

# SEWAGE AND FAT DESTROYER

SFD



QUANTUM PUMPS  
— BEYOND BOUNDARIES —



# SFD100

## Sewage & Fat Destroyer Powder



In nature, all animal and vegetable matter, from insects to mighty oaks, are broken down and recycled into plant food by enzymes and bacteria. The Vega Sewage and Fat Destroyer (SFD) uses this same principle to degrade human, animal and plant waste. Like all living things, bacteria must eat to survive. Fortunately, certain types of bacteria will use grease, hair, soap film and all the organic waste for food. The Vega SFD100 is a blend of bacteria and enzymes. The bacteria are natural, not genetically-engineered. The enzyme concentration is the most powerful on the market. The Vega SFD100 is a proprietary blend of superior aerobic (not less than  $8 \times 10^8$ /g) and anaerobic (not less than  $7,8 \times 10^8$ /g) bacteria selected for their ability to degrade organic waste.

The bacteria is super efficient, typically consuming the various food sources at a rate of  $10^3$  faster than naturally occurring bacteria. In doing so, it destroys the food sources of toxic bacteria, thereby ridding the water volume of such toxins.

### Product Characteristics

- Bacteria counts : Aerobic bacteria not less than  $8 \times 10^8$ /g  
: Anaerobic Bacteria not less than  $7,8 \times 10^8$ /g
- Heavy Metals : Less than 50ppm
- Aflatoxins : Absent
- Antibiotic Activity : Absent
- E. Coli : Absent
- Appearance : Tan, low dusting powder on a cereal/salt base
- Packaging : 400g Tubes containing 4x 100-gram sachets/25kg bags
- Solubility : >80% in H<sub>2</sub>O
- pH : 5,0 – 8,5  
*Effluent with a pH outside this range should be pre-treated with a suitable acid or lime prior to dosing with VEGA SFD100.*
- Temperature : Up to 50°C

### Safety

The Vega SFD100 is non-toxic. It creates no heat, no fumes, no boiling. It does not attack live tissue or inorganic materials, only organic waste like grease, hair, food particles, paper, cotton and sewage. This makes the Vega SFD100 safe for people, plumbing and the environment. The Vega SFD100 changes the waste particles into water, carbon dioxide and mineral ash which run harmlessly out of your waste system. These elements are then available for plant life.

### Effectiveness

Within minutes after pouring the bacteria into the affected area, the bacteria begin to eat their way into the waste that has accumulated. This is their natural food. They digest the waste and spread throughout your system, cleaning it completely.

**Note: Not to be used in conjunction with Ammonia.**

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### Economical benefits

- Eliminates the need to clean grease traps and cable drains.
- Eliminates the need to buy dangerous chemicals.
- Eliminates the need to buy deodorant blocks (urinals).
- Eliminates costly compensation to employees that have been injured by using dangerous chemicals.
- Eliminates E. Coli in boreholes & static water sources.

### Multi-purpose application

- Residential and commercial applications
- All drain and sewer pipes, including:
  - o Bath Tubs
  - o Cat Litter Boxes
  - o Floor Drains
  - o Garbage Disposal Odours
  - o Grease Traps
  - o Kitchen Sinks
  - o Laundry Drains
  - o Lavatories
  - o Lift Stations
  - o Outdoor outhouses and cesspools
  - o Pit Toilets (long-drops) or (proof-doofs)
  - o RV & boat holding tanks
  - o Septic tanks and drain fields
  - o Sewage ejector sumps
  - o Showers

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# SFD100

## Sewage & Fat Destroyer Powder



### Dosage

The following is merely a guideline:

#### 1. Industrial & Commercial:

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Septic Tanks (Pit Toilets/Grease traps)	100g per week	100g per month
Industrial effluent (e.g. abattoir)	1% for 3 days (w/w)	0,3% per day (w/w)
Agricultural waste	4% once off (w/w)	1% weekly (w/w)

#### 2. Sewage Plant:

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Trickling Filter	0,1% once off (w/w)	0,05% weekly (w/w)
Anaerobic Digester	1% for 3 days (w/w)	1% weekly (w/w)
Oxidation Pond	1% for 3 days (w/w)	1% weekly (w/w)
Activated Sludge	1% for 3 days (w/w)	1% weekly (w/w)

### How to use the SFD100 Powder

Bio-Enzymes act like short order cooks. They prepare food for bacteria by breaking large molecules down into a size the bacteria can “eat.” Each works on one specific type of molecule. For example, the protease enzyme only works on protein. Lipase works only on fats. The bacteria in the SFD100 Powder are dormant while in the container. When exposed to or mixed with water they come to life in a few minutes. In the meantime, the enzymes are breaking down the waste. They act very fast. In fact, they work on contact. When the bacteria revive, they are hungry. Each one eats its weight of waste every minute – and they never sleep! As a result of eating and growing, they start to multiply through cell division. Their numbers will double rapidly under favourable conditions.

