

## BIO CLEANING SOLUTIONS

### Bio Tech Ultra Bio-Floor & Tile Manual Cleaning Concentrate 10 X FF

#### Multi-Purpose bio-formulation & Multi-Action Microbial Consortium

##### **IMPORTANT NOTICE**

**Green Worx CS contends that this product is manufactured according to and conforms to the terms and conditions as stipulated in SABS/TC 1006/SC 02 "Detergents, soaps, cleaners, degreasers and oil spill dispersants and absorbents" including SANS CD 1604ED1.1:Biologically enhanced cleaning and degreasing products.**



The bacillus / probiotics consortium in *Bio Tech Ultra Floor* produces 7 separate enzymes to ensure a swift degradation of key organic contaminants to ensure surfaces are biologically cleaned & odours controlled. Although many bacteria can utilize these organics as food sources, it is the bacteria with the most rapid production of these enzymes that provide the most dramatic effects.

Bio Tech Ultra Floor is a bio-enzymatic / probiotic product specially formulated to digest oils, grease and other dirt (organic waste) on floors to leave an invisible film which continues

to digest the oils and grease even after regular cleaning. Following the in-depth cleaning of floors will result in leaving them cleaner, less slippery and no malodours. Bio Tech Ultra Floor is a powerful formulation of nutrients, stimulants and surface agents producing excellent performance.

Most chemical cleaning products emulsify organics allowing for even distribution of dirt on floor surfaces, thus not really cleaning anything by contrast to the residual cleaning effects of microbes in Bio Tech Ultra Floor. The microorganism in Bio Tech cleaning products work during and after the initial cleaning is done. They penetrate into cracks and crevices of floor surfaces to degrade and digest spills, grease, and other accumulated organic material leaving floors visibly cleaner.

- Common applications include cleaning floors for quick service, restaurants, schools and industrial cafeterias, long term care and hospitals, grocery store floors (behind the counter) and floors in food processing plants
- Displaces unknown, potentially "pathogenic" (disease causing) bacteria with known, healthy microorganisms and in this way contributes to better human health
  - While not a biocide, a side benefit is that it eliminates the feeding and breeding sources for pests (insects) and will out-compete other potentially harmful bacteria and viruses for the same food source. For these reasons there has been intensifying international research regarding methods of sanitation that are based on the biological principle of competition. This involves in the use of non-pathogenic microbial products can colonize the surfaces on which they are applied to counter the proliferation of other bacterial species. This is based on the principle of competitive exclusion (Gause's law).

This approach to the problem of sanitation is a complete reversal of the objectives of traditional procedures where disinfection is defined by a minimal presence of microorganisms on surfaces of any kind. While the

traditional approach seeks control of pathogenic strains it does so without tolerating the presence of microorganisms are not harmful to human health.

These new procedures can be defined as "bio-stabilization techniques" of one species over another, thus implying no general biocidal action, except as a final effect against certain microbial species.

The principle of action is that two different species (bacterial and/or fungal), who seek to live on the same ecological microcosm, cannot coexist in a stable equilibrium if they require the same nutritional substrates, Ultimately one of the two will become dominant over the other, and can even cause extinction.

The use of these products with a non-pathogenic microbial load is also able to inhibit the activity of transcriptional regulation (quorum sensing) among pathogenic bacteria, i.e. those activities of information exchange which are spread even among microorganisms belonging to different strains. This is a method of defense against environmental pressure (sanitizers, disinfectants and antibiotics).

- With routine cleaning, the effect is enhanced with each application until floors are truly deep cleaned

### **Safety of *Bio Tech Ultra Floor Consortium***

*Bio Tech Ultra Floor* contains a blend of safe *Bacillus* microorganisms. Toxicity studies done by an independent laboratory shows that *Bio Tech Ultra Floor* consortium has no acute oral toxicity, no acute dermal toxicity, and no acute inhalation toxicity at maximal test dose. Acute dermal irritation and acute eye irritation studies classify *Bio Tech Ultra Floor* consortium as non-irritating. *Bio Tech Ultra Floor* consortium does not elicit a skin sensitization reaction.

