

**Microwave Power Supplies:** Raytek's Compact and Power line of products from France, ranging from 300 to 6,000 W at 2.45 GHz, is now distributed exclusively in the United States by Wavemat. Switch mode technology and solid-state regulators with microprocessor control produce power stability of better than 0.1% and ripple less than 1% from zero to maximum power. The Compact line is packaged in a 3½ in.-high standard 19-in. rack mount, including control module with a remote magnetron head. Interconnecting microwave components are also available.

Circle No. 55 on Reader Service Card.

**Particle Atlas on CD-ROM:** MicroData-ware will publish PAE<sup>2</sup>, an electronic edition of the extensive text, tables, and more than 4,000 photographic images of the six-volume *Particle Atlas* which is now out of print. PAE<sup>2</sup> may be used for training and as a standard reference work on characterization and identification of all types of particulate matter. It will be available in Spring 1992 for about \$1,500 for IBM and Macintosh and will be updated and expanded annually with a small charge for existing users.

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**Rheological Phase Measurement:** Product brief, "Better Phase Angle Determination for a More Precise Modulus," from Rheometrics describes a system that reduces the chance of error by virtually eliminating inertia and compliance problems. The system includes a separate actuator and transducer to reduce inertia, as well as hardware and software that prevent data corruption by resonant and harmonic frequencies. A closed loop feedback control also eliminates most sample strain errors due to compliance.

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**Light Microscope Illuminator:** Darklite™ from Micro Video Instruments offers uniform lateral darkfield illumination to a 25 x 75 mm slide, accommodating objectives from 1 to 100x. It is stage-mounted, and the microscope condenser remains in place so that the darkfield can be combined with other transmitted light techniques such as brightfield, phase contrast, or differential interference contrast. Ideal for imaging silver grains and gold particles and image analysis applications, Darklite™ eliminates the hot spot often found in conventional darkfields. Its 150 W halogen light source and fiber optic specimen holder remain on the microscope without impairing its use for other applications.

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**Cryogenic Equipment:** Leybold offers 13 cryopumps with a working pressure range of  $10^{-5}$  to  $<10^{-10}$  torr and pumping speeds ranging from 400 to 60,000 l/s cold pump surface temperatures below 20 K. They offer fast, reliable pumpdown and regeneration of combinations of up to three cryopumps or cryostats which may be operated with one RW series two-stage compressor. Standard features include vacuum flanges, factory-sealed relief valves set for 40 torr over pressure, and hydrogen-filled pressure thermometers. Accessories are also available. Limited maintenance involves replacing the displacer assembly and changing the compressor's oil absorber every 18,000 hours.

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Cryogenic Equipment

**Japanese Superconductivity Research Facilities:** Japanese high magnetic field facilities at Tohoku and Osaka universities, the University of Tokyo, and the National Research Institute of Metals are described in report NISTIR 453 prepared by NIST for the Japan Technology Program of the U.S. Department of Commerce. Particular attention is devoted to advances in superconducting materials impacting the construction of future high magnetic field facilities. Both pulsed magnetic field facilities and constant field generation are evaluated, and future Japanese facilities are listed. The report concludes that Japan's highest magnetic field capabilities for both dc and pulsed fields now are comparable to the highest found elsewhere in the world, but in three to four years Japan will lead the world due to efforts at NRIM to complete an international center with a 40 tesla dc facility.

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**Variable Angle Specular Reflectance at 30 to 300 K:** The Fridge™ cryo-spectroscopic accessory from Connecticut Instrument Corp. offers user-variable angle specular reflectance studies from 10 to 80 deg angle of incidence at low temperatures. The angle can be varied under vacuum without removing the sample. Pour-fill, transfer, and closed-cycle cryostats are available, and the accessory can be used with FT-IR, dispersive IR and UV-visible spectrometers. Applications include characterization of space and satellite materials, semiconductors, superconductors, and solar collector materials; studies of electronic materials at low temperatures; performance of matrix isolation experiments; and resolution enhancement through low temperature sampling.

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**Reactive and Refractory Metals:** Broad range of highly spherical powders from Nuclear Metals offers excellent reproducible packing properties (typically 65% tap density) for consolidation. Featuring an absence of attached satellites and non-metallic inclusions, they are free-flowing with highly controllable median particle size distribution within a specified range. A variety of highly pure powders including molybdenum, niobium, titanium, tungsten, zirconium, and cobalt- and nickel-base alloys are produced in a ceramic-free environment by the PREP™ plasma rotating electrode process. Particle size distributions range from 1,000 to 45 microns.

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**Crystal Substrates for High-T<sub>c</sub> Superconducting Films:** SuperconiX offers a new class of crystal substrates for high-T<sub>c</sub> superconducting thin films for microwave and far-IR applications. The SrLaAlO<sub>3</sub> and CaNdAlO<sub>3</sub> substrates of alkaline rare-earth aluminates have K<sub>2</sub>TiF<sub>7</sub>-type perovskite structure with tetragonal unit cell and yield high quality films of the YBaCuO and BiSrCaCuO superconductors. The substrates have no twins or structural phase transitions which hinder other substrates such as twinned LaAlO<sub>3</sub>. The crystals have (001) orientation. Other product lines include SrLaGaO<sub>3</sub> and SrLaGa<sub>3</sub>O<sub>7</sub> crystal substrates; crystals; rods; thick films; melt cast shapes Y<sub>1-x</sub>Ba<sub>x</sub>Cu<sub>3</sub>O<sub>7-y</sub>, Bi<sub>2</sub>Ca<sub>1-x</sub>Sr<sub>x</sub>Cu<sub>2</sub>O<sub>7</sub>, and CuO; and long, thin superconducting crystals of proprietary composition.

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