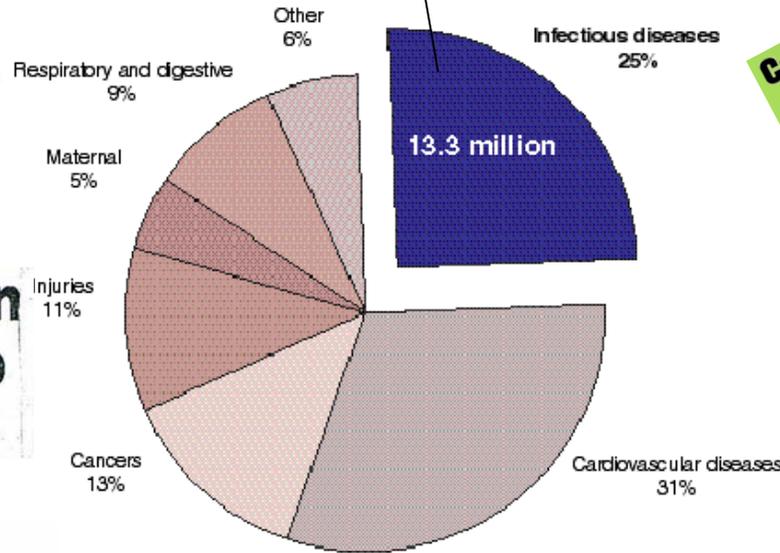


# EMERGING INFECTIOUS DISEASES



## Leading causes of death

53.9 million from all causes, worldwide, 1998



Note: Cancers, cardiovascular and respiratory/digestive deaths can also be caused by infections and raise the percentage of deaths due to infectious diseases even more.

Source: WHO 1999

**Sharp rise in child disease**  
126 new HFMD in S'pore last week

**Stop Hospital Infections.org**  
**End hospital secrecy and save lives.**

**Flu Pandemic**  
Readiness and Response Plan

**Consumers Union**  
Publisher of Consumer Rep

**Fungal outbreak hits Alor Star Hospital**

**RM557.8m Sultan Ismail Hospital to be shut down**



Nation  
Wednesday January 4, 2006

Hospital back to normal in a month

**KUALA LUMPUR:** Six out of 24 operating theatres at Hospital Universiti Kebangsaan Malaysia (HUKM) are still closed pending decontamination.

**Third child dies in east Turkey of bird flu**

14 WEDNESDAY, OCTOBER 27, 2004

NATION

**Workers may be source of fungal outbreak**

**Doctor tie highly infected**

BY DAMON ADAMS

MANY physicians wear neckties to achieve a look of professionalism. But new research shows they carry bacteria that can cause disease.

**More than a stain on your tie**

that found *Staphylococcus aureus* in about 30 of 100 physician white

security worker's tie. From a four-page spread ©



From The Straits Times, Sept 13, 2000

**New hospital hit by 'deadly fungi'**

By Sim Bah Meng  
Special Correspondent

Ministry orders complete shutdown of building

to patients in the southern part of the peninsula," he said. The hospital also carries as the Pandan Quarantine

The project has fallen far short of the Government's pledge to provide the

# Leaching verses non Leaching. A true comparison

Ever wonder why are we having so many super bugs created in our world today?

The slides you are about to see will explain the mechanism of how leaching and non leaching antimicrobial works.

In some cases, the toxicity of the biocides used are not only harmful to micro organisms, but also to humans.

Understanding how leaching and non leaching technology works will help you put the best strategy in place to control the microbial pollutants in your environments.

The comparison and conclusion here does not mean that the biocides has no use in our environment, but it clearly shows that the used of a non leaching bonded antimicrobial (AEGIS Microbe Shield) couple with normal cleaning detergent and Good housekeeping will keep the microbial pollutants in controls to level where the need to used toxic biocides are not required.

Play your part to make our world a healthier today and a safer tomorrow.



