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

Plasma-Enhanced Parylene Coating: Advanced Surface Technology's Pary LAST™ vacuum-deposited polymer film can resist prolonged contact with body environments and is suitable for biomedical applications in which flexibility is crucial. Cold plasma pretreatment is used to overcome substrate-parylene adhesion and the use of chemical coupling agents. In the process, a gas plasma surface modification is performed on the substrate, followed by the parylene deposition in the same reactor chamber without breaking vacuum. Advantages include thin film coating down to 1 μm thickness, with an increase in coating-effective lifetime by as much as 20 times.
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Radio Frequency Measurement Technique: Advanced Energy® Industries' patented technique can be used to measure only signal magnitudes to determine RF power and impedance. Without the technique, power and impedance measurement equipment must measure low-level RF signals and the phase angle between two or more signals. This phase measurement can be difficult if the angles are small or if the signals are of widely differing magnitudes. The RF measurement technique eliminates these errors in the calculation of RF power and impedance.
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Materials Industry Calendar: Materials Information, a joint service of the Institute of Materials and ASM International, publishes *World Materials Calendar.* The quarterly publication lists approximately 1,000 events, including conferences, exhibitions, meetings, and courses through September 2003. Events are listed chronologically, with indexes provided for location, sponsor, and subject.
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Antimicrobial Coatings: Three coating options in the PhotoLink® family of surface modification reagents from BSI are suitable for medical device manufacturing. First, PhotoLink hydrophilic coatings reduce a surface's affinity for bacteria. Second, higher levels of antimicrobial activity are achieved by incorporating antimicrobial agents into covalently bound hydrophilic coatings, with the agents slowly released from the coating matrix over time. Third, an antimicrobial agent is photochemically immobilized directly to the surface of a device, with the covalent bond between the antimicrobial peptide and device surface allowing for long-term antimicrobial activity.
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Automatic Sample Notcher: Atlas Polymer Evaluation Products' automatic sample notcher enables users to simultaneously notch as many as 12 0.32-cm-thick specimens. Features include automatic feed rate and cutter speed control. Cutter speed is variable in the range of 0–137 m/min and feed rate is variable within 0–16 cm/min. An air jet applied to the single-tooth rotary cutter removes chips and cools the cutting blade, preventing notch melt-back. A notch verification tester is included.
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Metering Pump and Dispenser Catalog: Fluid Metering's 28-page catalog features metering pumps, dispensers, and accessories. The catalog highlights extended pressure ratings for pumps used with low-speed drives. Miniature pumps also are available with cylinder cases made of Tefzel, as well as a line of pumps with stainless steel carriers to resist corrosion. Operating principles, pump capacities, and drive specifications are listed.
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300-mm Wafer Products: Fluoroware offers a stackable single-wafer tray and a stackable single-wafer shipper designed to store and transport 300-mm wafers. The products minimize contact with large, heavy wafers by using a conical bottom to reduce particle contamination. Recessed slots within the products facilitate wafer access. The products' designs also accommodate flexible lot configurations.
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Foamed Materials Database: Granta Design Limited has developed a foamed materials database for use with its Cambridge Materials Selector application. Containing information for 118 open and closed cellular solids, the database includes physical properties and commercial data for a range of polymer, ceramic, metal, and natural materials. Properties include mechanical, thermal, and electrical data, along with typical uses, tradenames, and suppliers.
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Thermoplastic Elastomer Products: TPE products from M.A. Hanna Company Thermoplastic Elastomers are available in various hardnesses and specific gravities, and offer differing levels of chemical and abrasion resistance, tensile and tear strength, and weatherability and tactile qualities. Polymer choices include Styrene-ethylene-butylene-styrene materials, thermoplastic urethanes, and TPVs, as well as alloys of these and other polymers. Applications include the gripping surfaces of consumer electronics and medical devices.
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Ambient/Safety Ozone Analyzer: The Series IN-2000 single- or multichannel ozone analyzer from IN USA detects ozone leaks in wafer fabs. The unit can measure TLV ozone levels in areas around generators, process chambers, and gas exhaust systems, for example. A uv absorption cell, which is unaffected by background contaminants in sample gas, makes an ozone-specific measurement. A built-in catalyst eliminates the sample ozone to prolong sample pump life and to facilitate disposal of sample gas. The unit is available in one-, three-, and five-channel configurations, with measurement capability ranging from 0–1 ppm to 0–1000 ppm.
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Ultramicrotome: The Ultracut UCT from Leica is designed for biological and industrial applications. The instrument can be ordered with an interface for controlling and communication with a computer. Features include automatic feed in 1-nm increments from 1 to 100 nm and a variable cutting speed that can be finitely controlled to 0.05 mm/s. The StereoZoom microscope provides a magnification range from 10× to 60×. The Ultracut UCT can be equipped with the EM FCS low-temperature sectioning system for biological and industrial material.
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Dielectric Sensors: Micromet Instruments' MS-25 micron sensors are designed for operation with Micromet's dielectric cure monitoring instrumentation. The high-temperature version has an operating range of -150 to 375°C. Electrode lines and spacing of 25 μm enable users to characterize cure and diffusion properties of paints, coatings, resins, and films with thicknesses of 25 μm or greater. The standard device is rated to 200°C. Other sensors are available for measurement of thin films down to 1 μm in thickness.
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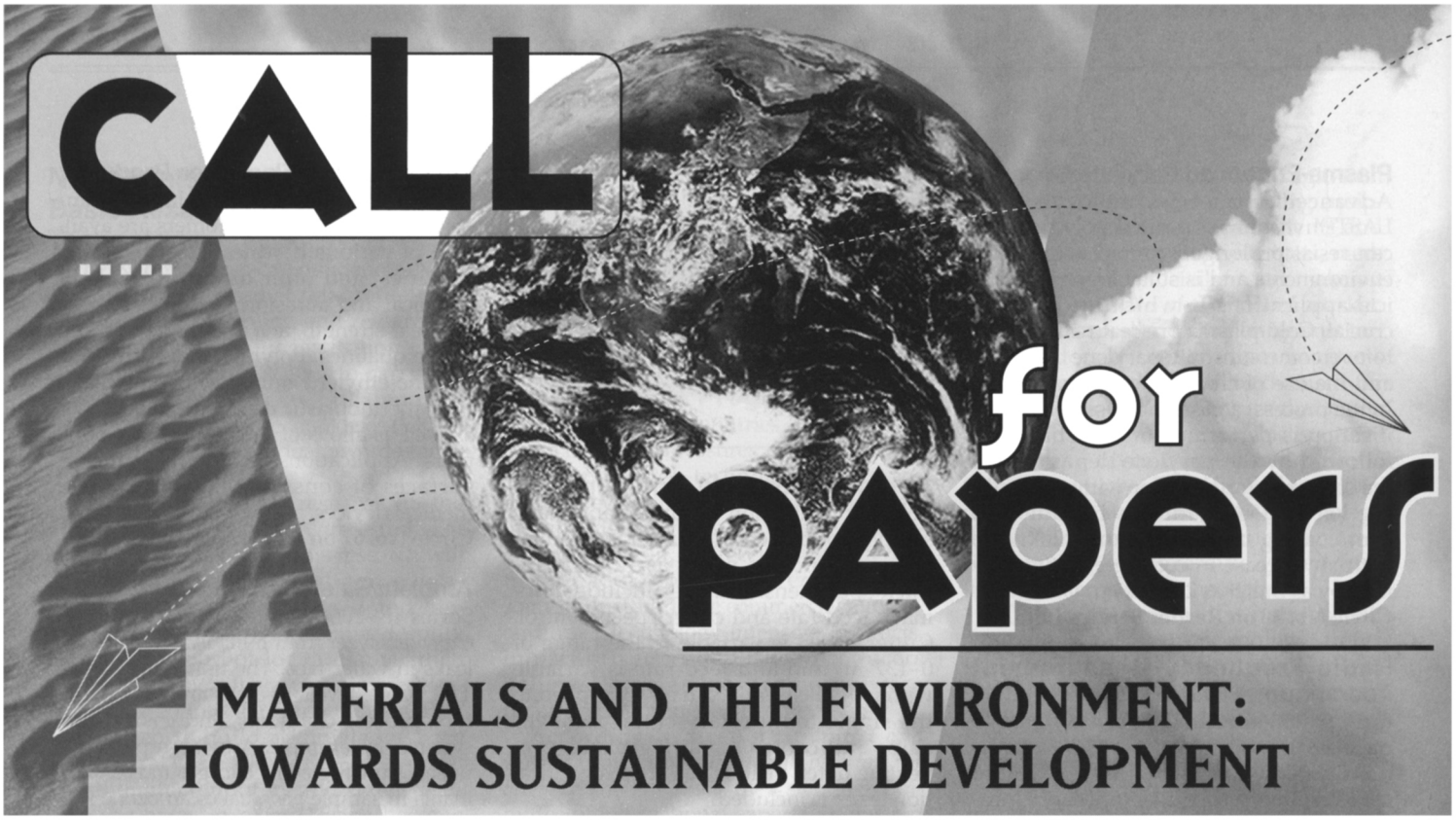