In the treatment of drains, for example, the SFD100 Powder should be mixed with ambient (not hot) temperature water and applied when no water will be drained for six to eight hours. This allows some of the bacteria time to embed themselves into the waste so that they won't be washed out when water is drained again. Periodic maintenance treatment prevents new organic waste build-up, so no more slow drains or clogs.

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APPLICATION	EXPLANATION
Septic Systems	<ul style="list-style-type: none"> <li>• Most septic systems in operation do not function well. The tanks need pumping frequently because of solids build up. All too often the solids stop absorbing water prematurely. The number one reason is the vast array of household chemicals which either inhibit or kill biological action. The coliform bacteria normally present in sewage are in no way sufficient to meet the daily demands. They are used to warm body temperatures and are poor enzyme producers. They cannot handle synthetic materials present in detergents even under the best conditions.</li> <li>• The SFD100 Powder contains not only potent enzymes, but also bacteria that outperform the coliform species in very important ways. They are high producers of enzymes and they are acclimated so that they feed on a larger variety of materials in the waste such as fats and grease, vegetable oil, paper, detergents, fabric softeners, aliphatic and aromatic organic compounds as well as synthetic organics.</li> <li>• Chemicals, bleaches, detergents, food preservatives and bowl cleaners inhibit or kill bacteria action within your septic system. This lets solids accumulate in the tank, some of which flow out and clog the drain field. The SFD100 Powder will restore the necessary bacterial action and make your system work at full efficiency. People using a septic system must select their cleaning products very carefully.</li> <li>• Do not use chemical cleaners in conjunction with SFD100 Powder.</li> </ul>
Garbage Disposal Systems	<ul style="list-style-type: none"> <li>• Odours come from waste that sticks to the disposal wall and slowly moulds and rots. It is hurled there by the high-speed rotating blades.</li> <li>• By using the SFD100 Powder, the waste will be quickly digested by the live bacteria, thus eliminating the odorous.</li> </ul>
Grease traps	<ul style="list-style-type: none"> <li>• Cleaning out a grease trap is the worst of jobs in a food service operation. After the horrible odorous muck is removed it still has to be disposed of, unfortunately we are running out of landfills to put it in.</li> <li>• The SFD100 Powder will digest the grease, eliminating the unwanted task, as well as the disposal of the pollutant.</li> <li>• The grease trap must be large enough to accomplish two things. The flow of the water through the tap must be 1) slowed and 2) cooled, so that the oils and fats can rise and be retained between the baffles while the water continues on down the sewer.             <ul style="list-style-type: none"> <li>• A garbage disposal should never discharge into a grease trap.</li> <li>• If these criteria are met, daily treatment of the pot sink will maintain digestive action.</li> </ul> </li> <li>• Eliminating the need to pump the trap offers significant cost saving.</li> </ul>