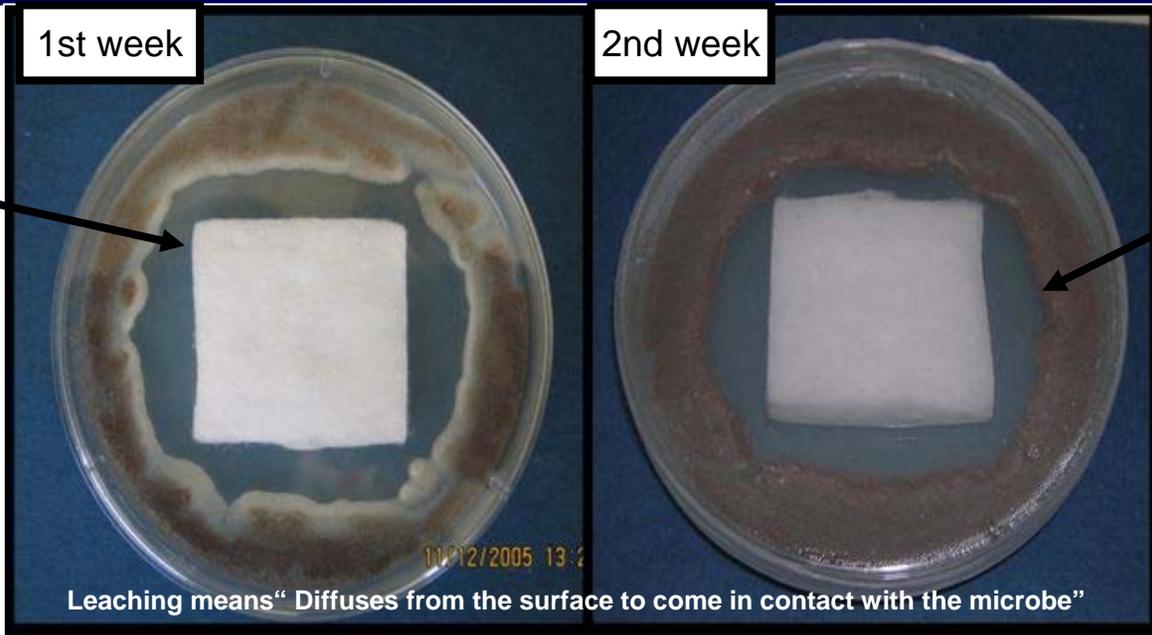
# The Zone of Inhibition Story (Leaching)

**Picture 1**

Cotton treated with a leaching antimicrobial.

The initial strong (VOC) off-gassing and is creating a zone of inhibition.

The spores showing sign of stress causing it to have a different color.



**Picture 2**

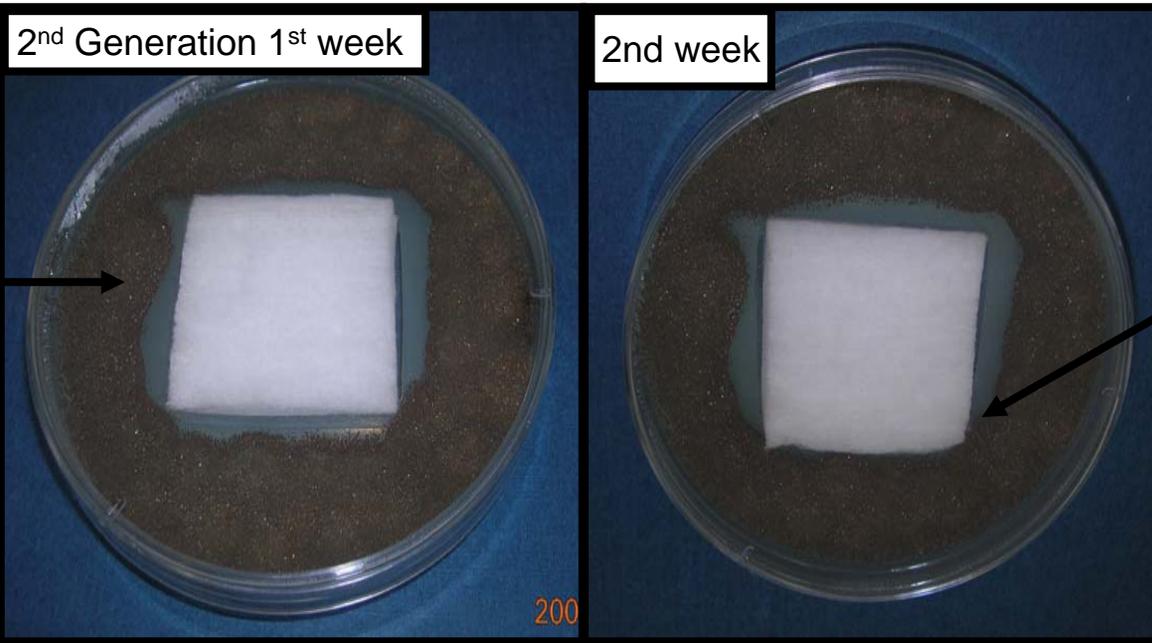
Shows the strength of the VOC off-gassing depleting & microbes getting comfortable.

