

### Project Details

<b>Test Facility:</b>	West Texas A&M University Microbiological Laboratory 2401 Russell Long Blvd. Canyon, TX 79015 (806) 651-0000
<b>Testing Performed By:</b>	C. Bouma
<b>Study Complete:</b>	May 21st, 2018
<b>Test Method:</b>	ASTM F895 Standard Test Method for Agar Diffusion Cell Culture Screening for Cytotoxicity

### General Information:

This test method is useful for assessing the cytotoxic potential of new materials and formulations and as part of a quality control program for established medical devices and components. WTAMU's Biology Department utilized this testing method to give qualitative results of the potency of antimicrobial powders. Antimicrobial and control powders are poured into several wells that have been punched into the inoculated agar. The testing wells can be compared to one another based on the zone of inhibition of cell or spore growth each has created.

### Background:

*Escherichia coli*: *Facultative anaerobic proteobacteria* found in the environment, foods, and intestines of people and animals. These organisms are a large and diverse group of bacteria and the most prevalent infecting organism in the family of gram-negative bacteria known as enterobacteriaceae.

### Sample Procedure:

- MG and a blend of proprietary ingredients were mixed together at varying percentages to compare the efficacy 12 MG blends were created

#### MIC-GUARD Blends

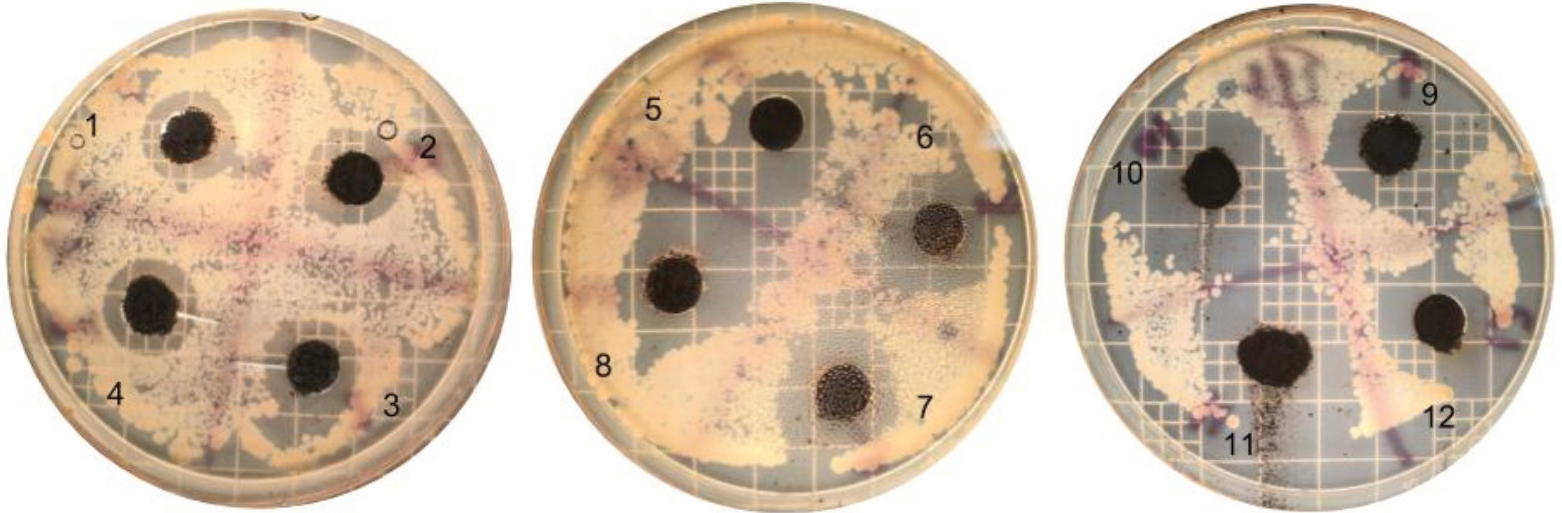
<b>1:</b> 11% MG	<b>5:</b> 33% MG	<b>9:</b> 66% MG
<b>2:</b> 17% MG	<b>6:</b> 35% MG	<b>10:</b> 77% MG
<b>3:</b> 22% MG	<b>7:</b> 44% MG	<b>11:</b> 88% MG
<b>4:</b> 29% MG	<b>8:</b> 55% MG	<b>12:</b> 100% MG

### Microbiological Procedure:

- *E. Coli* cells were spread evenly about the entire surface of the agar
- Wells were created in the agar using the base of a sterile pipet tip
- Each well was punched from the surface of the agar to the bottom of the petri dish
- Each MG Blend was poured into its own well. The wells were filled when the powder became even with the surface of the agar.
- The petri dishes were placed in an incubator at 78 degrees Fahrenheit for three days
- The zones of inhibition each well had around itself were then compared.

### Results:

As the concentration of MIC-Guard increased the zones of inhibition were improved. Higher percentages of MIC-GUARD should be used in harsh environments with copious levels of bacteria. With lower percentages of MIC-Guard there are still zones of no growth making these ones suitable for more realistic bacteria environments.



### LIMITATION OF LIABILITY

All recommendations or suggestions relating to the use of the product, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge is reliable. The product and information is designed for users having the requisite knowledge and industrial skills, and the end-user has the responsibility to determine the suitability of the product for its intended use. Conditions of use are beyond our control, Buffalo Technology Group, LLC (the Company), disclaims any liability incurred in connection with the use of our products and information contained herein. No person is authorized or empowered to make any statement or recommendation not contained herein, any such statement or recommendation so made shall not bind The Company. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents Buffalo Technology Group, LLC has no control over either the quality of condition of the substrate, or the many factors affecting the use and application of the product. Therefore, Buffalo Technology Group, LLC does not accept any liability arising from loss, injury, or damage resulting from such use or the contents of this data sheet. The information contained in this data sheet is subject to modification. This data sheet replaces and annuls all previous issues. The user has the responsibility to ensure that this sheet is current prior to product use.