

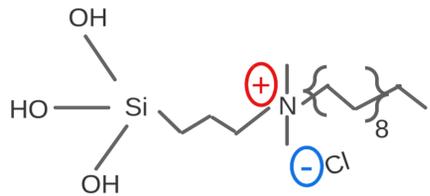


Antimicrobial Playing Cards

By: Blaine Harvey and Meghan McGonagle



Introduction



Poly-3-(trihydroxysilyl)-propyldimethyloctadecyl Ammonium Chloride

Goals

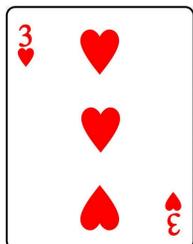
1. Prove Antimicrobial kills bacteria
2. Fabricate methods to test the antimicrobial
3. Apply antimicrobial to playing cards using methods

Why playing cards?

- Casinos
 - Bridge Competitions
 - Competitor
- Antimicrobial card is more expensive



Application Methods Used on Card

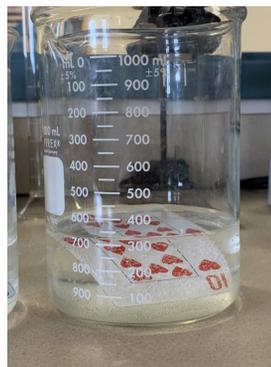


Clear lacquer with antimicrobial mixed

Experiments & Results

Experiment #1

Competition



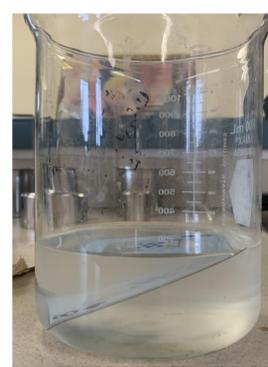
Sprayed Antimicrobial



Lacquer Coating Antimicrobial



Control

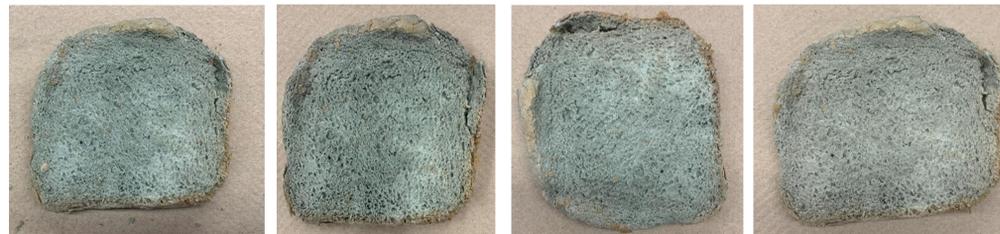


Experiment #2

Spray



Control



Initial

Hour 1

Hour 6

Day 1

Experiment #3

Competition

Sprayed Antimicrobial

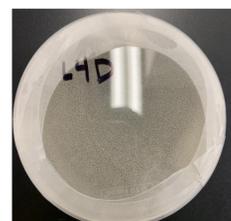
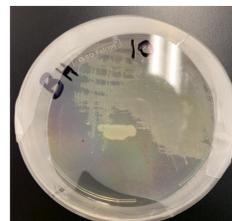
Lacquer Coating Antimicrobial

Control

Before

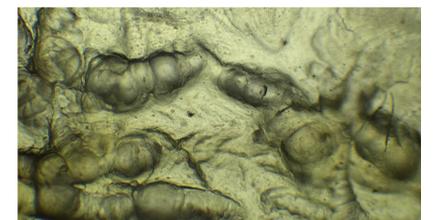


After



Discussion

- Cost Comparison
 - Competition \$10.99
 - Antimicrobial card
 - Lacquer Coating \$6.79
 - Solution \$4.99
- Reasons for failure
 - Not enough moisture during incubation
 - Sealing on media plates



Next Steps

- Apply antimicrobial to a moldy surface to see if the bacteria dies
- Streak E.coli onto playing cards then transfer to plates after time intervals
- Redo failed experiments
 - Experiment #3
- Apply spray and lacquer finishes of different weight %'s of antimicrobial to the cards