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APPLICATION	EXPLANATION
Sumps with Pumps	<ul style="list-style-type: none"> <li>• When ground water accumulates in sumps, odours may be noticeable. This is especially true if household or sanitary waste is present.</li> <li>• The SFD100 Powder eliminates the odour by quickly digesting organic material in the waste water.</li> <li>• Pumps will require less energy when the rotor, housing and lines are free of build-up.</li> <li>• Lower energy costs and longer pump life are added bonuses.</li> </ul>
Pit Toilets (Long-Drops)	<ul style="list-style-type: none"> <li>• Mention a pit toilet and the first thing that pops to mind is odour, flies and maggots.</li> <li>• The SFD100 Powder turns the waste into water and carbon dioxide very quickly.</li> <li>• This dramatically reduces odour and flies, and without flies there are no maggots.</li> <li>• Cleaning and disposal of the pit become easier.</li> </ul>
RV and Boat Holding Tanks	<ul style="list-style-type: none"> <li>• As the waste water level increases in the tank, some scum adheres to the sides and sensor. When the tank is drained, more scum is deposited. With continued use, this coating becomes odorous. It is additional weight and reduces tank capacity. There is no large access to the tanks, and the build-up is often so great, and clean-up so difficult and time consuming, that replacing the tank is often less expensive.</li> <li>• RVers using chemicals in their tank are also encountering the new problem of not being able to dispose of their chemically treated waste at many dump stations. Wastewater treatment plants do not want this chemical toxicity in their plants, so they charge dump stations large fines.</li> <li>• If SFD100 Powder is used from the beginning, a tank will drain cleanly, including the sensor, if there is one.</li> <li>• Using SFD100 Powder in a tank previously treated with chemicals will take larger doses and some time to overcome the toxicity. It will, however, remove the old buildup.</li> <li>• Waste from tanks treated with SFD100 Powder is accepted anywhere because it is biologically active.</li> </ul>

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# SFD100

## Sewage & Fat Destroyer Powder



### Safety

- SFD100 POWDER is an environmentally friendly, safe-to-use product that contains a non-GMO strain of Bacillus Subtilis spore and various Enzymes derived from this organism, for example Bacterial A-Amylase and Proteases.
- No product specific certification is provided for. However, the strain for the active ingredients is non-pathogenic and the enzymes are produced by standard fermentation techniques and conform to Generally Recognized as Safe (GRAS) status and have FDA approval for Foodstuff applications.
- The preparation conforms to FAO/WHO and FCC recommended standards.
- In the event of an accidental spillage, wash the affected area with water.

### Storage

To maintain maximum activity of the enzymes and the viability of the bacteria, SFD100 Powder should be stored under cool, dry conditions, at temperatures less than 25°C.

### Inactivation of SFD100 Powder

Bacteria/Enzymes present in SFD100 Powder will tolerate temperatures up to 70°C. However, the bacteria in the product cannot tolerate temperatures in excess of 50°C. High concentrations of heavy metals will inhibit the activity of the product. Common cleaning agents containing chlorine (bleaches) and quaternary ammonium compounds (disinfectants) etc. can have a detrimental effect on the product. Neutralization of these inhibitors is necessary before treatment with the SFD 100 Powder.

# SFD101

## Surface Cleaner & Deodoriser (SC&D) Gel



SFD101 (SC&D) Gel microbial consortium demonstrates superior enzyme performance for use in multiple applications. It exhibits a broad range of degradation capabilities needed for a multi-purpose product effective in maintenance of drain lines and grease traps, improving septic and waste degradation and cleaning, and odour control.

In their natural environment, bacteria produce hundreds of enzymes in response to the organics present in their environment. They produce extracellular enzymes that break down proteins, starches, fats, oils, greases, urine, esters and toilet tissue into smaller particles outside the bacterial cell. The bacteria then transport the smaller particles across their cell membrane for use as an energy source and for building of new cellular components. Since bacteria detect the organics present as potential food and produce specific enzymes to breakdown these organics, it is a very efficient system. Many different enzymes are required to completely breakdown a substrate.

**The bacillus consortium in SFD101 (SC&D) Gel produces seven separate enzymes to ensure a swift degradation of key organic contaminants to ensure drain lines, grease traps, septic systems and surfaces are biologically cleaned and odors controlled. Although many bacteria can utilise these organics as food sources, it is the bacteria with the most rapid production of these enzymes that provide the most dramatic effects. Technologically the most advanced formulation on the South African market.**

### Safety SFD101 (SC&D) Gel Consortium

SFD101 (SC&D) Gel contains a blend of safe Bacillus microorganisms. Toxicity studies done by an independent laboratory shows that SFD101 (SC&D) 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 SFD101 (SC&D) Gel consortium as non-irritating and does not elicit a skin sensitization reaction.

### Benefits

- Hard Surface cleaning and odour control - penetrates cracks, crevices and pores of surfaces where organics accumulate, removing the organics leaving a visually cleaner surface. Provides long term odour control by removing the organics that cause odours and prevents their return.
- Drain lines - degrades and eliminates organics found in drain lines. Regular addition of SFD101 (SC&D) Gel maintains cleaner and odor-free system.
- Septic and waste treatment - maintains effective activity in septic systems, eliminating the need for excessive pumping. Eliminates odors caused by incomplete digestion of malodorous, volatile fatty acids. Effective treatment of pit toilets.