Journal of Materials Research will feature a special section of original research papers on environmentally benign materials and processes in the upcoming September 1997 issue.

The problems associated with materials and the environment are well documented. Heightened awareness of these problems has spawned new research directed at coming to grips with the complex issues surrounding the choice of materials and processes used in making our industrial and consumer products.

MRS has held several symposia and JMR routinely accepts papers on environmental issues. To provide a measure of focus, the March 1995 issue of JMR published a collection of articles on green materials and processes. The September 1997 issue will do the same.

Papers are solicited on various aspects of materials substitution, materials modification, and process developments that decrease the attendant environmental impact and ultimately lead to practices that are sustainable in the long term. Eliminating hazardous reagents, reducing emissions to air, water, and soil, energy conservation measures, and resource recovery are examples of suitable topics. Papers whose primary focus is policy or toxicology are not invited. Prof. Donald R. Sadoway of the Massachusetts Institute of Technology has agreed to serve as editor for this collection of articles.

To be considered for this issue, manuscripts must be received at the USA Editorial Office by January 15, 1997. Manuscripts received after this deadline will have too little time for adequate reviewing in order for them to be included in this issue. No extensions of the deadline will be granted. All manuscripts submitted for this special section of the September 1997 issue will be reviewed in a normal but expedited fashion. The top 15-20 manuscripts of all those accepted will be scheduled for publication in the September 1997 issue of JMR, appearing in the standard JMR format in a separate section of the issue. Any manuscripts that are accepted for publication but cannot be included in the group scheduled for publication in the September 1997 issue will be scheduled to appear in the next available issue of JMR.

Send your manuscripts (one original plus four copies) for consideration to:

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Please be sure to indicate that the manuscript you are submitting is intended for the JMR September 1997 special section on "Materials and the Environment: Towards Sustainable Development."

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