



# King Plastic Corporation

## Technical Bulletin for King MicroShield® Products

### Overview

King MicroShield products use the latest antimicrobial technology in many of King Plastic Corporation's polymer sheets, slabs, and massive shapes. The antimicrobial additive helps protect the product surface against stain and odor causing bacteria, algae and fungi. Because the antimicrobial agent is bonded at the atomic level throughout the sheet, King MicroShield products retain their protection throughout their life, and do not harm the environment. The polymer sheets are safe, non-toxic and non-hazardous to ship and handle. King MicroShield polymer products are easy to clean and disinfect using standard cleaning and disinfecting procedures. Frequent cleaning will not affect King MicroShield products. Please refer to the chemical resistance chart for proper cleaning and maintenance. Visit [www.kingplastic.com](http://www.kingplastic.com) for details and technical specifications.

Disclaimer: This product does not protect users or others against disease-causing bacteria. Always clean this product thoroughly after each use.

### Applications

- Assisted Living Facilities
- Animal Science Facilities
- Cabinetry and Storage Carts
- Clean Rooms
- Commercial Laboratories
- Correctional Facilities
- Day Care Centers
- Dental Laboratories
- Hospitals
- Locker Rooms
- Medical Equipment and Case Goods
- Medical Facilities
- Outdoor Kitchens
- Pharmaceutical Laboratories
- Pool Areas
- Rest Rooms
- Veterinary Facilities

	Our Antimicrobial Silane Based	Silver-Based	Triclosan-Based
<b>Mode of Action</b>	Physically ruptures the cell membrane	Releases ionic free radicals that react with cell DNA and disrupt the critical life processes in the cell	Releases toxic bischlorinated phenol (PBC) for consumption or cellular absorption, causing lethal mutations in the cell
<b>Leaching: Bleeding onto the user, into the water, and into the environment</b>	Does not leach or migrate	Leaches for its mode of action Must leach to work	Leaches for its mode of action Must leach to work
<b>Durability</b>	Permanent	Service life 1-3 years	Service life 1-3 years
<b>Cost</b>	Economical	The cost of silver is high	Intermediate
<b>Effectiveness</b>	Bacteria, fungi and algae that cause stains and odors	Action variable based on concentration and test or use conditions	Action variable based on concentration and test or use conditions
<b>Log Reduction(1-6, 1 being the lowest, 6 being the highest)</b>	4 on 24 hour test & 2 hour test	1-2 on a 24 hour test	2 on a 24 hour test
<b>Distribution</b>	World wide	Varies by company	Not accepted or available in certain areas of the world



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Whether you build, design, manage, or own facilities, you can protect the product surface from stain and odor causing bacteria, algae and fungi by installing King MicroShield products.

**The Following King Plastic Corporation Products are Upgradable with an Exclusive Antimicrobial Additive:**

### Architectural Products

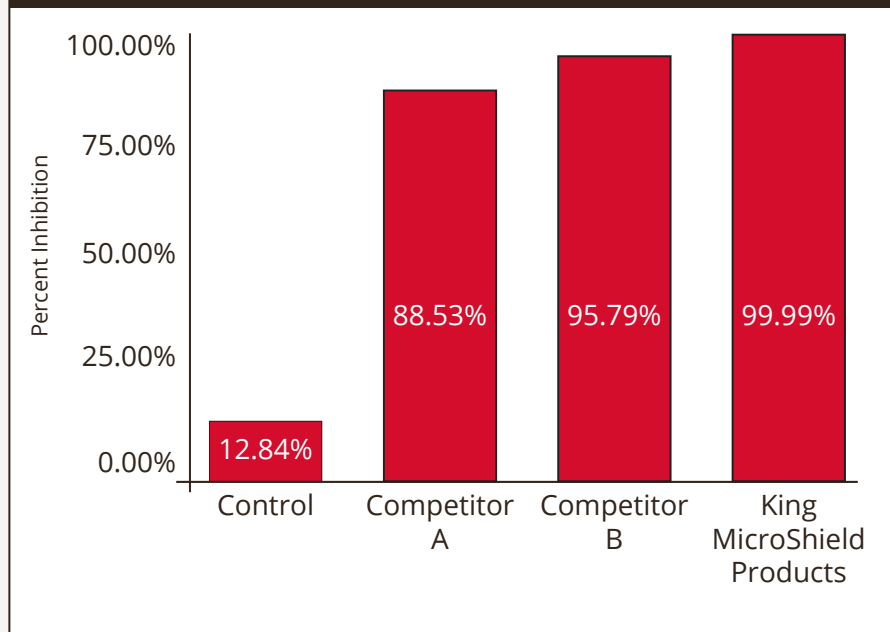
- King StarBoard® ST – The Polymer Building Sheet That Lasts a Lifetime
- King ColorBoard® – The Colorful Environmentally Stabilized Polymer Sheet
- King ColorCore® – The Multi-Color Engravable Polymer Sheet
- King Plasti-Bal® – The Heavy Duty, Waterproof and Graffiti Resistant Polymer Sheet