### 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.

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### Product Characteristics

- Bacteria Counts: 1,02 X 10<sup>8</sup> /ml (102 million spores/ml)
- Bacteria Type: Bacillus consortium producing the following enzymes:
- J Protease: Breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids
- J 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.
- 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.
- J Urease: Catalyzes the hydrolysis of urea into break-down products.
- J 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.
- J 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.
- Salmonella: Not detected
- Appearance: Clear liquid
- Fragrance: Pleasantly perfumed
- Shelf-life: Two years; maximum loss of 1.0 log at recommended storage condition

Available as 1L, 5L & 25L containers.

### Application

SFD101 (SC&D) Gel is formulated for everyday cleaning. The new formulation can be used on small surface areas that regularly come into contact with food or for optimum hygiene in the bathroom.

Ideal Surfaces: Kitchen and bathroom, toilet tanks and the loo seat, all taps and handles, stovetops and kitchen counters, kid's toys and the like. Apply a small amount onto a clean microfiber cloth and wipe over contaminated area - rinse when surface is clean.

SFD101 (SC&D)Gel 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.

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SFD102 Multi-enzyme (FGC) is the latest innovation in cleaning technology. The advanced formulation technology for removing greasy soils provides superior, immediate cleaning of floor surface soils, comparable to industrial-strength conventional chemical floor cleaners. The multi-enzymatic action penetrates deep into the pores of the surface to attack and remove embedded residual soils.

Aerosolized grease and food spills collect particulate soils contributing to the build-up of grime on floors. Residual organics collect in the microscopic pores of the surface, cracks, corners, and grout. Floors are not clean as long as these embedded soils remain and detergents alone cannot penetrate these layers of residual grime. The organic deposits pack deep into surface irregularities and are capable of producing malodorous and supporting unwanted bio-film, insects and harmful bacteria.

**SFD102 Multi-enzyme (FGC) removes this grime with dual technology unequaled by traditional surfactant chemistry. It combines superior surfactant technology with bio-enzymatic action. The enzymes contained within SFD102 Multi-enzyme (FGC) work to break down fats and grease, while also breaking down starches which act as a glue, trapping dirt and other organics on the surfaces. This powerful combination provides exceptional ability to break down residual organic soils.**

Regular use of SFD102 Multi-enzyme (FGC) removes layer upon layer of embedded grime, while avoiding the traditional challenge of increasing CFU counts on food contact surfaces by means of bacterial cleaning. Continued use prevents future build-up of organic soil and grime, keeping the surfaces truly deep-clean, odour-free and controlling potentially harmful microorganisms and bio-film.

### Benefits

- Specifically designed for cleaning food facilities & floor surfaces where traditional bacterial based products cannot be used due to bacterial swab counts (ATP meter).
- Deep-cleans floors and grout by removing the grease and grime that collects in the pores of the floor surface.
- Eliminates the greasy floor coating that causes slipperiness.
- Improves freshness by controlling odours from residual organics packed into irregular floor surfaces.
- Eliminates the need for rinsing.
- Degrades residual organic soils that help support insects and other unwanted pests.
- Breaks down bio-film.

### Features

- Specifically selected highly effective enzyme combination to remove protein, fats, grease and starch based stains.
- A proprietary inhibitory system that provides excellent product stability.
- Readily biodegradable surfactants for improved cleaning.
- Product is compatible with existing biological based fat/grease trap treatment products and will ensure higher throughput on the grease traps as the fats/grease will be predigested.

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### Most biofilms are multi-species. Even non biofilm-forming microbes can be sheltered in a biofilm

**DID YOU KNOW** - 99% of bacteria exist in the form of a biofilm. Biofilms account for over 80% of microbial infections in the body.

Frequency:

- Planktonic bacteria can begin to form a biofilm within minutes in contact with any interface.
- 99% of bacteria exist in the form of biofilm
- Biofilms are ubiquitous and develop frequently on Medical Devices (urinary and intravenous catheters, endoscopes, endoscope washers, dialyze circuits etc.)
- Tests can lead to “false-negative” results: germs hidden in biofilms are not collected.

### Emergent properties

Biofilms have emergent properties (unpredictable from study of free, planktonic bacteria).

