

RESOURCES

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

Powder Metallurgy Equipment Directory: Free 150-page 1993 directory from the Powder Metallurgy Equipment Association features information on suppliers of equipment used for manufacturing powder metallurgy parts and products, and products made from particulate materials. Technical data is given on powder metallurgy compacting presses, tools and dies, sintering furnaces and belts, atmospheric gases, and impregnation and metal grinding equipment. The directory also includes product listings of association members.

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Plastics Guide: The 1993 *BCC Plastics Factbook* from Business Communications Co. features information on resin applications and companies, gathered from BCC market studies and various other sources. The book includes economic forecasts, resin sales and forecasts, pricing histories, company tradenames, key players in the plastics industry, and more. A section on international developments is included, with a focus on export data. Environmental issues are also addressed, with information on recycling rates for plastics and the impact of solid-waste reduction options on the plastics industry.

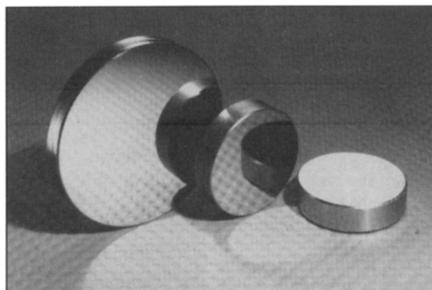
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Optics Education Directory: The 1993 edition of *Optics Education* from SPIE surveys academic programs in optics at nearly 200 colleges and universities in 23 countries. The directory is organized alphabetically by institution, and each entry includes a description of programs offered, degrees granted, tuition costs, admission policies, application deadlines, and contact information. Also listed are faculty and their specializations, the present number of graduate and undergraduate students, scholarship and grant information, and more.

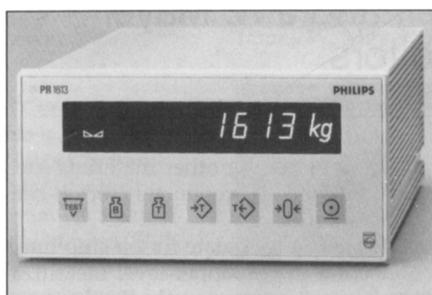
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Beryllium Powders: Free-flowing low-oxide beryllium powders from Nuclear Metals can be consolidated by hot isostatic pressing or extrusion, for use in advanced optical systems, and in fabricating mirrors. The powders have less than 350-ppm oxide content and are highly spherical. Manufactured using the Plasma Rotating Electrode Process (PREP®) in an inert atmosphere, the powders are free of high-density inclusions and nonmetallic contamination.

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Beryllium Powders



Multifunctional Weight Indicator

Multifunctional Weight Indicator:

The PR 1613 from Philips Electronic Weighing offers three types of indicators with a single piece of hardware and built-in software that is accessed by purchasing license numbers. At the first level, the PR 1613 may be used as a simple weight indicator. The second level is accessed by a license number that is keyed into the front panel and unlocks the weighbridge application, while offering conventional weight indicator capability. Another license number, for the third option, enables users to access batching control as well as the conventional weight indicator capability. Standard programs can be extended or new programs can be added using a single programming language.

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Process Controller with Wave-Crest Sensing:

The Hot Shot SC-A1 from Capintec Instruments transforms short events in dynamic processes into sequential peak values, without external triggering or synchronization. Wave-Crest sensing combines 1 msec acquisition time with automatic reset based on adjustable input threshold value, and allows successive peak measurements of moving objects or intermittent processes. The controller accepts common analog input signals from most sensors on two

input channels and includes a digital LED display, analog output, bidirectional RS-232 interface, and two programmable alarm/relay outputs. Also included are five signal-conditioning modes and four memory banks.

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Temperature Sensors with Low Magnetic Field Dependence:

Lake Shore's Cernox® thin-film temperature sensors are composed of metal oxynitride ceramic films on alumina or sapphire substrates, and can be used in chip form or in most Lake Shore sensor packages. The sensors feature low magnetic field-induced errors and resistance to ionizing radiation. Up to four decades of temperature are offered in a single device, and long-term stability at room temperature is better than +0.05%. The bare chips measure 1 mm x 1.25 mm x 0.25 mm, and can be obtained with 63- μ m copper wires silver-epoxied to contact pads or with 50- μ m ball-bonded gold wires. Thermal response times are 1.5 msec at 4.2 K, 50 msec at 77 K, and 135 msec at 330 K.

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Gaseous Flow Controllers:

The 1600 Series Mass-Flo™ controllers from MKS Instruments allow measurement and control of gases from 0.1 sccm to 200 slm with better than 1.0% of full-scale accuracy, unaffected by changes in inlet gas temperature and pressure. The controllers can be used with MKS electronic modules to provide power and setpoint signals with 3-1/2-place digital display, a gas correction potentiometer, and external input/output signals for remote indicating, recording, and controlling purposes. Applications include leak testing, burner gas handling, gas blending, plasma spray, and fermentation.

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Surface Analysis Software:

PHI-MATLAB™ Version 3 from Perkin-Elmer offers data reduction and analysis techniques that enable users to extract chemical information from existing surface analysis data in order to improve detection limits, separate chemical species with complex spectral line-shapes, and customize the reduction of complicated data sets. The software, available in a workstation or PC version, features a graphical user interface that allows construction of command macros for automatic execution of procedures. Included are sensitivity factor databases for Auger, XPS, and SIMS applications.

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