### **In summary**

- Reduced operational spend.
- Reduced labour costs due to less man hours needed to clean the floors – working action of the bio enzymes can last up to 3 days.
- Improved asset preservation as the reduced manual scrubbing reduced the amount of abrasion and wear and tear on the surface.
- Improved quality and cleanliness of mop water and mop head
- using green solutions that have a zero impact on the environment due to Green Worx Cleaning Solutions' microbial and eco-benign technology.

### **Features**

- A stable consortium of safe *Bacillus* spores
- Production of multiple enzymes providing a wide range of degradation capabilities
- A synergistic blend that works in concert to provide superior performance across multiple applications
- Excretion of high levels of amylase, cellulase, lipase, protease, urease, esterase & xylanase enzymes
- Ability to work under aerobic and anaerobic conditions
- Single product simplicity for multi-application flexibility

### **Product Characteristics**

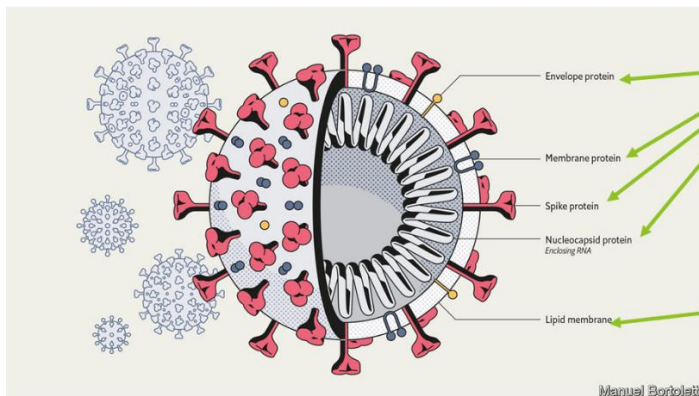
- Bacteria Counts: -  $1 \times 10^9$ /ml.
- Bacteria Type: - *Bacillus* consortium producing the following enzymes:-
  - *Protease* – breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids
  - *Lipase* – breaks down fats/grease into fatty acids & glycerol. If not broken down, fats can go rancid & lead to off-odours & blocked drains/fat grease traps.
  - *Amylase* – starch acts as a glue for dirt – amylases catalyse the break-down of starch into sugars which are then further used as a food source by the bacillus
  - *Cellulase* – breaks down cellulosic material
  - *Urease* - catalyzes the hydrolysis of urea into break-down products.

- *Esterase* -splits esters into an acid and an alcohol in a chemical reaction with water called hydrolysis. Esters have characteristic odours most of which are pleasant/fruity, however can also include onion/garlic & worse odours
- *Xylanase* – help in breaking down plant cell walls.

What this means – the bacillus use the multitude of enzymes produced to break down the components of malodour & staining to provide microbial cleaning at the smallest level of dirt/contamination.

- Salmonella: - Not detected
- Appearance: - Clear liquid
- Fragrance: - Pleasantly perfumed
- Shelf-life: - Two years; maximum loss of 1.0 log at recommended storage conditions

### Bacillus Subtilis produces enzymes



The enzyme protease breaks down protein - thus breaking down the cell wall

The enzyme lipase breaks down lipid / fat - thus breaking down the lipid membrane

Bio Enzymes are special proteins that can break large molecules into small molecules. Different types of enzymes can break down different nutrients: ... protease enzymes break down proteins into amino acids. Lipase enzymes break down lipids (fats and oils) into fatty acids and glycerol.

Spectrum of activity for Bio Tech GTX products

# TEST REPORT

<b>Issued to:</b> M/S Green Worx Cleaning Solutions Unit 1, New Port Business Quarts Rd, Kya Sand Bus. Park Kya Sand, South Africa	<b>Report No.</b>	<b>MS- 071220-01</b>
	Report date:	12/ 12/ 2020
	Sample Received:	07/12/2020
	Analysis date:	07/12/2020 to 12/12/2020
	Sampled By:	Customer