- **Cooperation:** Horizontal transfer of genes carrying antibiotics-resistance and virulence is favored inside biofilms.
- **Survival:** Biocides are mostly tested against free-floating (planktonic) bacteria, not against biofilms. Structural and functional properties of biofilm matrix enhance survival of exposure to antimicrobials.
- **Complex:** Cells in biofilms have the ability to undergo differentiation. Continuously remodeled, every microbial species develops a specific matrix composition.

Biofilms enable bacteria to survive in a wider range of conditions:

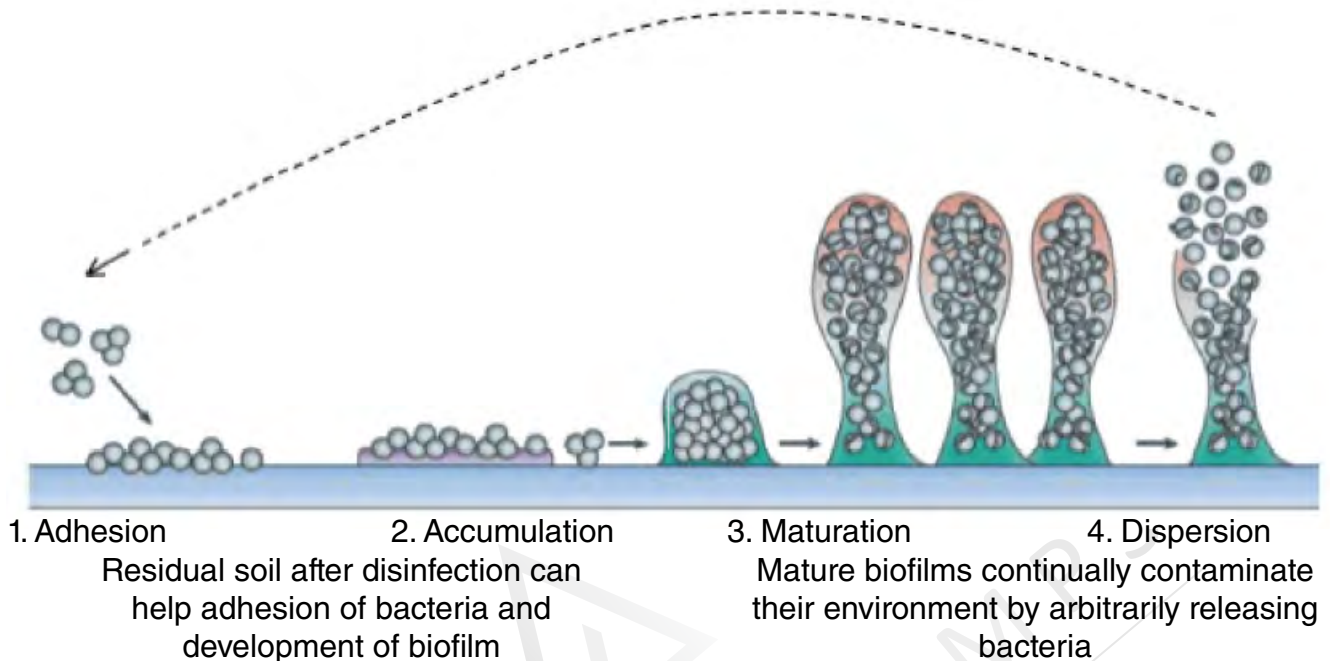
- Bacteria in biofilm up to 1000 times more tolerant of biocides (disinfectants).
- Antibiotics-resistance is favored inside biofilms through cell-to-cell signaling mechanism (horizontal transfer of genes).
- Progressive accumulation leads to build-up of resistant biofilm over time. If the detergent action is not efficient against biofilm matrix, bacterial biofilm can resist high level disinfection. \*
- Biofilms form a protective barrier around infectious microorganisms. Biofilms enhance survival of exposure to antimicrobials.

**Mature biofilms continuously contaminate their environment by randomly releasing microbes.**

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Antimicrobial Resistance remains even when cells are dispersed from biofilms.



### Biofilm and cleaning

The most important step in reduction of microorganisms is cleaning. It is impossible to disinfect or even sterilize inadequately cleaned instruments.

Protein debris can become fixed by chemicals if cleaning and rinsing steps are not carried out correctly.

In short, all disinfection processes, whether done manually or by washer-disinfector, should be done only after appropriate manual cleaning.

