MATERIALS AND CHEMICALS

Vinyl Compound is Suitable for Photobioreactor Tubing

Apex RE 9118A is a rigid vinyl compound that is specifically designed for use in polyvinyl-chloride (PVC) tubing for bio-processing and photobioreactor applications. It is transparent, with less than 15% haze. It resists UV light in outdoor applications such as algae farming and biofuel production. The UV-blocking formulation reduces the harmful effects of UV radiation on the PVC, while permitting passage of the wavelengths that are essential to the process. The tensile, flexural, and impact properties are comparable to those of standard general-purpose rigid vinyl. Lower cost, lighter weight, and greater resistance to breakage make the Apex RE 9118A tubing a viable alternative to traditional glass piping.
Teknor Apex Co.
www.teknorapex.com

Styrene Maleic Anhydride Copolymers Have Low Molecular Weights

Two new grades of Xiran styrene maleic anhydride copolymer, SZ25010 and SZ40005, have significantly lower molecular weights than existing Xiran grades. With a molecular weight of 10,000, the SZ25010 product has a 25% maleic anhydride content; the SZ40005 copolymer has a molecular weight as low as 5,000 and an even higher maleic anhydride content of 42% for added functionality. These low molecular weights offer benefits for formulators, such as easy processability of adhesives, and faster and more stable processing of composites. The copolymers also enhance product properties, creating more-durable colors in paints, better printing properties in paper, improved water resistance and repellence in adhesive labels, coatings, paints, and paper, and increased cross-linking in composites.
Polyscope
www.polyscope.eu

Polymethyl Methacrylate Reduces Processing Costs for Medical-Grade Components

The Luctor polymethyl methacrylate (PMMA) alloy offers an improvement in flow over traditional transparent polymers. It can flow into injection mold cavities measuring 0.1-in. thick and 0.5-in. wide to a depth of 33 in. Intravenous line components and similar devices can be molded with thinner wall sections, which can reduce material and processing costs. Luctor PMMA is transparent and free of bisphenol A (BPA). It is resistant to fats and plasticizers, as well as isopropyl alcohol (IPA), which is used extensively for cleaning medical devices.
Altuglas International
www.altuglasint.com

INSTRUMENTATION

Valve Control Heads Are Designed for Hygienic Processes

Three new intelligent valve-control heads are specifically designed to bring control and connectivity to third-party hygienic process valves. The 8691, 8685, and 8695 valve control heads can regulate pneumatic actuation and perform feedback and diagnostic functions with fieldbus communication. The 8691 control head is specifically designed to manage large valves. The 8685 control head is available with an actuator-sensor (AS) interface and DeviceNet communication, and can be combined with the company's Element 50 or Classic 40/50/63 actuators or with compact third-party process valves. The 8695 control head is designed for applications with tight space restrictions. All three control heads have stainless steel housings and are constructed of chemical-resistant materials for use in the food, beverage, and pharmaceutical industries.
Burkert
www.burkert.com

SOLIDS AND FLUIDS HANDLING

Scroll Pump Features Specialized Exhaust Valve for Aggressive Chemical Applications

The nXDS-C scroll vacuum pump features a Chemraz perfluoroelastomer exhaust valve and stainless steel inlet and outlet fittings for use in aggressive and caustic chemical applications. The Chemraz valve is suitable for applications in which organic solvents or other chemicals may cause a standard fluroelastomer exhaust valve to rapidly deteriorate. The nXDS-C dry scroll pump is lubricant-free and hermetically sealed to prevent cross-contamination. Unlike other scroll pumps, the bearings are isolated by the bellows, so that aggressive chemicals in the process will not cause degradation.
Edwards Group Ltd.
www.edwardsvacuum.com

Barbed Fittings Are Available in Five Materials

Thermobarb fittings now come in polypropylene, polyethylene, nylon, polyvinylidene fluoride (PVDF), and brass for use with plastic and rubber tubing and reinforced hose. The polypropylene fittings offer excellent chemical and solvent resistance and are available in beige and black. The polyethylene fittings are impact resistant at low temperatures and are constructed of a National Sanitation Foundation (NSF)-61 listed material for use with potable water. Nylon Thermobarb fittings resist physical stress and abrasion and are constructed of NSF-61 and NSF-51 materials for use in food equipment. The PVDF fittings have excellent resistance to abrasion, mechanical stress, and UV exposure, and can withstand a wide temperature range of –80°F to 226°F. Brass Thermobarb fittings are designed for maximum durability over time. Several fitting styles, with inner diameters ranging from 1/8 in. to 1 in., are available.

NewAge Industries, Inc.
www.newageindustries.com

Carbon Dioxide Pump Employs Peltier Technology

The SFT-10 liquid carbon dioxide pump features advanced Peltier (thermoelectric) cooling, which mitigates the need for a cooling bath at high pressures. The pump can deliver carbon dioxide at pressures up to 10,000 psi and flowrates from 0.01 to 24.0 mL/min. It is completely self-contained and uses dual sapphire syringe-pump technology to rapidly achieve high pressures. The standard operating mode is constant pressure, with the pump maintaining pressure at a specific setpoint. An optional constant-flow mode is also available. The SFT-10 is suitable for use in supercritical fluid extraction, and supercritical fluid reaction chemistry and chromatography.

