



HEAT TRANSFER Freezers Provide Secure Long-Term Sample Storage



The UF V ultra-low-temperature freezers with ULTRA.GUARD technology are designed for secure long-term sample storage at temperatures to -86°C . The DATA.SECURE feature and a USB connection enable easy recording and transmission of freezer data. The optional GUARD.CONTROL radio-frequency identification (RFID) monitoring system controls access to the freezer by unlocking the door only for authorized personnel, and also logs freezer traffic. The Model UF V 500 has a 460-L interior volume, and the UF V 700 has a 685-L interior volume. Inner chambers, which are constructed of stainless steel, each have four compartments and three shelves and can accommodate as many as 52,800 samples. Lockable, heavy-duty casters allow the units to be easily moved by one person.

Binder, Inc.

www.binder-world.com

Water Heater Instantly Produces Hot Water

The RediHeat instantaneous water heater is designed to produce hot water within $\pm 4^{\circ}\text{F}$ of the set temperature. The spiral-tubed helical heat exchanger has a rugged casing and a bourdon tube configuration to allow expansion and contraction without localized stressing, which is ideal for

intermittent temperature cycling. A mechanical blending valve controls water temperature; water is overheated to $160\text{--}200^{\circ}\text{F}$, and blended with incoming cold water to avoid bacteria-friendly temperatures. A manual adjustment compensates for seasonal changes in cold water supply temperature.

Spirax Sarco, Inc.

www.spiraxsarco.com/us

ENVIRONMENTAL, HEALTH, AND SAFETY

Safety Eyewear Eliminates Pinching



Temple Technology safety eyewear is engineered to fit comfortably and securely on any size face. The ultra-flexible temples bend and flex to conform to a wearer's profile, which eliminates pinching behind the ears. A rubberized coating on the temples prevents slipping. The first eyewear available with Temple Technology construction, the Luminary, weighs less than an ounce.

Gateway Safety, Inc.

www.GatewaySafety.com

Motor Control Center Reduces Arc Flash Incidents

The MNS-MCC low-voltage motor control center addresses the causes of arc flash incidents and provides equipment and personnel protection. It offers plug-in type, withdrawable type, and full-height unit technology, with up



to 4,000-A horizontal bus and 1,600-A vertical bus options. The motor control center meets ANSI C37.20.7 arc flash requirements and allows frontal access to all compartments, and can be used in lieu of a switchboard or switchgear in facilities such as oil rigs, chemical plants, substations, and wastewater treatment plants. It reduces personal protective equipment (PPE) requirements from Level 2 to Level 0 per Table 130.7(c) in NFPA 70E, Standard for Electrical Safety in the Workplace.

ABB

www.abb.com

Safety Relay Module Eases Alarm Contact Installation



The SRM Safety Relay Module is a versatile relay repeater module that accepts single-contact closure inputs from logic-solver trip outputs. It has three contacts per alarm input, which allows alarm contacts to easily be added to safety instrumented systems (SIS) with minimal wiring. It is a force-guided relay, which prevents the contacts from becoming stuck in the normally open (NO) and normally closed (NC) positions at the same time. The SRM is housed in a durable aluminum case that can be mounted on either a 32-mm G-type or 35-mm top-hat DIN rail. It features front-panel visual diagnostics with three LEDs that indicate input, output, and power status.

Moore Industries-International, Inc.

www.miinet.com

INSTRUMENTATION

Battery-Powered Flowmeter Transmits Warnings Over a Cellphone Network

The Proline Promag L800 battery-powered electromagnetic flowmeter has an integrated GSM/GPRS (global system for mobile communications/general packet radio services) system that transmits data over a cellphone network via email. A cellphone subscriber identity card allows the flowmeter to be configured as a point-to-point connection, or as a modem that can be accessed over the Internet. The flowmeter can send periodic emails for continuous monitoring, or send alarm emails if flow deviates from a setpoint. It can operate at pressures up to 232 psi, and is available in sizes ranging from 2 to 24 in. The Promag L800 is suitable for liquids with a minimum conductivity of 50 $\mu\text{S}/\text{cm}$ and a maximum flowrate of 33 ft/s.

Endress+Hauser
www.us.endress.com



Vibration Monitoring System Provides Notification at Critical Setpoints



The Echo wireless vibration-monitoring system tracks the health of critical machinery, and provides

immediate notification when critical values are reached. It combines the Echo wireless vibration sensors and the EchoPlus wireless junction box to transmit vibration data to a single, central receiver. Both components can be programmed to transmit data at predetermined intervals. The receiver is capable of accepting data from hundreds of sensors and relaying the data to a computer or server running the Echo Monitoring software. The software displays the transmitted vibration data and can establish alarm values, plot vibration data over time, and generate reports.

IMI-Sensors
www.imi-sensors.com

Level Sensor Utilizes Time-Domain Reflectometry



The Guided Wave Radar (GWR-1000) level sensor can measure powders, bulk solids, and liquids in vessels up to 78 ft tall. It uses time-domain reflectometry (TDR) to continuously measure the level and volume of material contained in bins, tanks, and silos. It is immune to dust, humidity, temperature, pressure, and bulk density changes, as well as noise generated during filling and emptying. The GWR-1000 has an accuracy of ± 0.2 in.

Measurement data are converted to a 4–20-mA output with HART communication. The standard model can handle a temperature range of -22°F to 195°F , and a high-temperature model can withstand temperatures from -22°F to 392°F . An 8-mm cable is offered for the measurement of liquids and heavy bulk solids, and a 4-mm cable is offered to measure the level of lighter solids.

BinMaster
www.binmaster.com

Vibration Analyzer Monitors Machinery in Hazardous Areas

The CSI 2125-IS machinery health analyzer is certified for use in intrinsically safe IECEx and ATEX Zone 0 and Zone 1 hazardous areas. It is compact, can operate continuously for up to eight hours, and features a touch screen for easy use in the field. The vibration analyzer provides predictive diagnostics in order to improve machinery longevity and safety. The CSI 2125-IS includes PeakVue technology for early indication of bearing and gearbox wear. Engineers can customize alarm parameters and integrate collected data with AMS Suite asset management software.



Emerson Process Management
www.emersonprocess.com

ENGINEERING SERVICES

Company Offers Eight Custom Tubing Options



This manufacturer of plastic tubing and hose now offers eight ways to customize flexible and semi-rigid tubing made of such materials as polyvinyl chloride (PVC), polyurethane, nylon, fluoropolymer, thermoplastic rubber, and other thermoplastic and thermoset compounds. Custom extrusions can be produced with low-temperature flexibility, improved elasticity, and anti-static properties. A contained



ribbon of tubing can be created using the Hot Bond thermal bonding process (instead of damaging adhesives). Heat-formed shapes eliminate kinking. Coiling is available to give traditionally straight or semi-rigid tubing easy movement and retraction. Fabrication options such as printing, stripping, slitting, and hole punching are offered. Overbraiding and jacketing provide heat and friction protection. Optional hose assemblies reduce onsite inventories and labor. Dip-molded tubing can provide consistent interior dimensions, even flow, and the elimination of fittings and clamps.

New Age Industries, Inc.
www.newageindustries.com

MATERIALS AND CHEMICALS

Filter Cartridges Are Certified for Sterile Applications



The ZTEC P sterilizing-grade filter cartridges for the biopharmaceutical market are 100% integrity tested, have unique serial numbers, and come with a certificate of conformance. The filters are able to remove 10^7 organisms/cm² of surface area, and have a double layer of polyethersulfone (PES) membrane that has been specifically tested against the target organism *Brevundimonas diminuta*. The filters meet the requirements specified in ASTM 838-05 for sterile effluent. They may be used in the final filtration of therapeutics, vaccines, serums, cell culture media, and diagnostic reagents.

Graver Technologies
www.gravertech.com

Polyol Retains Performance in Hot Environments

VORANOL 223-060LM polyether polyol is a cost-effective, high-performance polyurethane that forms the backbone for a wide variety of adhesive, sealant, and elastomer formulations. It is a viable replacement for traditional polytetramethylene ether glycol (PTMEG) in certain applications. It is easy to process due to its low viscosity, demonstrates high performance in high-heat applications, and has excellent mechanical properties. Applications include transportation, construction, packaging materials, and electronics, among others.

Dow Polyurethanes
www.dowpolyurethanes.com

Advanced Material Reduces Alpha Particle Emissions

RadLo low-alpha materials reduce alpha particle emissions that can cause soft errors in semiconductors. Soft errors, which are caused by alpha particle radiation that penetrates transistor junctions of semiconductor devices, generate malfunctions in end use devices. The latest advance in the RadLo line achieves a low alpha grade of less than 0.001 counts per h/cm². The materials are offered in various forms, including pellets and ingots for solder feedstock, plating anodes, and plating materials. RadLo materials are used in major semiconductor packaging applications such as solder paste, solder microspheres, and copper pillar solder caps.

Honeywell Performance Materials and Technologies
www.honeywell-lowalpha.com

Polyols Originate from Multiple Feedstocks

The Agrol family of polyols has been expanded to include a variety of new feedstocks, as well as a polyol specifically for flexible slabstock formulations. Agrol Prime is a soybean-oil-based, 2.25 functional crosslinker with

a primary hydroxyl content of 90% that is available in a range of functionalities and molecular weights. Agrol Star is a castor-oil-based, 3 functional crosslinker with a primary hydroxyl content of 60%. Agrol Platinum is derived from cashew nut shell liquid and is particularly effective in rigid foam systems. The Agrol AO⁺ polyols, which are designed for use in flexible slabstock formulations, are available in two functionalities, 1.7 AO⁺ and 3.0 AO⁺, with antioxidants added and low volatile organic compound (VOC) content.

BioBased Technologies
www.agrolinside.com

LABORATORY EQUIPMENT

Stirred Reactors Withstand High-Pressure Conditions

HPR Series stirred reactors are designed for research and other laboratory-scale applications. They range in size from 50 mL to 4 L, and with-



stand pressures up to 10,000 psi and temperatures up to 350°C. Each reactor has a built-in mixer with a magnetically coupled impeller, and is compact enough to fit under a fume hood. The reactors are controlled by one of three RxTrol processors. The RxTrol Sr. uses a microcontroller to perform PID, ramp/soak, data acquisition, mixing, and interlock functions. The RxTrol Jr. has two temperature sensors and fuzzy-logic PID temperature and mixing controls. The RxTrol B has two temperature sensors and an open-loop mixer speed control. Options include specialty materials of construction, vessel windows, additional ports, and cooling coils.

Supercritical Fluid Technologies, Inc.
www.supercriticalfluids.com