vacuum system. It is equally effective with leaks in metal, ceramic or glass that are small enough to require a detector to locate or so large they are visible or audible. The material hardens at room temperature within one to two hours.

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Magnetic Charging Equipment:

A full line of equipment for charging permanent magnets and magnetic assemblies using any magnetic materials, including NdFeB, is available from Walker Scientific. Capacitive discharge, dc, and half cycle types are available. Using water-cooled fixtures, they can achieve pulse rates up to one pulse/second to match instrumentation capabilities. Included are XLE extra low energy chargers for production and lab use, the LE Series (1,000 to 6,000 J), HE Series (6,000 to 12,000 J), and the XHE (1,000 to 48,000 J). Conditioning equipment is also available.

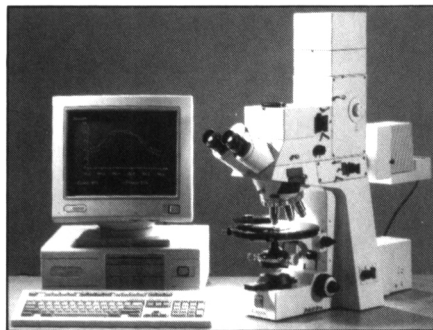
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Cryogenic Test Facility: Leybold Vacuum Products' fully staffed Engineering and Applications Laboratory specializes in testing and design of cryogenic vacuum applications. Capabilities include pump modeling; special pump design; manufacturing, repairing, and testing for speed capacity; temperature monitoring; and presale application tests to determine pump performance. Additional capabilities include a full range of test dewars from 4 to 48 inches, 50/60 Hz operation, gas handling and ventilation facilities, explosion-proof enclosures, and vacuum ovens. The laboratory features a temperature, humidity, and particulate controlled environment.

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Vacuum Technology: Free 93-page booklet discusses concepts and symbols, quantities and formulas from kinetic theory of gases, gas flow selection of vacuum pumps, low-pressure measurement, leak detection, and field of application. Contains tables and diagrams.

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Microphotometer

Microphotometers: New line of microscope photometers from Carl Zeiss, Inc. covers a wide spectral range from the UV (240 nm) to the near IR (2,100 nm). This flexibility allows users to maximize accurate sample information nondestructively. The MPM 400 features a detector side grating monochromator, and the MPM 800 can be equipped with illumination side and detector side monochromators, both with a resolution up to 1 nm. Dedicated software permits spectrophotometric analysis, statistical and kinetic analysis, and also one- or two-dimensional photometric mapping. An object or substance of 1 square micron can be reliably located and analyzed.

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Diamond and Related Materials:

New international, interdisciplinary journal publishes articles covering basic and applied research on diamond and related materials. The emphasis will be on vapor-deposited materials, high temperature/high pressure synthetic materials and also natural diamond research and characterization. Published papers will cover fundamental and technological aspects of synthesis, characterization, properties, devices, and generic applications of these materials. The first issue is scheduled for August 1991. Editor-in-Chief is R. Messier, Pennsylvania State University.

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Linear Gridless Ion Source: Low voltages (0 - 150 eV) and high-current outputs (5 A discharge, 1,000 mA ion current) make Commonwealth Scientific's End Hall ion source a versatile tool for precleaning and ion assist applications. A plasma bridge electron emitter increases the source's serviceable lifetime to several hundred hours. Overall dimensions are $10 \times 2 \frac{1}{2} \times 2 \frac{1}{2}$ inches; area of coverage from a 3-inch working distance is 12×4 inches.

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Differential Scanning Calorimeter:

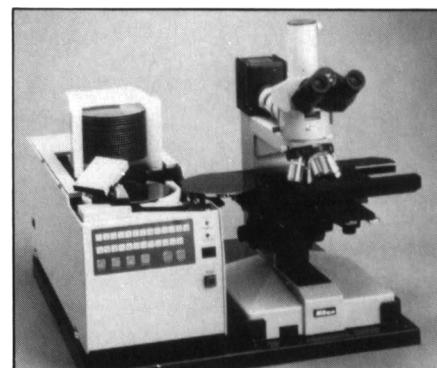
Low-cost microprocessor-controlled DSC 92 from Astra Scientific is designed for polymer research, quality control, and basic research applications that measure state and structure transformations. Two separate cells are machined in the same silver block so its temperature is homogeneous and accurately controlled through a PID temperature controller. Temperatures of the block and the sample and reference supports (each surrounded by a thermopile) are designed to be the same. The slightest change in energy due to the sample is detected by the thermopile and measured. Crucible options are available.

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Federal Laboratory Technology Catalog:

NTIS catalog describes more than 1,000 new processes, instruments, materials, equipment, software, services, and techniques developed by NASA, the Departments of Defense and Energy, and NIST which have strong commercial potential. Catalog entries provide names and telephone numbers of persons to contact for additional information.

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Wafer Loader

Wafer Loader: Nikon's NWL-641 wafer loader, designed for easy operation over long periods of use, has a robotic handling system that promotes safe, clean, rapid observation of 4, 5, or 6-inch wafers. The fully rotatable stage features an exclusive vacuum system to hold wafers in position. The handling system incorporates two robotic arms, each with fewer parts, to simultaneously move two wafers. The system is designed to correct for common problems, such as improper installation of a wafer in its pocket, and has a minimal footprint for use in smaller spaces.

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