Spores no longer in stress mode

**Picture 3**

The zone of inhibition is reduced as microbes continue to advance toward the treated cotton.

The same spores transferred above pic 2 Petri dish now show no stress.



**Picture 4**

Microbes breach the zone of inhibition and adaptation or resistance is evolving.

If the trait is inheritable, it will pass on to subsequent generation.

# Zone of Inhibition ( ZOI)

3<sup>rd</sup> Generation

Picture 5 (1<sup>st</sup> week)



Zone of inhibition (ZOI) is breached.

Microbes are now mutated.

## How do conventional antimicrobials work?

- Consumed by microorganisms
- Chemically interrupt (poison) the cell
- Can be used up
- Create an environment that promotes adaptive microorganisms
- Have short term effectiveness
- Leach or migrate off the treated surface
- Their off-gassing (VOC) strength is depleted over time
- No means of attachment
- If the trait is inheritable, it will pass on to subsequent generation

The test shown can be repeated on any leaching antimicrobial and the result will prove our (ZOI) theory.

# What does having no Zone of Inhibition mean? (Non Leaching)

- The microbicide is bonded
- Does not migrate from the substrate
- Launderable/Cleanable without loss of efficacy
- Continuous action isn't depleted
- Does not off-gas or emit VOCs
- Is not consumed by microorganisms
- Mechanically interrupts (stabs) the cell wall
- Will not create an environment that promotes adaptive microorganisms

**Your environment will never have to withstand this level of severity of microbial assault, but the point remain the same, if you do have to stand up with tough conditions, with AEGIS MICROBE SHIELD you could.**



# ÆGIS MICROBE SHIELD proves that It Inhibits microbial growth on treated surface even after 5 years with little or no maintenance.

(Picture 1) Yr 2000



(Picture 2) Yr 2002

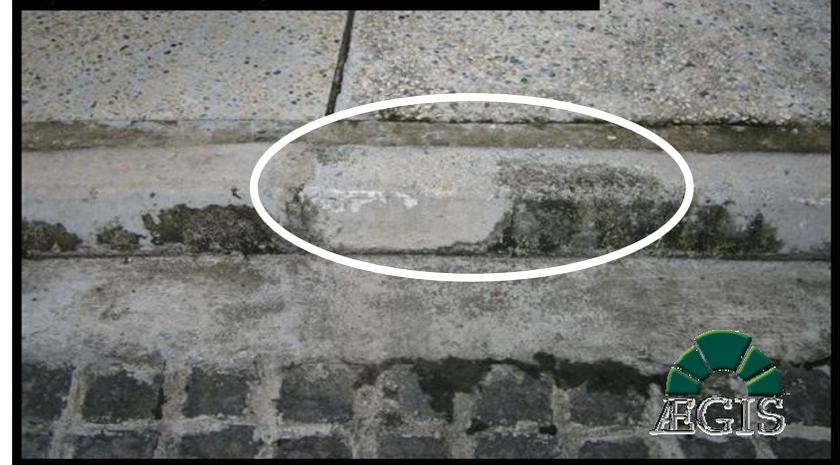


Although AEGIS is not recommended for outdoor use, these pictures will prove that the AEGIS treatment, couple with simple maintenance (rain water) will inhibit the growth of microorganisms. A trial was done (Picture 1) in Yr 2000 at Sentosa Island to see the efficacy of AEGIS in an outdoor surface. The test surface was cleaned with 1% diluted bleach. The left half side of the slab was treated with AEGIS Microbe Shield and the right Side was used as a control . Maintenance such as high pressure washing was done once a year. Additional pictures were taken during subsequent visits in Yr. 2002 (Pic 2),Yr.2003 (Pic 3 ) and Yr. 2005. (Pic 4)