Supercritical Fluid Technologies
www.supercriticalfluids.com

Metering Pump Is Offered in Three Configurations

This metering pump is now available in bare-shaft, close-coupled, and motorized models. Each delivers smooth, metered flow that is free from pulsations and variations, which prevents material waste and mixture imbalance. The bare-shaft configuration provides precise metering for applications requiring a separate drive. The close-coupled style has a variety of drive options, such as the company's 56C-Face or 140TC-Face motor, or a customer-provided gearmotor or variable-speed drive. The motorized version is the most compact model and is available with AC and DC variable-speed drives for accurate control. All models are capable of handling a wide variety of fluids, including clear liquids, shear-sensitive and viscous fluids, and abrasive and corrosive materials.

Moyno, Inc.
www.moyno.com

High-Efficiency Evaporation Process Incorporates Preconditioning

The HEVAP high-efficiency evaporation system is designed to treat produced water from oil-sands thermal processes such as steam-assisted gravity drainage (SAGD). The incoming water goes through a softening step and additional conditioning prior to treatment by the evaporators. This significantly reduces scale within the evaporators. The HEVAP process allows increased recovery of high-quality reusable water, and mitigates the requirement for antiscalants and mechanical cleaning.

Aquatech
www.aquatech.com

Oil/Water Separators Have Little Oil Carryover

The SP-25, SP-40, and SP-60 oil/water separators are designed to treat the liquid condensate created by compressed air systems, which contains oil and various other contaminants. They employ a high-quality media substrate that is formulated to attract and retain all contaminants while repelling water molecules, and are guaranteed to have less than 10 ppm oil carryover. The models range from 20 to 3,000 scfm maximum compressor capacity, and have a working temperature range of 30°F to 155°F. When the separator

reaches the end of its useful life, or when the cleansed water turns cloudy, the unit can be disposed of through a routine waste-management pick-up service.
Sullair
www.sullair.com

Sealless Magnetic-Drive Turbine Pump Boasts Low Maintenance

Because the stainless steel, magnetic-drive Coro-Flo MDC pump has no mechanical seals, maintenance requirements are significantly reduced. Sealless technology offers maximum protection when handling corrosive and toxic chemicals, because it prevents emissions to the atmosphere. The pump has a close-coupled design that makes installation quick and easy. Its stainless steel construction is well-suited for highly corrosive applications.
Corken, Inc.
www.corken.com

ENVIRONMENTAL, HEALTH, AND SAFETY

Emission Controls Combine Adsorption and Biological Treatment

Sustainable Emissions Control is a new technology designed to help industrial facilities manage their air emissions and meet regulatory requirements. It uses both biological and enhanced adsorption treatment to address a broad range of contaminants covered under the Clean Air Act and state air quality regulatory programs, including volatile organic contaminants (VOCs), hazardous air pollutants (HAPs), and odors. Sustainable Emissions Control systems can employ a range of biological treatment systems, such as biofilters, biotrickling filters, and combinations of the two. Biological treatment requires low energy consumption and chemical usage, and is suitable for contaminants that are water-soluble, polar, and readily biodegradable. Sustainable Emissions Control also includes EnviroHPA systems, which contain ultra-high-performance adsorbent media and are designed, guaranteed, and operated by the company under multiyear agreements. EnviroHPA can handle nonpolar compounds at high loading and flowrates.
Envirogen Technologies, Inc.
www.envirogen.com

BIOPROCESSING

Bag Tester Ensures Viability of Single-Use Bioreactors

The Sartocheck 4 Plus system allows reliable testing of single-use bioreactors based on the pressure-decay measurement method. The device is capable of detecting leaks that might have been caused by operator handling errors during installation of the bioreactor. It eliminates the risk of filling a defective single-use bioreactor with expensive cell cultures. Single-use Biostat CultiBag STR bioreactors with working volumes of 50 L and 200 L can be conveniently tested with the new system. Later this year, the device will be extended to permit testing of 500-L and 1,000-L Biostat CultiBag STR systems. A patented fleece material located between the plastic film of the Biostat CultiBag STR and the tester's bag-holding device acts as a porous spacer, which allows quick identification of pinholes and air leaks via pressure-drop measurements.
Sartorius Stedim Biotech
www.sartorius.com

LABORATORY EQUIPMENT

Calorimeter Speeds Characterization of Process Safety Parameters

The OptiMax HFCal heat flow calorimeter offers reliable heating and cooling for laboratories working under tight time constraints. The electrical heating and Peltier cooling systems ensure precise temperature control from –40°C to 180°C. The calorimeter can measure process safety parameters such as heat transfer, specific heat of reaction, isothermal and non-isothermal heat flow, enthalpy, and thermal conversion rates at all reaction stages. All data are recorded automatically, which enables traceable and reproducible experiments. Upon experiment completion, relevant data can be summarized in tables and trend graphics with a single keystroke. For further analysis or storage, data can be managed securely with the company's iC Data Center, or exported to Excel.
Mettler-Toledo
www.mt.com