### Marine Products

- King StarBoard® – The Original Marine-Grade Polymer Sheet
- King StarBoard® AS – The Anti-Skid Marine-Grade Polymer Sheet
- King StarBoard® XL – The Lightweight Marine-Grade Cellular Sheet
- King StarLite® XL – The Lightweight Marine-Grade Cellular Utility Sheet



### Antimicrobial Performance



#### Notes:

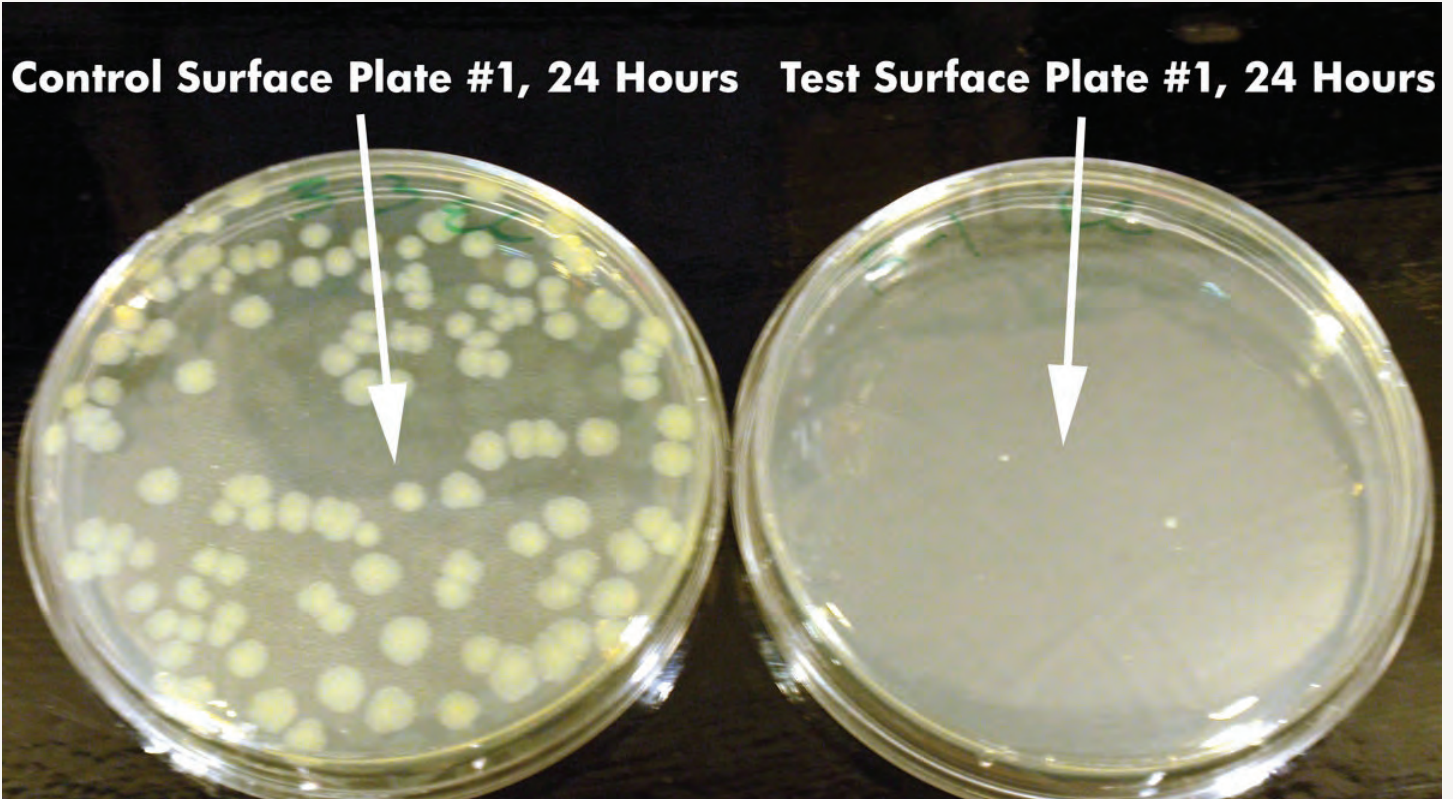
- Test performed by Antimicrobial Test Laboratories LLC, an independent testing lab.



