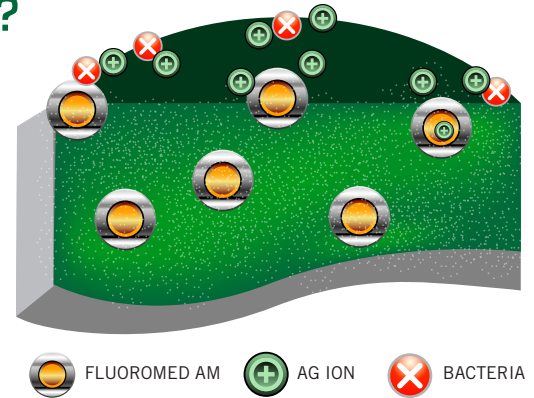


How do Anti-Microbial coatings kill pathogens?

Silver Oxide is formed on the surface of the FluoroMed[®] coating, which simultaneously attacks multiple sites within the pathogenic cell to deactivate critical physiological and reproductive functions of the cell. Silver Ions have a high affinity for negatively charged side groups on bacterial molecules, which bind to the bacterial DNA. This hinders bacterial replication and simultaneously deactivates the metabolic enzymes of the cell. The result is that reproduction of the microorganism is stopped or the microorganism is killed. A key advantage of anti-microbial silver is its remarkably low human toxicity combined with a broad spectrum of antibacterial efficacy.



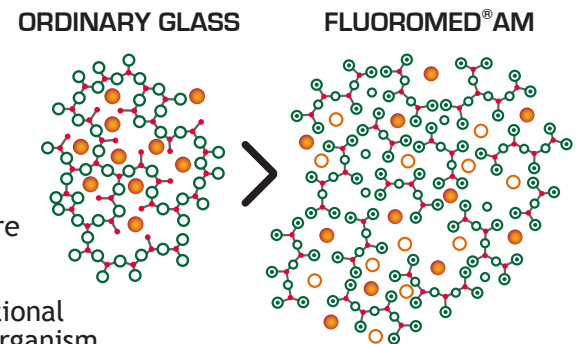
How are FluoroMed[®] AM coatings made?

The addition of nano-size, glass particles containing selected metals that produce anti-microbial silver oxide ions, in the presence of moisture, are formulated into a specified coating. These particles are dispersed at the surface and also throughout the coating. Additionally, a higher concentration of anti-microbial particles can be created at the surface. Glass, as the matrix material, has high chemical inertness. More importantly, glass has the ability to retain metal ions, which are continually liberated in the presence of moisture. FluoroMed[®]AM uses inorganic materials because they have superior features of safety (non-volatility) and heat resistance to 500°C. The glass, inorganic matrix provides long-term properties. These anti-microbial materials have been tested safe for the human body. More than 500+ liquid and powder coatings that Surface Solutions Group applies can be modified to have anti-microbial properties. Testing for anti-microbial properties is performed at a third party laboratory with the accompanying microbe kill rate efficacy test results documentation.

- SI ION
- ⊕ CROSS LINKING OXYGEN
- ⊖ NON-CROSS LINKING OXYGEN
- MODIFYING IONS

Benefits of FluoroMed[®] AM

- Safer medical devices can be created with a coating of FluoroMed[®] AM.
- Anti-microbial properties on the surface of the FluoroMed[®] AM coating are permanent and remain effective even if the coating is cleaned.
- Unlike antibiotics the development of microbe resistance due to generational mutations to anti-microbial silver would be extremely rare because an organism would have to undergo simultaneous mutations in every critical function, within a single generation, to escape the silver’s influence. Antibiotics cannot provide this.
- Large group of successful anti-microbial applications on all medical grade metals, plastics, glass, and silicone rubber. All of these substrates can have anti-microbial properties, proven by laboratory testing with pathogen kill rates of 99.9%.
- Wide range of coatings, including all FluoroMed[®] AM coatings and low friction Slick Sil[®] LSR coatings for silicone rubber, can be formulated with FluoroMed[®] anti-microbial properties.
- Thickness of coating, including the anti-microbial materials, is unchanged. Typically from .0002” to .0015” (.0005-.0037 mm) coating thickness is added to the device surface.
- Low friction coating properties unaffected by the anti-microbial nano-particles.
- Affordable, with a small cost increase, to provide true anti-microbial properties.



LIST OF BACTERIA FluoroMed Anti-Microbial is effective against

The two main focus types of bacteria are Escherichia coli and Staphylococcus aureus, however many others have tested and FluoroMed[®] AM, proven to be effective as follows:

- Escherichia coli • Staphylococcus aureus
- MRSA • S. Enteritidis • V. Parahaemolyticus
- B. Sutilis • Streptococcus • Staphylococci
- Klebsiella • Clostridium • Proteus • Listeria
- Aeromonas • Flavobacterium • Xanthomonas
- Acinetobacter • Entero-viruses • Aspergillus
- Pseudomonas aeruginosa • Candida Albicans
- Salmonella • Enterococcus faecalis
- Enterococcus faecium • Clostridium difficile