- It is impossible to disinfect or even sterilize an inadequately cleaned instrument or surface
- Biofilm matrix should be eliminated by the detergence process. Microbes protected by Biofilm will resist even high-level disinfection.
- Current Medical Device decontamination strategies assume that bacteria are free-floating (planktonic), whereas 99% of bacteria are protected by a biofilm. Most biocides are tested against free (planktonic) bacteria, but not against biofilms.
- Inorganic and organic materials interfere with the effectiveness and antimicrobial activity of disinfectants and sterilization.

### Basic mechanism of enzyme action

Enzyme-based cleaners are especially useful for biofilm removal. Bacteria are somewhat difficult to remove with traditional alkaline or acid cleaners. Enzyme cleaners are more effective on biofilms since they work as proteases by breaking down proteins at bacterial attachment sites. They work at maximum efficiency at high pH and at temperatures below 60°C. Enzyme cleaners are an increasingly attractive alternative to traditional chemical cleaners because of biodegradability and other environmental factors, such as reduced wastewater generation and energy savings from using cold water and they are typically less expensive than alkaline or acid cleaners.

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### Enzymes vs. Traditional chemistry

Unlike traditional chemistry that lifts and holds soil particles in suspension, good enzyme detergents also dissolve soil in an irreversible reaction.

Enzymes are not degraded by their activity and are more effective for complex medical devices and food processing equipment where mechanical action, like brushing, is difficult or some parts are inaccessible.

### Benefits SFD102 Multi enzyme (FGC) compounds

- Not all enzymatic detergents display high enzymatic activity. SFD102 Multi-enzyme (FGC) possesses the know-how to achieve high enzymatic activity across a broad spectra of biofilm matrix and organic matter.
- Continuously remodelled, specific matrix compositions require differentiated enzyme compounds to break them down (e.g. Proteases for proteins, Amylases for starches, Lipases for fatty matter). SFD102 Multi-enzyme (FGC) detergents contain additional enzyme compounds.
- Multiple enzymes are difficult to stabilize: types and concentrations are crucial to achieving efficacy across wide spectra of soil and biofilm matrices.
- When combined with a biocide, enzymatic activity is compromised. Proteins (enzymes are proteins) are partially inactivated by positively-charged biocides (quaternary ammonium) due to charge interaction.

### Available packaging: 5 and 25 litre container(s)

### Recommended dilution directions for concentrate

- SFD102 Multi-enzyme (FGC) can be diluted for various applications.
- For intense deep cleaning purposes, it is recommended to dilute up to 1:30 (i.e. 1 part SFD102 Multi-enzyme (FGC) added to 30 parts water).
- The mixing solution is a guideline and is dependent on the required application and your evaluation of dirt to be cleaned.
- The recommended dilution for general maintenance cleaning is 1:100 (i.e. 1 part SFD102 Multi-enzyme (FGC) added to 100 parts water).
- Allow a few minutes' activation time.
- Your standard disinfection/sterilization regime is to be followed once the surfaces have been cleaned.

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# SFD102

## Food grade cleaner (FGC) concentrate



### Product Characteristics

Enzyme Type:

- x Protease - breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids.
- x Lipase - breaks down fats/grease into fatty acids and glycerol. If not broken down, fats can go rancid & lead to offodors and blocked drains/fat grease traps.
- x 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.

- Salmonella: Not detected
- pH: 7.0-8.5
- Appearance: Clear liquid
- Fragrance: No fragrance added
- Stability: Stable at 2°-65°C
- Shelf life: Two years at room temperature (25° C)

### Storage and handling

- Always store in a cool dry place.
- Avoid eye and skin contact.
- Wash hands thoroughly with warm, soapy water after handling.

Toxicity testing conducted by outside laboratory revealed no acute oral toxicity, no acute dermal toxicity, and no acute inhalation toxicity at maximum dose.

This unique formulation meets the criteria for a cleaner, greener, smarter programme for green technology. The bio cleaning solutions designation is used for formulations that utilize biodegradable surfactants at a neutral pH, contains no phosphates, no solvents, and low concentrations of volatile organic compounds (VOC), therefore, it is safe for the user and the environment.

