

BIO CLEANING SOLUTIONS

Bio Tech GT Probiotic Liquid Hand Soap Foam

**Bio Tech GT Probiotic Liquid Hand Soap Foam
(Waterless formulation)**

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.



Green Worx Cleaning Solutions introduces new age hand hygiene probiotic bio-enzyme technology. Keeping hands clean through improved hand hygiene is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water.

When should you wash your hands?

- Before, during, and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After changing diapers or cleaning up a child who has used the toilet
- After blowing your nose, coughing, or sneezing

- After touching an animal, animal feed, or animal waste
- After handling pet food or pet treats
- After touching garbage or any surface that may harbour germs or viruses

How should you wash your hands with Bio Tech GT Foam Hand Soap?

There are two options in using Bio Tech GT Foaming Hand Soap. **Wash Option One: Wet** your hands with clean, running water (warm or cold), turn off the tap, and apply soap.

- **Lather** your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- **Rub / Scrub** your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice. **Or wait for the green coloured foam to turn white**
- **Rinse** your hands well under clean, running water.
- **Dry** your hands using a clean towel or air dry them

Wash Option Two

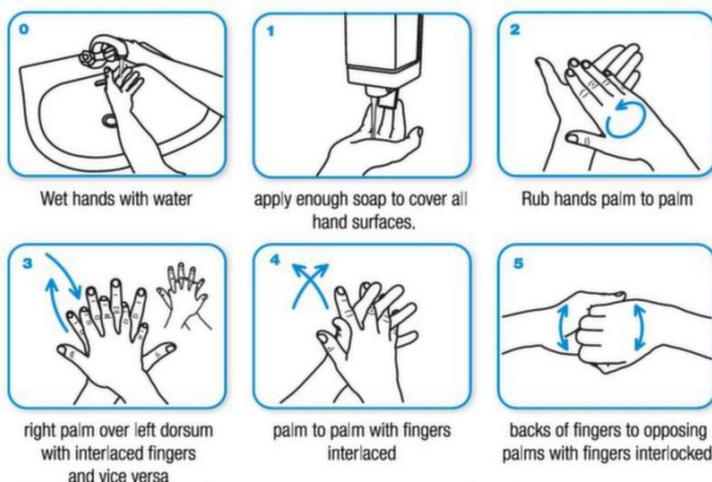
Dry wash your hands - apply soap to your hands

- **Lather** your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- **Rub / Scrub** your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice. **Or wait for the green coloured foam to turn white**
- **Dry** your hands using a clean paper towel discard the towel in a safe place

