



(ABN 16 098 486 161)

*Asbestos Roof Encapsulation
Water-Proofing Specialist
Industrial & Commercial Coatings
Property Maintenance
Solar Heat Reduction
Safety Application*

Product	Cocoon BioDefence
Description	A water-based, internally plasticised elastomeric membrane with an inbuilt antimicrobial defence system. This high build, seam free membrane provides the ultimate in washable and easily maintained surfaces for "clinical" environments.
Colour	White - may be tinted by special order.
Finish	Semi-gloss
Uses	For the application in health sensitive areas such as- <ul style="list-style-type: none">* Laboratories* Clean rooms* Food preparation areas* Hospitals* Pathology* Aged care facilities* Child care facilities
Properties	<ul style="list-style-type: none">* Environmentally friendly* Permanently flexible* Will fill or bridge gaps* Is formulated to include anti microbial ingredients to protect against bacteria, fungal and algae.* Excellent durability* Low VOC* Has "anti-carbonation" certification* Water based.
Performance	Weathering: Excellent long term exterior durability. Solvent Resistance: Good environmental resistance. Avoid areas of splash, spillage etc. Chemical Resistance: Good. Resists most chemical environments. Abrasion Resistance: Good. Resilient membrane. Water: Very good water resistance once film is fully cured. Not recommended for permanent total immersion. Temperature: Application range 10°C - 30°C. Film service range 0°C - 65°C cured. Minimum film forming temperature 5°C. Flexibility: Very good throughout film service temperature range.

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While providing property maintenance for commercial, industrial & retail buildings, we continue to research the development of cost effective products/technologies that will improve workplace & public safety, energy efficiency & the reduction of GHG emissions.



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DETERMINING THE EFFECTIVENESS OF ANTIMICROBIAL, ANTIBACTERIAL, ANTIFUNGAL PROTECTION IN COCOON BIOSHIELD MEMBRANE

Cocoon BioDefence was developed in response to a growing need for the containment of infection in laboratories and other sensitive areas. Once our *new* product was complete it was sent to an independent laboratory in Canada who has the facility to test a wide range of microbial, fungal and bacterial growth, to assess the effectiveness of the chemistry used in Cocoon BioDefence. As the tests results show, the "contact inhibition" was 100%. A simplistic explanation of the process used to determine these results is:-

1. A piece of free Cocoon BioDefence membrane is placed on an "agar dish" and coated in a medium which will stimulate the production of the particular virus selected, which is then infected into the medium and placed in a high humidity, elevated temperature environment which accelerates the virus growth. This growth usually takes place within seven days, depending on the strain chosen.
2. If the chemistry in the membrane is ineffective, the virus will grow in the medium and engulf the membrane sample.
3. As it is easy to see, not only did the membrane resist the growth of the virus due to the chemistry in the coating, but there is a "growth free zone" around the sample which indicates influence of the microbial protection to resist growth in it's environment.

In the working place, what this equates to is that, in a sensitive environment, such as medical or scientific laboratories, or food preparation areas where sensitivity to infection or cross infection occurring is an issue, if the walls and ceiling area is protected by Cocoon BioDefence, bacterial, microbial or fungal cells which come to rest on those areas can be broken down and rendered ineffective. The washable seam-free surface provides complete protection which is maintained by normal regular housekeeping and hygiene.

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BACTERIAL CONTAMINATION / BASIC FACTS

1. FOOD PREPARATION

Studies have revealed that a toilet seat has fewer germs than most kitchens!

Most food-borne infections are undiagnosed and unreported, though the Centers for Disease Control and Prevention estimates that every year about 76 million people in the United States become ill from pathogens, or disease-causing substances, in food. Of these people, about 5,000 die.

Where?:

Raw foods are the most common source of food-borne illnesses because they are not sterile; examples include raw meat and poultry, seafood, eggs (may be contaminated with *Salmonella* inside the egg shell), and produce such as spinach, lettuce, tomatoes, sprouts, and melons.

Most common strains of bacteria found in food:

Shigella

Escherichia coli (E. coli)

Staphylococcus aureus: More commonly known as Staph, it is present in the nose and on the skin. On the skin it causes relatively small lesions but when found in food it can lead to serious illness! Salmonella: This bacterium loves non-vegetarians! Commonly found in meat and chicken products, Salmonella can cause food poisoning.

*Listeria monocytogenes ***

IN ADDITION, MORE SPECIES ARE MENTIONED BELOW IN THE SOURCES LIST!

** ...can cause serious illness or even death!

NOTE: HUS...hemolytic uremic syndrome can occur in some individuals and develops from a particular strain of EColi. It can result in kidney failure or even death!

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MOST COMMON SOURCES OF SPREAD OF INFECTION:

Contaminated objects; any items passed from person to person.

Contaminated person; on hands, clothing and through body residues (sweat/saliva/blood)

Contaminated food; any of the bacteria mentioned in section 1 could become a threat to hospital patients who have generally less resistance than a normal person would.

Hospital equipment; contamination, even if unused, being passed from one person to another or from one area to another.

Doorknobs, and in fact any item that has regular human contact. Hands are especially prone to passing germs and infection around.

Bedrails, again from regular contact with hands.