**Sample Description: Bio Tech GTX Probiotic Surface Cleaner & Sanitiser.**

P-1/2

**Brand Name: - Bio Tech GTX**

**Condition of Sample: Received in Sealed & Marked Plastic container.**

## RESULTS

Sr. No.	Product	Unit	Test Method	Result	Remark
1	Minimum Inhibitory Count (MIC)	-	AOAC/SRTL SOP	Yes	Passed
2	Minimum Bactericidal Count (MBC)	%	ASTM E1153/AOAC	>99.9	Passed
3	Quantitative kill-time test for Bacteria	%	ASTM E1153/AOAC	>99.0% reduction in 30 sec	Passed
4	Quantitative kill-time test for Virus (including HINI and common flu virus)	%	ASTM E-1153/AOAC	>99.0% reduction in 30 sec	Passed
5	Lead (as Pb)	ppm	GIMEFCC/SRTL SOP/01	Not Detected	Passed
6	Chromium Element s	ppm	GIMEFCC/SRTL SOP/01	Not Detected	Passed
7	Sanitizer Base (solvent)	%	GIMEFCC	Natural Enzymes, Plant Based Surfactants, D.M. water, Combined with pleasant Odour.	Passed
8	Anti - Corona Virus Effect	%	ASTME1153	99.90	Passed
9	Human Safe		GIMEFCC	Yes	Passed
10	Toxicity	-	GIMEFCC	Not Detected	Passed
11	Eye Safe & Skin Safe	-	GIMEFCC	Passed the test	Passed
12	Food Safe	-	GIMEFCC	Yes	Passed
13	Animal Safe	-	GIMEFCC	Yes	Passed
14	Vegetation Safe	-	GIMEFCC	Yes	Passed

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**Sample Description: Bio Tech GTX Probiotic Surface Cleaner & Sanitiser.**

**Brand Name: - Bio Tech GTX**

Sr. No.	Product	Unit	Test Method	Result	Remark
15	Water Solubility	%	OCED (Method 301G)	99.0%	Passed
16	Acute dermal Toxicity	-	GIMEFCC	Negative	Passed
17	Acute Oral Toxicity	-	GIMEFCC	Negative	Passed
18	Bioaccumulation	-	GIMEFCC	None	Passed
19	Efficiency	%	ASTME1153	99.80	Passed
20	UTL Layering	Micron	GIMEFCC/AOAC	0.80	Passed
21	Ingestion Effect	-	GIMEFCC/ AOAC	Absent	Passed
22	Biodegradable	%	OCED (Method 301G)	99%	Passed
23	pH at 20-c	-	SRTL/SOP/01	6.20	Passed
24	Hazardous Polymerization	%	GIMEFCC/SRTL SOP/01	Not Detected	Passed
25	Anti Bacterial Effect	%	GIMEFCC/SRTL SOP/01	99.90	Passed

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**END OF REPORT**

TESTED BY  


  
 AUTHORIZED SIGNATORY

From the above analysis it can be clearly seen that Bio Tech GTX 1 is effective against

- Anti Covid Virus Effect at 99.9% within 30 seconds – international test method applied ASTME1153 measured at 99.9%

**Bio Tech Ultra Floor Cleaner - Antimicrobial activity by ASTM E 2315**

**Organisms used:**

1. Methicillin-resistant Staphylococcus aureus Strain No. ATCC 6538 (Gram Positive Bacteria)
2. Klebsiella pneumoniae Strain No. ATCC 4352 (Gram Negative Bacteria)
3. Escherichia coli Strain No. ATCC 10799 (Gram Negative Bacteria)
4. Pseudomonas aeruginosa Strain No. ATCC 19154 (Gram Negative Bacteria)

Antibacterial Activity Results for 5 mins contact time

Sample Identification	Test Culture	No. of colonies recovered at '0' hr [B]	No. of colonies recovered at '30 mins [A]	Reduction of Microorganisms [R]
1. Floor cleaner	<b>Methicillin-resistant <i>Staphylococcus aureus (MRSA)</i></b>	1.05 X 10 <sup>5</sup>	1.5 X 10 <sup>3</sup>	95.42%
	<i>Klebsiella pneumoniae</i>	1.09 X 10 <sup>5</sup>	2.2 X 10 <sup>3</sup>	95.22%
	<i>Escherichia coli</i>	1.15 X 10 <sup>5</sup>	2.7 X 10 <sup>3</sup>	95.71%
	<i>Pseudomonas aeruginosa</i>	1.11 X 10 <sup>5</sup>	3.5 X 10 <sup>3</sup>	95.25%