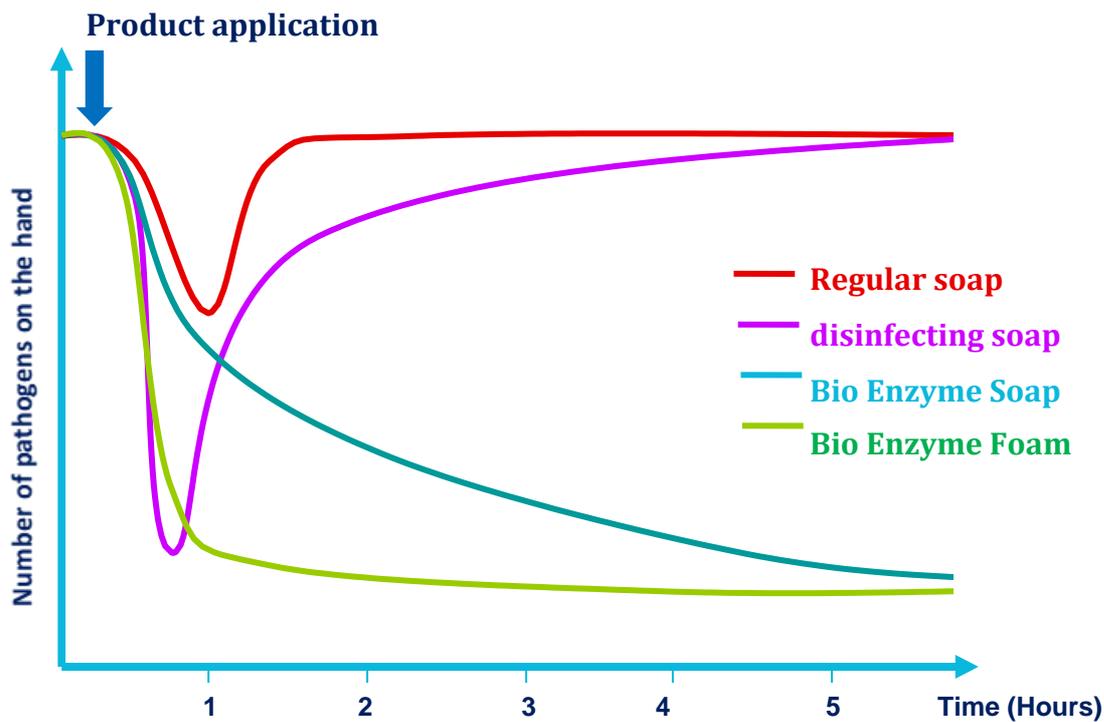
TESTING OF Liquid Hand Soaps

RESULTS OF Bio Enzyme Liquid Hand Soap

COMPARED TO CURRENT REGULAR & DISINFECTANT SOAPS



- The Green Worx CS Hand soap and foam is a creamy and a foam Probiotic Bio Enzyme skin cleanser creating a healthy and stable microflora on the hands and other skin areas.



The overall concept of Probiotic Bio Enzyme hand hygiene is that immediately upon application the Probiotic Bio Enzyme bacteria will colonize the hands and prevent pathogenic bacteria, yeasts and moulds from multiplying and spreading.

SUMMARY: There is a significant difference in the protection against the risk of infection between the hospital legacy cleaning and disinfectant solutions used over the past decades compared to the cleaning ability of Probiotic Bio Enzyme Hand Soap solutions.

Of prime importance in infection control is the “**Protection Time Factor**”.

Studies show that staff hand washing is inconsistent. Therefore, the protection from disinfecting soaps of only minutes, compared to the many hours of Bio Enzyme protection offering significant advantage in infection control.

This chart demonstrates why Probiotic Bio Enzyme products, in addition to risk reduction, also provide substantially better cleaning. Disinfectants stop working as soon as they are dry. Bio Enzymes keep working, cleaning and protecting surfaces, for up to three days after each application. However, since skin is a dynamic environment that is constantly touching many different surfaces, repetitively being contaminated and washed, the Probiotic Bio Enzymes should be used several times per day and for each hand-washing.

Biological Validation of Probiotic Bio Enzyme Liquid Hand Soap

Results

The test consisted out of three phases:

- Phase 1: comparative test for immediate and selected pathogen removal.
- Phase 2: protective effect of the bio-enzyme bacteria
- Phase 3: test in a real life situation

Phase 1 indicated that Liquid Hand Soap without bio-enzymes/ bacteria was equally efficient in compared to other hand soaps and sanitizers.

Phase 2 results indicated that the addition of the bacteria resulted in an improvement of the product performance. The bacteria were transferred to the skin and the risks of other micro-organisms was significantly reduced and suppressed for a longer period of time after application.

Phase 3 showed that the everyday use of the skin cleansers provided a long lasting microbial protection of the hands. Although occasional bacterial contamination by hand contact with highly contaminated surfaces can never be prevented, the use of bacteria based hand hygiene products certainly reduces the risk of pathogenic organisms on the hands.

Conclusion

Bio Tech GT Liquid Hand Soap Foam forms a healthy and protective micro flora on the hands.

Goal of the test

To verify the effect of Bio Tech GT Liquid Hand Soap Foam on the micro flora of the skin.

