Reducing Microbial Sourced Contamination in Hospital Blankets.

ÆGIS Environments conducted a study that compared blankets treated with the ÆGIS Microbe Shield technology to blankets that were untreated. These bacteria represented a wide spectrum of Gram (+) and Gram (-) organisms capable of producing staining deterioration, odors, and an increased risk of health consequences.

Simulation Study:

Treated and untreated blankets were used to towel off sweat from a healthy male after one hour of high exercise. This was conducted to simulate febrile diaphoretic patients. After the incubation period, it was shown that the untreated samples had three times the bacteria as the treated.

In-Use Study:

Treated and Untreated blankets were studied at a North Carolina 24 hour care facility. The treated blankets showed a 95% reduction in organisms.

This reduction in bioburden reduces contamination risks in the patient environment and provides valuable peace of mind to the user. These data generated by university, medical and industrial laboratories represent some of the most extensive microbiological work performed on antimicrobial treated substrates for use in the medical community.

Studies available at www.aegismicrobeshield.com

aegis MICROBE SHIELD™

The ÆGIS Microbe Shield® Difference.

Quality. Safety. Durability. Effectiveness.

- Compatible with virtually all substrates, including natural and synthetic fibers
- Does not rub off or migrate onto the skin
- Controls or eliminates objectionable odors, unsightly stains, and product deterioration
- Does not create an environment that promotes adaptive microorganisms
- No arsenic, silver, tin, heavy metals, or polychlorinated phenols
- Accepted, registered and readily available worldwide
- The confidence of more than 25 years of safe and effective use
- Effective against a broad spectrum of all known bacteria, fungi, and algae
- Unsurpassed technical, scientific, marketing and sales support that includes a professional microbiology laboratory
- Easily applied at the mill and incorporated into the wet finish process
- The ÆGIS Microbe Shield protects against microbial growth, but will not leach onto the skin or cross the skin barrier
- Verification: quickly and easily verifiable on the product, whether at the mill, the distribution center, or on the retail shelf
- Used successfully in high performance applications where safety and performance are paramount such as clean room garments and medical fabrics

ÆGIS Means Protection

ÆGIS™

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Broad Spectrum Antimicrobial Treatment

ÆGIS Means Protection

For Medical Facilities, Goods, Staff & Patients

aegis

Protecting the products that protect you and your environment

The Leader in Technology & Global Support

Healthcare Environments Demand Protection

The health care industry is challenged with providing the best possible care for their patients and a safe environment for health care workers. Microorganisms are the most prevalent and potent pollutants in the indoor environment and their role as causers and aggravators of disease conditions are well documented.

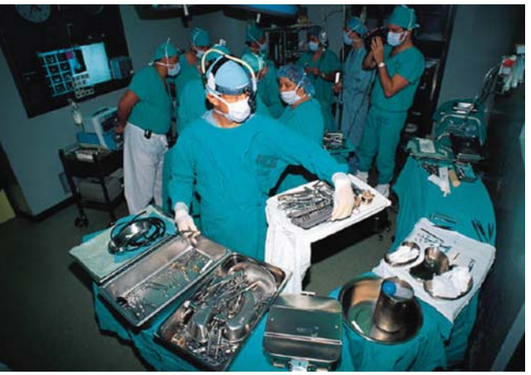
The ÆGIS Microbe Shield® antimicrobial technology has proven its benefits in textiles and interior surfaces for more than 25 years. It controls micro-organisms, slows the degradation of products, and reduces odors and stains.

The Obvious Choice is ÆGIS

All antimicrobials are not created equal. It is important to understand the basic chemical, physical and biological properties of an antimicrobial so the most effective and safest antimicrobial can be chosen. Our research in the laboratory and actual use on products ranging from baby diapers to carpet and from athletic shoes to ceiling tiles, clearly demonstrates the superior performance of the ÆGIS Microbe Shield technology.

ÆGIS Means Solutions

ÆGIS is designed for easy integration into existing manufacturing processes. From product development through launch, ÆGIS support includes state of the art microbiological testing, regulatory expertise, marketing assistance and an unsurpassed quality control program.



Proven effective to control odor-causing problems in products around the world. The ÆGIS Microbe Shield technology is on sporting equipment, hospital linens, medical and healthcare fabrics. Its unique mode of action minimizes environmental contamination and the development of resistant organisms.

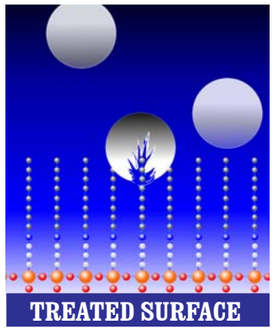
Durability & Safety

The keystone of the ÆGIS Microbe Shield is a micropolymer silane technology that molecularly bonds – directly and durably – to the substrate.

