

## RESOURCES

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

**Couplings and Fittings:** Free catalog from Colder Products features more than 900 sizes of thermoplastic and chrome-plated brass couplings for 1.6- to 1.9-mm ID plastic tubing for leak-free connect/disconnect for pressure and vacuum applications. Configurations include panel mount, in-line, and elbows. Pipe thread, hose barb, or compression fittings are built in. Valve options are straight through flow and single- or double-sided shutoff. Included are sterilization and chemical resistance guides, information on regulatory approvals, and custom and medical products.

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**Online Materials Property Data-**

**base:** Automation Creations' MatWeb provides users with free materials data on the Internet at <http://www.matls.com>. Users can perform multiple search routines, including the ability to specify property requirements, a fragment of a known material's name, or a category of materials. A range of properties data for categories of common engineering materials is included—metals, ceramics, and polymers. Data was collected from supplier and literature sources and evaluated, and is presented with references.

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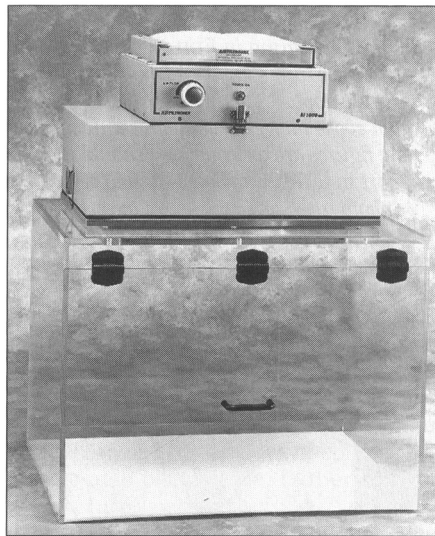
**Inert Gas Purifiers:** The M-Series GateKeeper® purifiers from Aeronex are nonheated and portable, with a small footprint. The basic unit can purify 10 million liters of 99.999% pure gas or 100 million liters of 99.9999% pure gas at a maximum flow rate of 500 l/min. For faster flow rates, one unit can be manifolded with other units of the same type. They are suitable for area gas purification for semiconductor manufacturing equipment and purification of gases used in industrial hard-coating applications.

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**Electrochemical Impedance Measurements:**

Solartron's LEIS 1275 extends electrochemical impedance spectroscopy by enabling impedance data to be mapped over the surface of the interface being studied. The device's scanning probe arrangement provides scanning and measurement options, including line scans of impedance versus position at a single frequency and full spectrum analysis at specific points over the sample surface. Another option maps impedance variations over any part of the specimen surface as a color-coded contour map.

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**Tabletop Clean Room:** The portable RF-1000 from Airfiltronix protects products and samples from contamination with Class 100 clean air or better. Users can add more than one filter when purity is needed to approach or exceed Class 10. The prefilter and HEPA filter are rated 99.99% efficient at 0.3  $\mu\text{m}$ . Variable speed control allows air circulation to slow when users are working with samples. Custom sizes are available.

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**Surface Mount Technology Glossary:**

Free pocket-sized book from Amtech defines frequently used acronyms from various technical fields related to circuit board manufacturing. The book also contains processing tips for solder cream users, stencil printing terms, temperature equivalents, a powder particle distribution guide, solder alloy melting points, particle size equivalents, specific gravity guide, and conversion factors.

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**Platinum Films:** Tong Yang Central Laboratories' ORICON platinum films on silicon wafers have almost 100% of (200)-preferred orientation rather than standard (111) orientation. The films show good adhesion and surface condition without defects. Such (200)-oriented platinum electrode is believed to enhance ferroelectric properties because of the controlled ferroelectric film's orientation. Platinum films on 4-in. (10.16-cm) wafers are available.

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**Media Degasser:** DISTEK's MD-1 degassing system for dissolution media allows users to accurately degas and dispense dissolution media within USP guidelines. The system will dispense

directly into dissolution vessels one of three preset volumes: 500, 900, or 1000 ml. The system can be customized to dispense special volumes and offers built-in safety features to prevent damage due to high or low media levels. An optional bulk media storage tank is available.

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**Vacuum Pump Foreline Gauge:**

The Mini-Convectron® from Granville-Phillips is an atmosphere-to-1 milli Torr vacuum gauge with a three-digit display. The unit provides pressure indication at the gauge connection point and the adjustable setpoints and signals for remote indication and process control. Because the design minimizes drift due to pump-oil contamination, oxidation, and corrosion, the gauge is suitable for monitoring vacuum pump foreline conditions.

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**X-Ray Diffractometer:**

The modular D8 Advance from Bruker Analytical X-Ray Systems features a straightforward ergonomic design and includes two independent x-ray safety circuits, warning lights, and ergonomically positioned controls. All components are mounted on dovetail tracks and can be exchanged with reproducible positioning and freely moved along the tracks. Stepper motors are controlled by optical encoders. The Dynamic Scintillation Detector offers low background and large dynamic range.

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**Nanosized Mixed Metal Titanates:**

Crystalline electro-ceramic powders from TPL have uniform spherical morphology, high dielectric constant, and sintering temperatures as low as 1,000°C. A variety of dopant compositions allow for tailored properties for specific ferroelectric and ferromagnetic applications. Primary particle size is  $47 \pm 6$  nm. The powders are suitable for fabrication of ultrathin films for embedded polymer/ceramic and multilayer ceramic capacitors.

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**Particle Image Velocimetry Laser:**

Continuum's Minilite-PIV, based on Nd:YAG technology, incorporates two laser oscillators on one platform, with optics to combine both beams through a single KDP doubling crystal. The system produces two symmetrical 532-nm output beams with long-term energy and pointing stability. Users can vary the temporal separation of the beams from 10 ns to 100 ms. Independent power supply/cooling units are supplied for each laser oscillator.

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