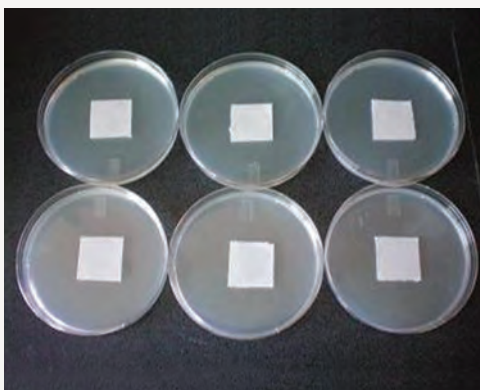
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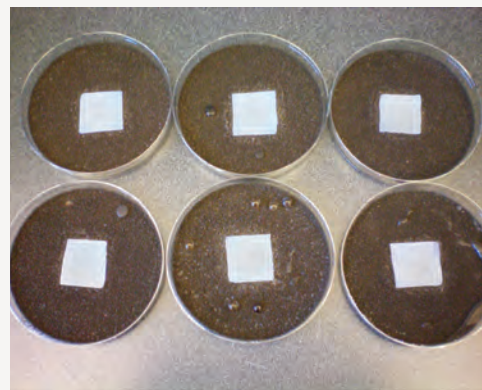
24 hour microbial inhibition test



Mold Test ASTM G21 Day 0



Day 21



Mold growing in agar, but not on the treated polyethylene

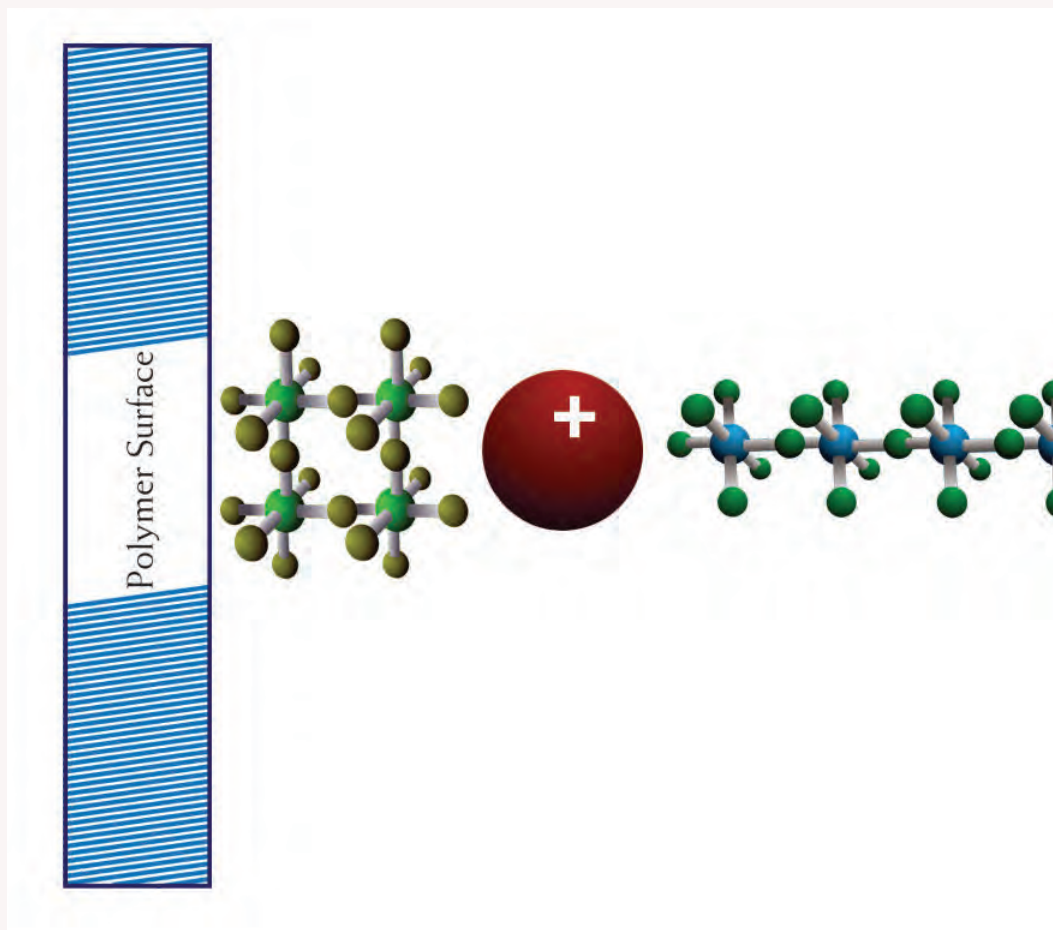
\*Representative sample of microbes tested to date. Samples may be provided for customer-specific testing if required.



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### How it Works



- Base permanently bonds to the polymer
- Positively charged atom attracts the negatively charged microbe
- Microbe has negatively charged cell membrane
- Long molecular chain punctures cell membrane
- Positive charge further inhibits microbe growth
- Antimicrobial is present throughout the entire sheet for consistent, lifetime performance

King Plastic Corporation Limit of Warranty is your money refunded or defective material replaced. All statements, information and data given herein are believed to be accurate and reliable. It is presented without guaranty, warranty or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.



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