Healthcare Information Kit

Antimicrobial Surface Protection for up to 1-year

Safe | Durable | Effective

PROTECT

1 Introduction

The following information kit was prepared to provide an overview of the history of AEGIS® within the healthcare industry.

Contents

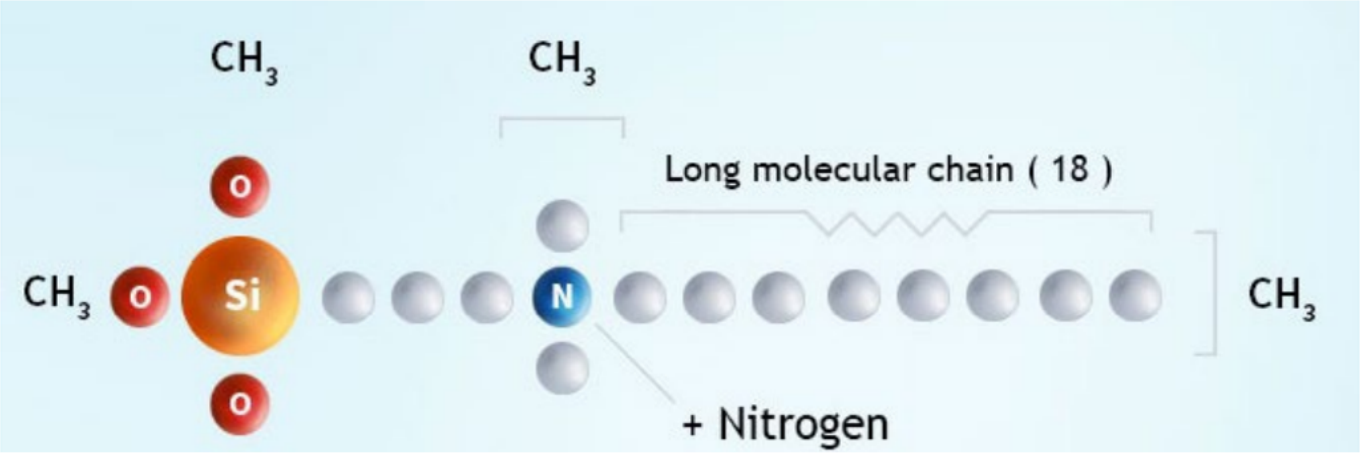
2 Technology Overview

AEGIS® (AEM 5700) is the world's most widely used antimicrobial surface coating.

AEGIS® is an enduring Antimicrobial Surface Protectant. It is combined with normal cleaning practices to provide residual surface protection against the growth of bacteria, mold and mildew on surfaces.

AEGIS® forms a protective coating that can molecularly bond with surfaces upon application. Bacteria, molds, and mildew are attracted to the coating's positive charge. When applied to surfaces, AEGIS® forms a colorless, odorless, positively charged barrier that attracts, then electrocutes and disrupts their negatively charged cell membranes. AEGIS® contributes to enduring clean surfaces by utilizing a charge disruption mode of action.

AEGIS® has a long history of delivering durable, long-lasting antimicrobial efficacy to protect treated surfaces.



AEGIS Active Ingredient: 3-trimethoxsilyl propyldimethyloctadecyl ammonium chloride

Positively Charged Nitrogen	Silane Base	Long Molecular Chain
The positively charged nitrogen atom attracts the negatively charged cell walls of microbes.	Enables the antimicrobial to anchor securely onto the substrate providing long-lasting antimicrobial product protection.	The long molecular chain or "spike" is the part that comes into contact and disrupts the cell membranes.

3 AEGIS Efficacy in Healthcare

The following list provides a summary of AEGIS antimicrobial efficacy studies relevant to the healthcare industry. PROTECT Technologies has an extensive library of additional case studies and testimonials from across several industries. The transit case study was included as it best represents extreme high-traffic environment to demonstrate AEGIS durability over an extended period.

Study Name	Summary of Findings
Improved Control of Microbial Exposure Hazards in Hospitals: A 30-month Field Study	Airborne and surface microorganism levels were reduced by over 99% sustained the course of 30 months. The nosocomial infection rate was noted to have dropped post AEGIS application for the duration of the study.
Removal and Inactivation of Viruses by a Surface-Bonded Quaternary Ammonium Chloride	The University of Michigan tested AEGIS demonstrating inactivation of viruses on the treated surfaces.
Antimicrobial Performance of Medical Textiles	Study demonstrated antimicrobial and antiviral activity on surfaces treated with AEGIS after several washings.
Antimicrobial Techniques for Medical Non-wovens	Study was conducted demonstrating a 99.6% reduction in microorganisms on medical non-woven textiles treated with AEGIS after several washings.
Ronald McDonald House	Study was conducted demonstrating over 99% reduction in microbes on surfaces treated with AEGIS.
Determination of Antibacterial Activity of Shield Sprayed Polypropylene Against E. Coli and Staph.	Study conducted using ISO 22196:2011 demonstrated a >99.99% reduction in bacteria on treated surfaces.
Antimicrobial Effects of AEGIS on E.Coli	Study conducted by Western University demonstrated reducing in microbial growth on treated surfaces from 91% to 100%.
Determining the Antimicrobial Activity of Immobilized MRSA	Study demonstrated that surfaces treated with AEGIS reduced the presence of MRSA by 99.9%.
Closing the Gap Healthcare	2-month field study showed a reduction in surface microorganisms of up to 94.5% on treated surfaces.
Oshawa Clinic	2-week field study showed a reduction in surface microorganisms of an average 92.7% on treated surfaces.
Street-car Transit Vehicle Antimicrobial Study	10-month study demonstrated that surfaces treated with AEGIS had a 1 to 2 log reduction in comparison to untreated surfaces in extreme high traffic environments.