- A non-leaching antimicrobial that does not migrate from the surface. Unlike conventional antimicrobials, it won't transfer onto your skin or leach into the environment.
- Proven history with 25 years of consumer product and indoor environment success.
- Mode of action does not create environment for adaptive organisms.
- Registered for use with the EPA and other regulatory agencies worldwide.
- Physically controls microorganisms on contact and remains permanently affixed to the surface providing durability to multiple washings.
- Quick and easy verification.

How Does it Work?

Because the ÆGIS Microbe Shield technology does not dissipate or leach, it can not be absorbed by the organism — or by you. With the ÆGIS Microbe Shield technology, the cell membrane is physically ruptured. This stabbing and an "electrocution", resulting from the antimicrobial's positive charge, means that the antimicrobial will be fully effective as long as the surface remains intact. Since it is not consumed and does not dissipate, the antimicrobial active is not depleted and continues to control microbial growth. It is a physical control, not a chemical control.



Cell membrane is attracted to the treated surface and punctured by the long molecule chain.

Microorganism is electrocuted. Since the ÆGIS Microbe Shield technology is not consumed to destroy the organism, it stands ready to fight again. It is extremely durable after multiple washings.

Hospital Closed: AEGIS Microbe Shield® Antimicrobial Critical To Recovery

"Deadly fungal attack closes new Johor Hospital" read the newspaper headline as the problems at the two month old, ten-story Johor, Sultan Ismail Specialist Hospital became public knowledge. The "deadly fungal" contamination was evidenced by wide spread visible growth, musty odors and occupants illness. The *Aspergillus, Penicillium* and other fungal contamination was so prevalent that in some areas even a few minutes of exposure triggered symptoms of headaches, dizziness, and shortness of breath, nervous ticks and other debilitating symptoms. This is bad enough in a home or office building but totally unacceptable in a hospital, let alone a newly built state of the art facility. After over five years of planning and construction this was far from the building expected to be the premier healthcare facility in Johor and the southern peninsula.

The Ministry of Health reacted quickly, closed the hospital, undertook an analysis of the problem along with the Public Works Department and hired Germ Guard Technologies and AEGIS Asia to determine causes and implement solutions to the existing and potentially worse fungal contamination.

The mandate from this disaster was to get the building fit for occupancy and fit for its intended use as a state of the art full service 704 beds 3004 rooms hospital.

Germ Guard and the repair team determined the needs to be for a thorough analysis of the problem areas, repair of the structural and air handling system problems, clean up the visible and peripheral (out of sight and out of mind) fungal growth habitats and the provision for extended anti-microbial protection of the building surfaces, the air handling system, and the furnishings in the building.

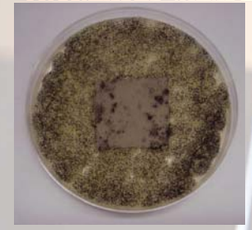
The analysis confirmed the visible problems and determined the additional contamination and dispersal sites which called for both clean up and protective treatments in all areas of the hospital including above ceiling spaces, elevator shafts, utility chases as well as the occupied spaces. The obvious and visible fungal contamination was in fact only the "Tip of the Iceberg".

The remediation process and protective AEGIS Treatment began in March 2005 and was completed in four months. Fungal air and surface testing in various zones of the hospital showed levels below any standards and a fraction of the normal ambient outdoor levels of fungal contamination.

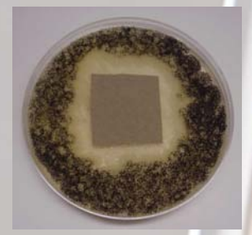
Post clean up clearance testing by an independent laboratory and the Ministry of Health showed that the decontamination work was done and completed successfully. This work also provided the "safety net" of protection while the building and air conditioning defects were repaired and the building was re-commissioned for occupancy.

Six month later January 2006, the defects continue to be worked on but testing shows no increase in fungal levels. Full occupancy began to be phased in starting February 2006. No problems have been encountered and test data continue to show exceptionally low levels of fungal contamination. Sampling will continue.

UNTREATED SAMPLE



LEACHING ANTIMICROBIAL



Traditional antimicrobials migrate off the surface creating a zone of inhibition. This sample clearly shows the leaching of the antimicrobial into the surrounding environment. The chemical is consumed and depleted as the organism is destroyed. Over time, single celled organisms can adapt to these leaching antimicrobials.

BONDED ANTIMICROBIAL

The ÆGIS Microbe Shield technology is a permanent part of any surface it protects. It is not consumed by the microbes; therefore, it does not create an environment for adaptation. This sample shows no leaching, no zone of inhibition, and no growth on the ÆGIS Microbe Shield protected sample.

ægis MICROBE SHIELD®