BIO-TORQ

PROBIOTIC CONCENTRATE

BIO-TORQ Probiotic Concentrate is a liquid probiotic / bacterial concentrate that can be used for onward manufacture of products offering a high bacterial specification, multi-strain, and spore based product needed for use in grease traps, drain and drain line maintenance, improving septic and waste degradation and cleaning plus odour control applications.

Overview:

A consortium of high bacterial specification, multi-strain, spore-based concentrate formulas for onward manufacture of products specifically for grease traps and drain maintenance. Blockages caused by the build-up of grease in drains causes disruption to normal organisational operations as well as creating malodours and even pest issues. The installation of grease traps is seen as a highly effective way to prevent these situations occurring and grease traps have become an important part of the effective operation of many businesses and organisations. For grease traps to work effectively, they require biological products to operate alongside the physical elements of their design.

DATA SHEET

Benefits	Features
• Use to manufacture an 'environmentally responsible' yet highly effective range of products that are based on biological as opposed to chemical action • Non-caustic and non-corrosive • A quality controlled manufacturing process ensures high degree of product purity • Very high bacteria specification for maximum effectiveness in this tough environment • Specifically selected highly effective bacteria multi-strain formula for: - Production of lipase to cleave fats - Production of other extracellular enzymes to degrade food solids and sludge - Ability to survive in the low pH environment of an active grease trap • Product contains Bacillus bacteria in 100% spore form for: - Extended product life - Product stability - Maintenance of original product specification • Non-formulated to enable manufacture of custom products - Product offers maximum compatibility with a wide range of common ingredients e.g. surfactants, dyes and fragrances to enable manufacture of custom products applications • A specifically targeted product for: - Grease traps - Heavy duty drain line maintenance - Waste water - fats, oils and greases - Cleaning and odour control	• Most formulators have the capability to produce liquid products. These products allow formulators to have a presence in the lucrative biological grease trap product market without extensive specialist knowledge. • The most common 'bio' products in the industrial, institutional and consumer market are liquids - the GT concentrates series are designed specifically for this use. • Simple format that is easily dilutable in water. • Concentrates are easy to handle and store. • Simple dilution format for easy calculation in formulation advantages of biological grease degraders. • Highly effective and proven natural technology. • Reduces the requirement and frequency of mechanical treatment to unblock drains due to grease build-up. • Product can be sold to service companies to be retailed as part of their regular maintenance service programmes. • Grease is partially degraded by the time it reaches treatment plants, reducing system overload product format.

PRODUCT CHARACTERISTICS

Bacteria Counts: 2 X 10(9) /ml

Bacteria Type: Bacillus consortium

Enzyme production:

- **Protease** – breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids.
- **Lipase** – breaks down fats/grease into fatty acids and glycerol. If not broken down, fats can go rancid and lead to off-odours and 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** - catalyses 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. o 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.

Appearance: Straw coloured

Fragrance: Neutral

Form: Liquid

Shelf life: 24 months (in un-opened container)

pH: 7.0-8.0 (20X) (Performance properties effective pH range - 5.0-10.0)

Temperature Range: – 3 to 63 0C

Packaging: 5 or 25 litre containers

Dilution Rates and potential application (Follow dilution rate)

BIO-TORQ Probiotic Concentrate is diluted 1:19 to produce a ready to use product – Blend with soft water for 30 minutes & package under agitation. Label the RTU "Shake before use" as the biological spores may settle over time. Suitable applications for **BIO-TORQ Probiotic Concentrate** to be formulated and to be used as an RTU when diluted 1:19

1. **FOOD WASTE – DOMESTIC & INDUSTRIAL** – reducing blockage of drains, pipes: treatment of effluent not on main drainage: reduction of odours & general purpose cleaning

Area	Dilution	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Effluent tanks Cess pit	As is diluted 1:19	400g per typical house	100g per month	Through any convenient access point e.g. toilet
Urinals	As is		Spray twice daily	
Bathroom	1:19		Daily cleaning	As per cleaning method
Drains	As is diluted 1:19	15 g	15 g/month	Direct

2. **AGRICULTURE WASTE** – reduction of high solids/crusting of waste: liquefaction and cleaning (i.e. cowsheds, piggeries, poultry farms etc.)

Area	Dilution	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Buildings	1:19	1 kg per 10 tons Animal weight.	Weekly for two weeks, then 500 g per week	Spray over surfaces.
Floors		1 kg/ 10 000 litre	½ kg/10 000 litre per week	Spray on surface.
Effluent pits Ponds & Slurry tanks		1 kg/ 250 000 litre	Weekly	Spray over cone.

3. **SEWAGE PLANTS** - general aid to processing.

Area	Dilution	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Trickling filters	1:19	1 kg/ 4.5 million litres	500g/4.5 million litre per week	Add to primary settling tank
Anaerobic digesters Retention ponds Activated sludge		500g/ 45 000 litres	Repeat for 3 days then per week	Add to inflow pipe

4. **ABBATOIRS** – for easier handling of high protein/fats in concentrated areas.

Area	Dilution	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Total effluent	1:19	4 kg /450 000 litre per day	Repeat for 3 days then ½ kg/450 000 litre	Add manually
Grease traps		100g/ 500 litre capacity	50g/ 500 litre per week	Pour through drain.

Safety of BIO-TORQ Probiotic Concentrate

BIO-TORQ Probiotic Concentrate contains a blend of safe Bacillus microorganisms / Probiotics. All microbes have been identified to a sepsis level by 16s rDNA sequencing and confirmed to belong to Biosafety Level 1, as defined by the National Institute of Health (NIH) and to Risk Group 1, as defined by EU Directive 2000/54/EC

CONCLUSION:

BIO-TORQ Probiotic Concentrate is designed as a bio-technical aid to treatment of organic waste material offering the following advantages: - Liquefaction & 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.

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