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# SFD103

## Extreme Grease Trap Liquid (EGTL)

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Multi-action microbial consortium

Superior grease degradation for effective grease trap treatment

SFD103 Extreme Grease Trap Liquid (EGTL), microbial consortium demonstrates superior enzyme performance for use in grease trap and drain line applications. This microbial blend includes unique strains for a more complete degradation of organic waste found in grease traps and in drain lines.

In their natural environment, bacteria produce hundreds of enzymes in response to the organic wastes present in their environment. However, many different enzymes are required to completely break down a substrate so it is the bacteria with the most rapid production of these key enzymes that provide the most dramatic effects. In a grease trap or drain line application, SFD103 Extreme Grease Trap Liquid (EGTL), produces the key enzymes to break down the proteins, starches, fats, oils, and greases found in those environments and use the components as food sources. Organic wastes are utilised by the bio-enzyme consortium so wastes aren't transferred downstream.

Grease is a major problem in grease traps and drain lines. Fats, oils and greases are composed of triglycerides. Many bacteria produce a lipase enzyme to break down the triglyceride into glycerol and fatty acids. The glycerol is easily degraded by many bacteria. However, fatty acids, which typically make up over 90% of the mass of the triglyceride, are difficult to degrade and can persist in a grease trap or drain line, causing clogging, pH drops and foul odours. The bio-enzyme strain provides an additional benefit by degrading and utilising the recalcitrant portion of grease molecules, the long-chain fatty acids. When used as part of a daily maintenance program, SFD103 Extreme Grease Trap Liquid (EGTL) will reduce grease trap pumping, maintain free-flow in drains and reduce malodours.

SFD103 Extreme Grease Trap Liquid (EGTL) incorporates proprietary inhibitory systems that provides excellent product stability and, upon addition to grease traps or drain lines, acts as an essential growth stimulant that promotes superior germination and outgrowth.