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2. HOSPITALS AND HEALTHCARE

In the United States, more people die from hospital infections than breast cancer and AIDS combined

The bacterial species found in hospitals which have resistance to antibiotics cause most concern. The most common of these, MRSA, which stands for methicillin-resistant *Staphylococcus aureus*, is a common type of bacteria that has become resistant to certain types of antibiotics. This type of bacteria is commonly found on the skin and in the noses of healthy people. In these places, the bacterium is usually harmless, but it can cause infection if it gets into the body through a cut or during surgery.

MRSA infections are treated with an antibiotic called vancomycin, which is derived from soil bacteria found in India and Indonesia. Vancomycin is extremely irritating to human tissue, so it is only used as a last resort. Still, some bacteria have become resistant even to this antibiotic, such as vancomycin-resistant *Staphylococcus aureus* (VRSA) and [[vancomycin-resistant enterococcus]] (VRE). **Most common strains of bacteria found in hospitals:**

MRSA (as above)

Pseudomonas aeruginosa: *Pseudomonas aeruginosa* is a lethal strain of bacteria that is responsible for hospital infections in patients with immune system diseases and cystic fibrosis. *Pseudomonas aeruginosa* is accountable for 18% of hospital acquired pneumonia and is incredibly resistant to antibiotics. Additionally, Cancer and burn patients also commonly suffer serious infections by *Pseudomonas aeruginosa*. Health care workers, medical equipment, sinks, disinfectant solutions, and food can spread *pseudomonas* infections within hospitals.

Klebsiella pneumoniae: *Klebsiella pneumoniae* is a common hospital-acquired infectious agent, causing urinary tract and abdominal infections and hospital infected pneumonia. *Klebsiella pneumoniae* can be found in a person's mouth, skin, and intestines. *Klebsiella* is second to *E. coli* as the cause of urinary tract infections. The reported number of cases is up approximately 50% in the last five years and there is a 66% mortality rate in untreated patients.

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3. WASHROOMS

Public restrooms are the perfect place for bacteria to thrive because these facilities are designed to dispose of large volumes of human waste, which consists of up to 30% bacteria

Studies have shown that different washrooms harbour different bacterial species in varying amounts. The effect of cleaning is effective on some strains but not all. The likeliest areas are surprisingly lower in bacterial activity than others. Toilet seats, for example, often prove to house less bacteria than the sink or shower!!

The outside of a sanitary napkin receptacle is the most contaminated hot spot in the ladies room. Germs, especially fecal bacteria, can also be shot into the air when a toilet flushes. One study showed that bacteria released into the air in this way can settle on surfaces throughout the bathroom and in great enough concentrations to spread disease.

Wet bar soap can become a source of infection because it can be contaminated with Gram-negative bacilli. Liquid soap is better, but containers can be contaminated, becoming reservoirs for microorganisms. **The 5 most common strains of bacteria found in washrooms. Pseudomonadaceae** (urinary tract infection, blood poisoning), is the family name for the more commonly known family member; *Pseudomonas aeruginosa*. This bacterium is very resistant to cleaning and flushing and therefore poses big problems in washrooms. **Coryneform** (diphtheria, hepatitis).

A study found that 81% of toilet seats harboured this bacterium. **Micrococcaceae** (boils/pimples, pus infections) family includes bacterial genera of cocci that inhabit the air and skin such as *Micrococcus luteus* **Enterobacteriaceae** (kidney infections, typhoid/paratyphoid fever), are a large family of bacteria, including many of the more familiar pathogens such as *Salmonella* and *Escherichia coli*.

Streptococcus; Streptococcus is a common bacterium which can lead to streptococcus disease. While this is a common infection, it can on occasion lead to more serious health problems such as kidney disease or rheumatic fever. The most common ailment occurring from streptococcus infection is "strep throat." The infection can largely be avoided, as with most of the infections from common bacteria in the bathroom, by following proper hygiene and washing hands, regularly changing hand towels, and using push applicators for liquid soap rather than soap bars for hand washing.

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COMMON SOURCES OF BACTERIA AND THEIR SYMPTOMS

Sources of illness: Raw and undercooked meat and poultry

Symptoms: Abdominal pain, diarrhoea, nausea, and vomiting

Bacteria: *Campylobacter jejuni*, *E. coli* 0157:H7, *L. monocytogenes*, *Salmonella*

Sources of illness: Raw foods; unpasteurized milk and dairy products, such as soft cheeses

Symptoms: Nausea, vomiting, fever, abdominal cramps, and diarrhoea

Bacteria: *L. monocytogenes*, *Salmonella*, *Shigella*, *Staphylococcus aureus*, *C. jejuni*

Sources of illness: Raw and undercooked eggs. Raw eggs are often used in foods such as homemade hollandaise sauce, caesar and other salad dressings, tiramisu, homemade ice cream, homemade mayonnaise, cookie dough, and frostings.

Symptoms: Nausea, vomiting, fever, abdominal cramps, and diarrhoea

Bacterium: *Salmonella enteritidis*

Sources of illness: Raw and undercooked shellfish

Symptoms: Chills, fever, and collapse

Bacteria: *Vibrio vulnificus*, *Vibrio parahaemolyticus*

Sources of illness: Fresh or minimally processed produce; contaminated water

Symptoms: Bloody diarrhoea, nausea, and vomiting

Bacteria: *E. coli* 0157:H7, *L. monocytogenes*, *Salmonella*, *Shigella*, *Yersinia enterocolitico*, viruses, and parasites

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