The completed case studies are available upon request. Additional studies are available based on the industry of interest.

The antimicrobial properties of AEGIS have been documented in many white papers and medical textbooks including *AEGIS Efficacy on Medical and Healthcare Textiles* (Subhash C. Anand, J F Kennedy, M Miraftab, S. Rajendran)

4 Testimonial – Infection Control and Prevention

Reiner, Sandra

From: Reiner, Sandra
Sent: Wednesday, September 24, 2003 9:39 AM
To: 'kstrong@aegis-lncanada.com'
Subject: Aegis Use at Northwestern Memorial Hospital

Greetings Kim,

The purpose of this memo is to respond to your request for a brief history of our use of Aegis at Northwestern Memorial Hospital (NMH) in Chicago. We believe that application of Aegis compound has played a positive role in controlling airborne communicable infectious diseases at NMH.

We first learned about Aegis from one of the leaders in our Facilities Management Department during an *Aspergillus* prevention task force project. We were in the process of altering an existing (45+ yr. old building) facility to house a bone marrow transplant patient population. In order to accomplish the alterations to the facility, we had to move units to temporary quarters while construction was under way. Application of Aegis compound was recommended for use in the temporary units. We believe that Aegis compound contributed to the safety of our bone marrow transplant patients during all the moving around and construction. Particle counts in the temporary units were indicative of adequate particulate control and there were no cases of nosocomial aspergillosis. Since our first "contact" we have used Aegis applications for:

- Construction projects on existing facilities
- Finish application of all surfaces (ceilings to floors) in high risk patient care areas
- Preservation of mould following water damage to facilities (after demolition, standard cleaning and drying)
- Application to surfaces in temporary quarters for high risk patients (again)

Although we do not have regularly scheduled reapplication, I'd like to consider this an option for our highest risk patient care areas.

I hope this is helpful. If you have questions or require additional information please feel free to contact me any time. Thank you for your patience.

Regards,

Sandra Reiner
Infection Control and Prevention
Northwestern Memorial Hospital
Galter Pavilion Suite 3-210
Chicago, IL 60611
312-926-0564

5 Summary of Recent Healthcare Projects (Southern Ontario)

PROTECT Technologies is the master distributor for the AEGIS Microbe Shield. PROTECT is not aware of all AEGIS application projects completed by our licensed applicators (PROTECT PROs) in healthcare. The following is a partial list of AEGIS application projects in healthcare that were either completed by PROTECT directly or where PROTECT supported a PROTECT PRO.

Hospital Summary

- Windsor Regional Healthcare (Windsor)
- Hotel Dieu (Windsor)
- Metropolitan Hospital (Windsor)
- St. Michaels Hospital (Toronto)
- Royal Victoria Hospital (Barrie)
- William Osler Hospital (Brantford)

Long-Term Care, Supported Living and Clinics

- Alderbrain Attendant Care
- Loyola Aruupe Centre for Seniors
- Bridle Manor Co-operative
- Closing the Gap Healthcare
- Oshawa Clinic
- Dialysis Clinic

6 Partial List of AEGIS Efficacy Against Specific Microorganisms

AEGIS has been tested to be effective at controlling and preventing the growth of a wide variety of microorganisms including the following. Commonly requested microorganisms are highlighted.

Bacteria
Micrococcus sp.
Staphylococcus epidermidis1
Enterobacter agglomerans1
Acinetobacter calcoaceticus1
methicillin-resistant staphylococcus aureus (MRSA)
Staphylococcus aureus(pigmented)1
Staphylococcus aureus (nonpigmented)1
Klebsiella pneumoniae ATCC 4352
Pseudomonas aeruginosa
Pseudomonas aeruginosa PRD-10
Strepticoccus faecalis
Pseudomonas aeruginosa1
Escherichia coli ATCC 23266
Escherichia coli1
Proteus mirabilis
Citrobacter diversus1
Salmonella typhosa
Proteus mirabilis1
Salmonella choleraesuis
Corynebacterium bovis
Mycobacterium smegmatis
Mycobacterium tuberculosis
Bruncella cania
Brucella abortus
Brucella suis
Streptococcus mutans
Bacillus subtilis

Bacteria Continued
Bacillus cereus
Clostridium perfringens (C. Diff.)
Haemopilus influenzae
Haemophilus suis
Lactobacillus casei
Leuconostoc lactis
Listeria monocytogenes
Propionbacterium acnes
Proteus vulgaris
Pseudomonas cepacia
Pseudomonas filluorescens
Xanthomonas campestris

Fungi
Aspergillus niger
Aspergillus fumigatus
Aspergillus versicolor
Aspergillus flavus
Aspergillus terreus
Penicillium chrysogenum
Penicillium albicans
Penicillium citrinum
Penicillium elegans
Penicillium funiculosum
Penicillium humicola
Penicillium notatum
Penicillium variabile
Mucor sp.
Tricophyton mentagrophytes

Fungi Continued
Tricophyton interdigitalie
Trichoderma flavus
Chaetomium globusum
Rhizopus nigricans
Cladosporium herbarum
Aureobasidium pullulans
Fusarium nigrum
Fusarium solani
Gliocladium roseum
Oosopa lactis
Stachybotrys chartarum

Algae
Oscillatoria borneti LB143
Anabaena cylindrica B-1446-1C
Selenastrum gracile B-325
Pleurococcus sp. LB11
Schenedesmus quadricauda
Gonium sp. LB 9c
Volvox sp. LB 9
Chlorella vulgarus

Yeast
Saccharomyces cerevisiae
Candida albicans

For more information contact:
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