(Picture 3) Yr 2003



(Picture 4) Yr 2005

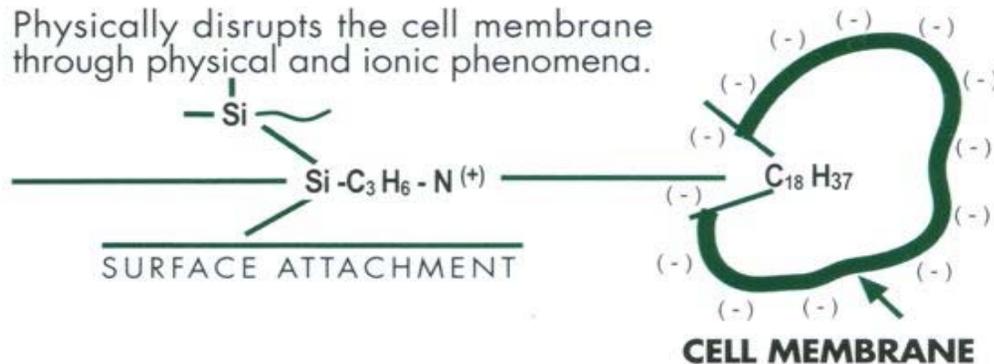


# ÆGIS Microbe Shield Technology

## How ÆGIS Works

ÆGIS Antimicrobial forms a long lasting antimicrobial polymer that penetrates and bonds to the microscopic pores of any hard or soft surface to form an optically clear, protective shield.

Physically disrupts the cell membrane through physical and ionic phenomena.



Cell membrane is attracted to the **ÆGIS** Microbe Shield on the treated surface. On contact the cell membrane is ruptured.

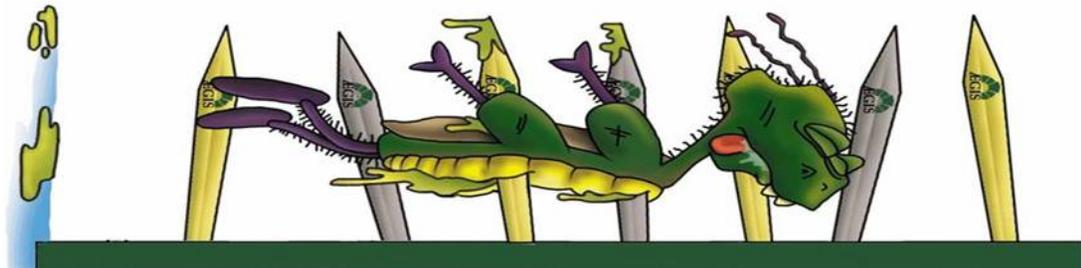


**ÆGIS® ANTIMICROBIAL** is an exceptional tool which, in a single application, provides the treated surfaces with antiviral and antimicrobial properties. The treated surfaces become inhibitory for the development of microbial reservoirs. The destruction of the micro-organisms, airborne or otherwise, on contact with treated surfaces reduces the risk of cross contamination and the spread of pathogens. Thus resulting in a cleaner and healthier environment.