Location: Green Worx R&D

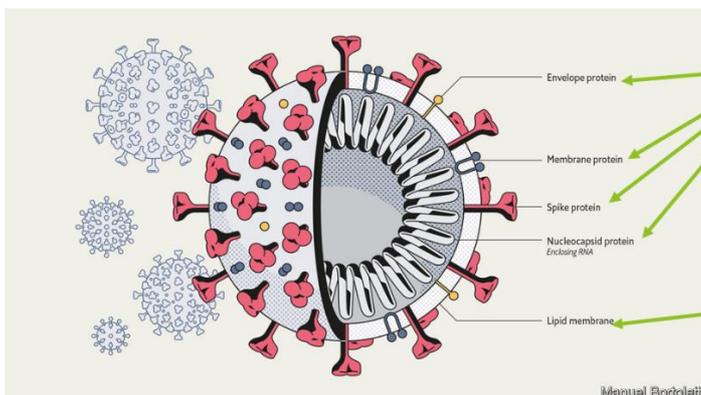
Date: July 2018

Product used: Green Worx CS Bio Tech GT Liquid Hand Soap Foam

PRODUCT CHARACTERISTICS

- **Bacteria Counts** : 6×10^7 /ml
- **Bacteria Type** : Bacillus consortium producing the following enzymes:
 - ✓ **Protease** – breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids – but importantly it has the potential of breaking down the protein shell of bacteria and viruses in in contact long enough. * The virus is very fragile; the only thing that protects it is a thin layer of fat and protein. This is why any soap or detergent is the best remedy, because the surfactant dissolves the fat (that's why you have to rub your hands so much: for 20 seconds or more, to make a lot of foam). By dissolving the fat layer, the protein molecule disperses and decomposes on its own. * The heat melts the fat; this is why it is so good to use water over 25 degrees Celsius for washing hands, clothes and everything. In addition, hot water makes more foam and this makes it even more useful.
 - ✓ **Lipase** – breaks down fats/grease into fatty acids & glycerol. If not broken down, fats can go rancid & lead to off-odours and blocked drains/fat grease traps. Importantly it has the potential of breaking down the lipid envelope of bacteria and viruses if in contact long enough.
 - ✓ **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 and 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 and staining to provide microbial cleaning at the smallest level of dirt/contamination.
- **Salmonella** : Not detected
- **Appearance** : Dark Green Liquid
- **Fragrance** : Pleasantly perfumed
- **Shelf-life** : Two years; maximum loss of 1.0 log at recommended storage condition

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

Issued to: M/S Green Worx Cleaning Solutions Unit 1, New Port Business Quarts Rd, Kya Sand Bus. Park Kya Sand, South Africa	Report No.	MS- 071220-01
	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.

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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

P-2/2

Issued to: Green Worx Cleaning Solutions Unit 1, New Port Business Quarts Rd, Kya Sand Business Park, Kya Sand, South Africa	Report No.	MS- 071220-01
	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.

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

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 ASTM E1153 measured at 99.9%

In addition to the above it has been proven that Bio Tech GTX has a positive kill of 99% on the following microorganisms

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. Bio Tech GTX Probiotic Floor cleaner	Methicillin-resistant <i>Staphylococcus aureus (MRSA)</i>	1.05 X 10 ⁵	3.4 X 10 ²	99.67%
	<i>Klebsiella pneumoniae</i>	1.09 X 10 ⁵	4.5 X 10 ²	99.58%
	<i>Escherichia coli</i>	1.15 X 10 ⁵	4.9 X 10 ²	99.57%
	<i>Pseudomonas aeruginosa</i>	1.11 X 10 ⁵	5.4 X 10 ²	99.51%

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

Bio Tech GTX Liquid Hand Soap Foam is designed as a bio-technical aid to treatment of organic waste material offering liquefaction and reduction of solids, reduction of odour, 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. Regular use and rinsing will aid in the degradation of organics within the drain system.

Product Availability

Bulk Pack Sizes – 1000 liter, 25, liter and 5 liter

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