Antibacterial Activity Results for 30 mins contact time

Sample Identification	Test Culture	No. of colonies recovered at '0' hr [B]	No. of colonies recovered at '30 mins [A]	Reduction of Microorganisms [R]
1. Floor cleaner	<b>Methicillin-resistant <i>Staphylococcus aureus (MRSA)</i></b>	1.05 X 10 <sup>5</sup>	3.4 X 10 <sup>2</sup>	99.67%
	<i>Klebsiella pneumoniae</i>	1.09 X 10 <sup>5</sup>	4.5 X 10 <sup>2</sup>	99.58%
	<i>Escherichia coli</i>	1.15 X 10 <sup>5</sup>	4.9 X 10 <sup>2</sup>	99.57%
	<i>Pseudomonas aeruginosa</i>	1.11 X 10 <sup>5</sup>	5.4 X 10 <sup>2</sup>	99.51%

Antibacterial Activity Results for 1 hr contact time

Sample Identification	Test Culture	No. of colonies recovered at '0' hr [B]	No. of colonies recovered at '30 mins [A]	Reduction of Microorganisms [R]
1. Floor cleaner	<b>Methicillin-resistant <i>Staphylococcus aureus (MRSA)</i></b>	1.05 X 10 <sup>5</sup>	1.9 X 10 <sup>2</sup>	99.81%
	<i>Klebsiella pneumoniae</i>	1.09 X 10 <sup>5</sup>	2.2 X 10 <sup>2</sup>	99.79%
	<i>Escherichia coli</i>	1.15 X 10 <sup>5</sup>	2.5 X 10 <sup>2</sup>	99.78%
	<i>Pseudomonas aeruginosa</i>	1.11 X 10 <sup>5</sup>	1.9 X 10 <sup>2</sup>	99.82%

**Bio Tech GTX Probiotic at a 1:4 dilution and 24hours contact time**

**Surviving microorganisms (cfu) and % kill at 1:4 dilution and 24hours contact time**

First Run Contact Time: 24hours			
Organism challenged with	Control sample	Test sample	% Kill (1)
<i>S. aureus</i>	2.0E+09	1.0E+02	99.9%
<i>E. coli</i>	2.3E+08	5.0E+03	99.9%
<i>P. aeruginosa</i>	3.0E+07	1.0E+02	99.9%
<i>P. vulgaris</i>	1.1E+08	1.0E+02	99.9%
<i>E. aerogens</i>	6.0E+08	4.2E+04	99.9%

<i>E. faecalis</i>	1.4E+08	1.1E+04	99.9%
<i>A. faecalis</i>	7.0E+08	1.0E+03	99.9%
<i>C. albicans</i>	2.1E+06	1.0E+01	99.9%
<i>S. epidermidis</i>	2.8E+06	5.0E+03	99.8%
<i>M. luteus</i>	9.0E+07	1.1E+04	99.9%

Study conducted by Mirochem Specialised lab services – full study available on request

All test results are available on request – please email [info@greenworx.eco](mailto:info@greenworx.eco)

#### DOSE RATES (Follow dilution rate)

General:

1. Before use, thoroughly clean the detergent compartment, while always using new, or dedicated to this product, other cleaning supplies such as a mop head or towel.
2. Mix proper dilution and fill the container. Stir well.
3. Do not add bleach to the product or other chemical cleaning agents.
4. Food contact surfaces have to be rinsed with potable water after cleaning and preferably disinfected. Do not store in food processing areas or food storage areas. Do not contaminate food products.

#### In-Depth Deep Cleaning & Degreasing:

Dilute 1 part concentrate to 50 parts clean water (100 ml to 5 liter cool clean water).

Depending on your observation of how dirty the floor is it may be necessary to scrub/brush/mop solution into joints, crevices, grout lines, etc. Allow to penetrate for a few minutes. Dry mop well. If necessary, rinse with clean water.

#### Daily Maintenance Cleaning:

Dilute 1 part concentrate to 100 parts cool clean water (100ml to 10 liter cool clean water) for regular maintenance use.

**Bio Tech Ultra Floor can be further diluted dependent on application to a maximum of 1:100**

**CONCLUSION:** *Bio Tech Ultra Floor Concentrate* is designed as a bio-technical aid to treatment of organic waste material offering the following advantages: - Liquefaction & reduction of solids, reduction of odor, easier disposal of waste, aids general cleaning of soiled areas, safety in operation of effluent systems, offers a viable alternative to current processing techniques using a bio-technical approach.

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