# Benefits



- **Highly effective against pathogenic bacteria**
- **Virucidal and fungicidal**
- **Launderable / Cleanable without loss of efficacy**
- **Destroys bacteria that cause food and body odors**
- **Destroys fungi that cause athlete's foot and mildew**
- **Continuous inhibiting (kill) action**
- **Mechanically interrupts the cells and will not cause microbial adaptation**
- **Not consumed by microorganism**



# Broad Spectrum Microbicidal Efficacy

<u>Kill levels for:</u>		<u>Percent killed</u>
Staphylococcus aureus	>	99.9999%
Eschericia coli	>	99.9999%
Klebsiella pneumoniae	>	99.9999%
Pseudomonas aeruginosa	>	99.9999%
Proteus vulgaris	>	99.9999%
Serratia marcescens	>	99.9999%
Enterococcus faecalis	>	99.9999%
Enterobacter aerogenes	>	99.9999%
MRSA	>	99.9999%
VRE	>	99.999%
Candida albicans	>	99.9995%
Aureobasidium Pullalans	>	99.994%
Bacteriophage MS-2 (an RNA virus)	>	99.994
Bacteriophage PRD1 (a DNA virus)	>	99.87%

Test method : ASTM E2149-01

(Independent certified test results are available upon request)



# UNIQUE QUALITIES OF AEGIS MICROBE SHIELD.

**Safe to humans and  
the environment**

**Provides long term protection**

**ÆGIS IS NON LEACHING**

**ÆGIS WORKS 24 hr  
7 days a week, 365 days**

**ÆGIS IS ANTI VIRAL / ANTIMICROBIAL**

**Reduces the need of using toxic chemicals as  
pollutants are in control**

**No Microbial Adaptation**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

I, Velma Noble, Product Manager/Team 31, Regulatory Management Branch 1, of the Antimicrobials Division, Office of Pesticide Programs, Office of Prevention, Pesticides and Toxic Substances, United States Environmental Protection Agency ("EPA"), certify the pesticide product listed below is, of the date of this letter, a registered product under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, and that as such, the product may be sold and marketed in the United States of America as authorized and limited by FIFRA. A true and correct copy of the product label approved by EPA is attached to accompany this letter.

Registration of this product with EPA also denotes that the registrant listed below is responsible for ensuring full compliance with all laws of the United States of America, or governing jurisdiction, regarding the sale, storage and/or disposal of the product. Further, the recipient of the letter is on notice that the status of the reference registration and/or the accompanying label may change subsequent to date of this letter. EPA assumes no responsibility to notify the recipient of this letter of any change in the status of the registration and/or the product label for the product listed below.

EPA has issued a registration number for the product listed below to:

AEGIS Environments  
2525 Washington Street  
Midland, Michigan 48642

EPA Registration Number:  
Reg. #64881-1

Name of Product(s)  
AEM 5700 Antimicrobial

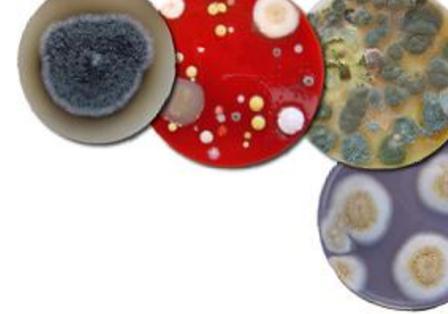


*Velma Noble, Product Manager - 31*  
Name and Title  
JUN - 3 2003  
Date  
Official Agency Seal

Internet Address (URL) • <http://www.epa.gov>  
Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper (Minimum 30% Postconsumer)

ZAT Rev. 06/2003

The **ÆGIS Microbe Shield®** technology is registered with the EPA (US), Listed with the FDA (US) & FDA (China), European Biocide directive 98/8, SEK (Japan) Oeko-tex Standard 100 (Switzerland) PMRA No.15133 (Canada)





Treatment of air handing unit



Treatment of Bio Hazard Room



Treatment of Wall paper



Treatment of Corridors



Treatment of Gymnasium



Treatment of Ceiling void



Treatment in ducting



Treatment of Toilets



Treatment of Bathroom wall



Treatment of lift



Treatment of wood



Treatment of Ceiling



Treatment of Cornice



Treatment of above ceiling





Treatment of Carpets



Treatment of Walls



Treatment of Files



Treatment of Picture Frame



Treatment of Leather



Treatment of Filters



Treatment of Wood



12 Month Guarantee even with regular washing.



It so SAFE that its even use in Baby Diapers

**AEGIS ASIA PTE LTD**

For more Information: Contact Tel: 62419443

Or email: [mktg@aegisasia.com](mailto:mktg@aegisasia.com)

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