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# SFD103

## Extreme Grease Trap Liquid (EGTL)



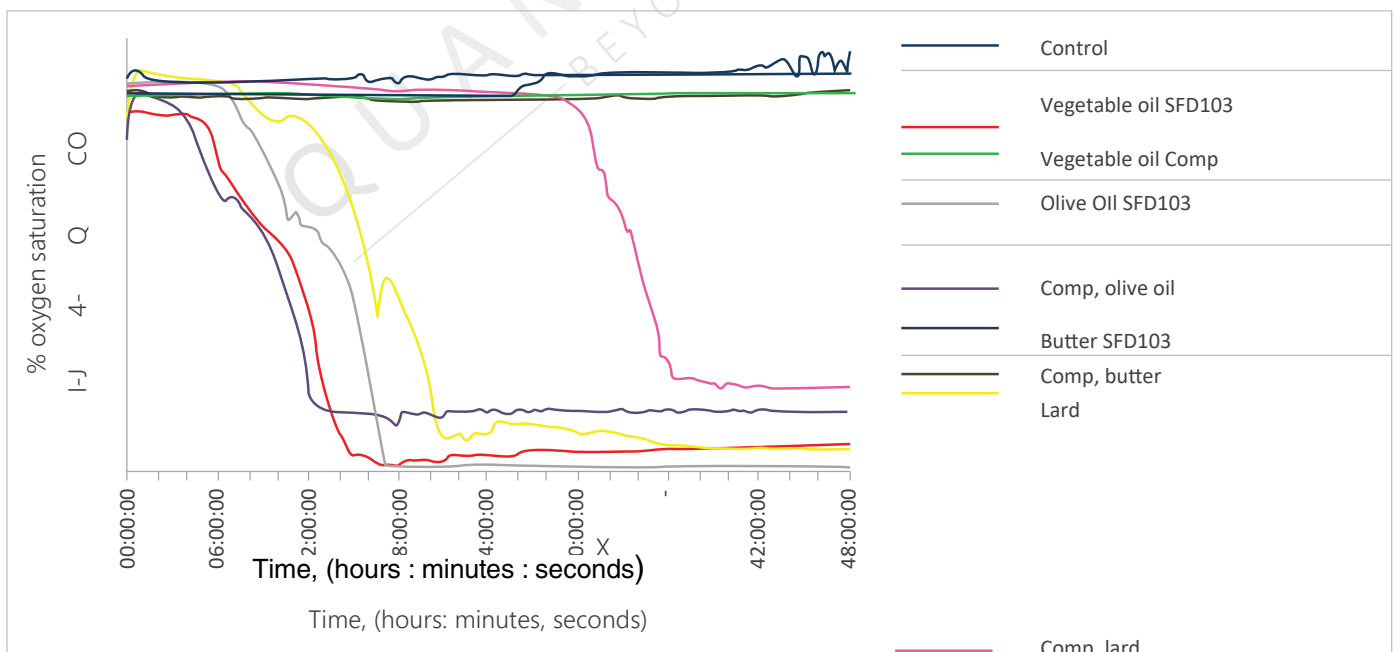
### Benefits

- With regular application, SFD103 Extreme Grease Trap Liquid (EGTL) will reduce trapped grease, maintain freeflow in drains, and reduce odours in grease traps and drain lines.
- It does not transfer the grease downstream. The unique bacillus consortium degrades and digests grease and scum in grease traps and drain lines.
- The active ingredients reduce the production of odours by inhibiting biological production of odour causing compounds such as hydrogen sulphide.
- The bio enzymes degrade long-chain fatty acids that are known to be persistent in the environment causing the majority of maintenance and treatment problems.
- The partial break down of grease causes pH to drop in a grease trap or drain line, creating an environment that is inhibitory to many bacteria. The bio enzyme strain is active at the low pH levels generated.
- The bio enzyme consortium alleviates low pH problems by breaking down both short- and long-chain fatty acids, maintaining an environment more amenable to active microbial degradation.
- SFD103 Extreme Grease Trap Liquid (EGTL) demonstrates visible reductions in grease when field tested in restaurant grease traps.

### Features

- 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 (excretion of high levels of amylase, cellulase, protease, urease, esterase and xylanase enzymes providing a wider range of degradation capabilities including short- and long-chain fatty acids, proteins, oils, grease, cellulose, carbohydrates, esters and plant cell walls)
  - Ability to survive in the low pH environment of an active grease trap
- A synergistic blend that works in concert to provide superior performance in grease trap and drain line applications.
- Ability to work under aerobic and anaerobic conditions.
- A proprietary inhibitory system that provides excellent product stability and, upon addition to a drain line or grease trap, acts as an essential growth stimulant that promotes superior germination and outgrowth.
- Product contains Bacillus bacteria in 100% spore form for:
  - Extended product life
  - Product stability

### Comparison of SFD103 Extreme Grease Trap Liquid (EGTL) and major competitor product:



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# SFD103

## Extreme Grease Trap Liquid (EGTL)



SFD103 Extreme Grease Trap Liquid (EGTL) shows good activity against veg oil (red), olive oil (pale blue), butter (purple) & lard (yellow). Despite sample being from a major supplier and specifically for a grease trap application, it is only active against lard (pink). Veg oil, olive oil & butter, no better than the substrate control.

Safety of bio enzyme consortium:

SFD103 Extreme Grease Trap Liquid (EGTL) contains a blend of safe Bacillus micro-organisms. Toxicity studies done by an independent laboratory revealed that the bio-enzyme consortium has no acute oral toxicity, no acute dermal toxicity, and no acute inhalation toxicity at maximal test dose. Studies in acute dermal irritation and/or acute eye irritation have found the bio-enzyme consortium, as used in SFD 103 Extreme Grease Trap Liquid (EGTL) as nonirritating, it does not elicit a skin sensitisation reaction.

### Product Characteristics

- Bacteria Counts: 6,6 X 10<sup>8</sup> /ml
- Bacteria Type: Blend of Bacillus spores
- Salmonella: Not detected
- Appearance: Tan liquid
- Fragrance: No fragrance added
- Shelf life: Two years; maximum loss of 1.0 log at recommended storage condition

### Formulation recommendations

- Mix well and use entire contents of 5 and 25 litre container.
- Dilute one part concentrate with approximately 9 parts water.
- Blend slowly for a minimum of thirty minutes to assure proper spore dispersion in solution.
- Do not allow product to stand without agitation during packaging process.

### Storage and handling

- Store in cool and dry places in closed containers at 10°- 40°C.
- Wash hands thoroughly with warm, soapy water after contact.
- Avoid eye contact.

### Available packaging: 5 and 25 litre container(s)

Note: The information contained in this leaflet is to the best of our knowledge, true & accurate, but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control.



### Recommended Application Feed Rate at Ready to Use Formulation only

Please note that all dosage guidelines are recommendations only as grease, contents and grease loading may differ.

#### 1. