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**New Technologically Advanced Bed Linens Latest Development in
Battle Against Microbes That Cause Hospital Acquired Infections**
Bed linens extend power of chlorine to kill infectious pathogens in hospitals

MUNDELEIN, ILL. AND REDMOND, WASH. — The latest advancement in the battle against microbes that cause hospital-acquired infections isn't a new antibiotic drug or surgical procedure – it's the launch today of bed linens treated with HaloShield[®], a patented technology that harnesses the antimicrobial power of chlorine-based sanitizers to kill infection-causing pathogens, including MRSA and VRE.

“It is well documented that soiled linens harbor microorganisms that can be transmitted to others,” said Gang Sun, Ph.D., professor of textiles and clothing at the University of California, Davis and one of the developers of HaloShield technology. “In light of the rise of antibiotic-resistant bacteria, the use of HaloShield can be a major development in the battle against microbes that spread infection.”

For the first time, hospitals, nursing homes and other healthcare facilities will be able to use HaloShield sheets and pillowcases to combat the spread of a wide range of resistant bacteria, viruses and other microbes, including MRSA, a form of staph bacteria, which is blamed for about 13 percent of the nation's two million hospital infections each year, according to the Centers for Disease Control and Prevention. Overall, hospital infections kill 60,000 to 80,000 people a year at an average annual cost of \$6 million per hospital.

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“Sheets using this new technology may prove to be an important adjunct to a health care facility’s infection control practices,” said Dorothy Thompson, Infection Control Coordinator for Mt. Sinai Hospital in Chicago. “It can help reduce the spread of organisms to health care workers and possibly to other patients.”

HaloShield extends the capabilities of EPA-registered chlorine-based sanitizers – proven hygienic agents that do not promote resistant microbes – to maintain an effective antimicrobial barrier for the lifetime of the sheet.

Medline Industries, Inc., the leading provider of textiles to the healthcare industry in the United States, licenses HaloShield from Vanson HaloSource, with exclusive rights to distribute HaloShield-treated hospital sheets, pillowcases, scrubs, gowns and reusable underpads in North and South America.

How HaloShield Works

HaloShield is a patented, durable coating that binds EPA-registered chlorine-based sanitizers to nearly any textile or surface.

“HaloShield acts like Velcro® for chlorine molecules. It locks chlorine in place until it comes into contact with and kills the microbe, then releases it,” said Sean Manne, director of HaloShield coatings at Vanson HaloSource. “Lab tests show that when bacteria or viruses come into contact with chlorine bleach anchored to a sheet treated with HaloShield, 99.9 percent of the microbes are killed within minutes, compared to the 12- to 24-hour kill time seen with many competing technologies.”

Hospital laundry protocols have long relied on chlorine-based and other sanitizers to kill and contain the spread of infection-causing viruses and bacteria in bed linens and other materials. Chlorine is known to be one of the best antimicrobial agents in the world. However, these practices are limited because the normal rinse cycle removes chlorine-based sanitizers from untreated sheets before they leave the laundry – allowing new contaminants to grow freely.

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“HaloShield is the first and only coating that prolongs and enhances the antimicrobial properties of EPA-registered chlorine sanitizers between launderings,” said Ron Barth, president of Medline’s Medcrest textile division. The antimicrobial properties of the chlorine are renewed each time the HaloShield sheet is laundered in an EPA-registered chlorine-based sanitizer, such as Clorox® bleach, consistent with standard hospital protocol.

HaloShield is an extremely durable coating, and maintains its ability to bind chlorine for the life of the sheet. Rigorous laboratory and field tests also show that HaloShield is non-irritating and safe for sensitive skin, even when applied to fabric worn or slept in on a daily basis.

The Need for HaloShield Sheets

Following are some key facts regarding the serious issue of microbes that cause nosocomial (hospital acquired) infections and the need for HaloShield treated sheets:

- The average U.S. hospital will acquire 430 nosocomial infections per year, with an average cost of \$13,973 per infection, according to the Joint Commission on Accreditation of Healthcare Organizations, the *American Journal of Infection Control* and the *Centers for Disease Control Morbidity and Mortality Weekly Report*.
- Studies show that bacteria, dust mites and dead skin cells comprise 30 percent of the weight of an average pillow. And according to a study in the *Journal of Hospital Infection*, cotton/polyester blended fabrics are a potential source of bacterial contamination and cross infection.
- More than \$5 billion is added to U.S. healthcare costs as a direct result of nosocomial infections.

“The use of HaloShield linens should be a key part of any hospital’s protocol for preventing cross contamination and controlling microbes that cause nosocomial infections,” said Dr. Sun of UC Davis. “Incorporating the power of chlorine, the only antimicrobial agent that does not generate resistant bacteria, directly into bed linens marks a huge step in improving the level of care provided at healthcare institutions nationwide.”

About Medline

Medline is ISO 13485 registered and FDA QSR compliant, the most stringent international standards for producing quality products. As a leading supplier of quality products, Medline is asked to serve on major industry quality committees to develop guidelines and standards for medical product use. Some of these organizations include the FDA Midwest Steering Committee, AAMI Sterilization and Packaging Committee and the various ASTM committees.

Headquartered in Mundelein, Ill., Medline is the largest privately held national manufacturer and distributor of medical supplies in the United States. The company has more than 700 dedicated sales representatives nationwide to support its broad product line and cost management services. Medline distributes over 100,000 products to hospitals, extended care facilities, surgery centers, hospital laundries, home care dealers and agencies and other alternate site markets from its 29 distribution centers in the U.S. With seven manufacturing facilities in North America, Medline manufactures many of the products it sells. More information about Medline can be found at www.medline.com.

About Vanson HaloSource

Vanson HaloSource employs bioscience technologies to create innovative solutions that enhance life for customers in the water treatment and purification, biomedical, healthcare, manufacturing, and consumer markets. The Redmond, Wash.-based company markets sophisticated applications based on its N-halamine technologies and chitosan formulations. Its hygienic coatings harness chlorine to surfaces and textiles to purify water and improve sanitation in healthcare settings, homes, and other environments. Vanson HaloSource also manufactures a range of chitosan-based products to the pool and spa, water treatment and biomedical industries. The company investors include Alexander Hutton Venture Partners and Buerk Dale Victor LLC along with other institutional and private investors. More information is available at www.vanson.com.