



## What's New

### ENVIRONMENTAL, HEALTH AND SAFETY

#### Glasses Fight Harmful Glare and Guard Against Impact Hazards

The 4x4 polarized protective eyewear is for workers who need protection from impact hazards and who face daily glare from light bouncing off flat, reflective surfaces. The 4x4 has been independently tested and certified to exceed the ANSI Z87.1+ and CSA Z94.3 standards. Unlike standard shaded lenses, these lenses contain a special optical filter that absorbs the horizontal component of light, seen as glare, and transmits only the vertical component. In addition to being annoying, glare is dangerous because some light waves can be intense enough to cause permanent eye damage. All 4x4 products have a durable, lightweight frame with dual wrap-around polycarbonate lenses designed to look like fashionable sunglasses. A soft nosepiece provides a snug fit and flexible temple tips relieve pressure behind the ears. An anti-scratch coating protects the lenses from minor damage to preserve a clear view of the jobsite.

**Gateway Safety**

[www.gatewayafety.com](http://www.gatewayafety.com)

#### Toxic Gas Detector Monitors Small Hydrogen Leaks



The TS4000H intelligent hydrogen gas detector provides reliable continuous monitoring and accurately detects hydrogen at 0–500 ppm levels. It

features a precision electrochemical hydrogen sensor that has a T90 response of under 30 seconds and experiences minimal zero shift across its operating conditions. In addition, it is unaffected by short-term ( $\leq 2.5$  min) exposure to hydrogen concentrations up to 50% of the lower explosive limit (LEL). The detector has many advanced functions, including 4–20-mA output, 8-amp relays, HART or Modbus communications, and a 3-digit LED screen that displays gas concentrations in ppm.

The system also displays fault codes for troubleshooting and provides complete status information to the facility's control room. The sensor may be mounted remotely, up to 2,000 ft away from the electronics. The detector complies with ATEX, CSA, CE, and GOST standards, and is certified for use in SIL 2 environments. In addition to monitoring for low hydrogen levels, the TS4000H can be configured to detect a variety of other toxic gases, including ammonia, carbon monoxide, chlorine, chlorine dioxide, hydrogen chloride, hydrogen sulfide, nitric oxide, nitrogen dioxide, oxygen deficiency, ozone, and sulfur dioxide.

**General Monitors**

[www.generalmonitors.com](http://www.generalmonitors.com)

### MATERIALS

#### Food-Grade Epoxy Resists Harsh Conditions



The new EP42HT-2FG food-grade epoxy system may be used in a wide variety of applications in the food industry, such as bonding and sealing metals, plastics, rubbers, and other substrates commonly found on food

service equipment. The epoxy meets the stringent requirements of FDA CFR 175.300, as well as the NSF/ANSI 51.4.1 (2009) standard for food equipment materials. It features high resistance to chemicals and many solvents, as well as boiling water, fats, and oils, and may be readily used as a coating for storage tanks, bins, hoppers, and other containment vessels. EP42HT-2FG resists steam and radiation, and can withstand extreme temperatures over the range of  $-60^{\circ}\text{F}$  to  $450^{\circ}\text{F}$ . It has a volume resistivity of over 1,014 ohm-cm and serves as a potting and encapsulation compound for electronic components and devices. The adhesive has a tensile strength greater than 12,000 psi and a tensile lap shear strength exceeding 2,000 psi at  $75^{\circ}\text{F}$ . It is available in half-pint, pint, quart, gallon, and five-gallon containers, and has a shelf life of one year when stored at room temperature in its original unopened container.

**Master Bond, Inc.**

[www.masterbond.com](http://www.masterbond.com)

#### Single-Use Biocontainer Meets Requirements for Demanding Pharmaceutical Applications



FluoroFlex biocontainers are the most recent addition to this firm's One-Touch portfolio of single-use systems. They are made of a new generation, multilayer, coextruded polyvinylidene fluoride (PVDF) film that has been optimized to meet the pharmaceutical industry's most demanding requirements. They have an inherently pure

PVDF product-contact layer that is free of additives, has an extremely low leachables and extractables profile, and provides thermal stability and chemical resistance that exceed the limits of traditional polyethylene-based biocontainers. An exceptional ethylene vinyl alcohol (EVOH) gas barrier coupled with the inherent purity help to mitigate the risk of degradation of process solutions and active pharmaceutical ingredients (APIs) stored and processed in the biocontainers. In addition, thermoplastic polyurethane elastomer (TPU) strength layers in the FluoroFlex film structure render it strong, yet highly flexible. FluoroFlex film is certified to be animal-component-free (ACF). The film is extruded, manufactured into biocontainers, and packaged in ISO Class 7 cleanrooms.

**Meissner Filtration Products, Inc.**  
[www.meissner.com](http://www.meissner.com)

## HEAT TRANSFER

### Heat Exchangers Offer High Heat-Transfer Coefficients



Kenics heat exchangers are equipped with streamlined Kenics static mixer elements that provide heat-transfer rates three to seven times higher than those of conventional empty tubes, even with highly viscous, difficult-to-process materials. A continuous string of static mixer elements is located within each heat exchanger tube. Fluid flow is directed radially toward the pipe walls and back to the element, regardless of velocity. In addition,

momentum reversal and flow division also contribute to mixing efficiency. Used in a wide range of process applications, the heat exchangers require less space and use less energy than other designs. The exchangers feature all-metal and alloy construction, are designed to handle pressures to 10,000 psi, and comply with American Society of Mechanical Engineers (ASME) and Tubular Exchanger Manufacturers Association (TEMA) codes.

**Chemineer, Inc.**

[www.chemineer.com](http://www.chemineer.com)

## SOLIDS AND FLUIDS HANDLING

### Combination Bearing Isolator and Shaft Grounding Ring Provides Complete Bearing Protection



The SGi shaft grounding bearing isolator protects bearings from electrical damage as well as from lubricant loss and contamination. It combines the proven technologies of the firm's GUARDIAN nonsparking bronze labyrinth seal and the AEGIS shaft grounding ring in a single unit. It is suitable for motors controlled by variable-frequency drives (VFDs) that power pumps, fans, high-speed spindles, and other equipment in severe-duty applications, such as those found in the pulp and paper, food, pharmaceuticals, chemicals, water/wastewater, and mining industries. VFDs are commonly used to save energy, but they induce motor-shaft currents that can damage bearings and eliminate any energy

cost savings. The SGi diverts harmful currents safely to ground, bypassing the bearings entirely, thereby extending motor life. The built-in AEGIS FiberLock channel permanently secures circumferential rows of conductive microfibers, preventing their dislocation and the resulting accidental contamination of the bearing. Maintenance-free and designed for long-term total bearing protection, the SGi also provides an IP56 noncontact isolation seal that withstands dust and powerful jetting liquids. It easily replaces contact lip seals and traditional bearing isolators used in nearly every industrial application and withstands operating temperatures from -22°F to 300°F. The unit is available for motor shaft sizes ranging from 0.875 in. to 6 in. in flanged, flangeless, and custom configurations.

**Garlock Sealing Technologies**

[www.garlock.com](http://www.garlock.com)

### Ball Valve Resists Corrosion



The PE100 ball valve is a corrosion-resistant solution for below-ground gas, sewer, and water applications where metal ball valves have traditionally been installed. The valve is 50% lighter than comparable metal valves, and it features a two-step planetary gear system to ensure smooth opening and closing, thereby eliminating water hammer. It comes in 1-in. to 6-in. sizes (metric sizes are also available), and units larger than 2 in. are available with an integrated gear box. The valve's SDR11 spigot ends are approved for maximum operating pressures of 230 psi for water and 150 psi for air or gas. Valves for air or

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## What's New

gas applications have nitrile rubber (NBR) seals, while valves for liquids have ethylene propylene diene monomer (EPDM) seals. The PE100 ball valve can be easily installed using butt, socket, or electro-fusion technologies.

**Asahi/America, Inc.**

[www.asahi-america.com](http://www.asahi-america.com)

### Valve Provides Accurate Control at Extreme Pressures



The Ultra High Pressure Valve Assembly HP-60, part of the Research Control Valve line, is a 60,000-psi, low-flow control valve engineered for use in high-pressure chemical applications, including research and pilot plants. Its 17-4PH alloy (chromium-copper precipitation hardening stainless steel) construction and solid Stellite inner valve assembly enable it to withstand intense pressure and

provide a moderate level of corrosion resistance. The HP-60 can be used for both flow control and as a Class IV shutoff valve. It is available with a variety of custom options, such as end connections, trim characteristics, solenoids, actuators, positioners, transducers, regulators, and other accessories that allow for seamless connection to most systems.

**Badger Meter**

[www.badgermeter.com](http://www.badgermeter.com)

### Compressors Offer Precise Leakage Control



The T791 and T891 compressors are designed for applications that require maximum leakage control when handling toxic, hazardous, and explosive gases. Each piston rod has three sets of packing that form two distinct distance pieces, which serve as barriers to the atmosphere. Since each distance piece has its own line connections that can be separately pressurized, purged, padded, and/or vented, the T-Style compressors provide a wide range of flexibility for controlling external leakage. Purge

kits containing all of the accessories needed to purge each barrier are available, making the T-Style machine virtually leakproof. The T791 is a two-stage compressor with a working pressure of 615 psia (42.4 bar), while the T891 is a single-stage, 465-psia (32.1-bar) compressor. Both are double-acting machines with piston displacement just over 100 ft<sup>3</sup>/min (169.9 m<sup>3</sup>/h).

**Corken, Inc.**

[www.corken.com](http://www.corken.com)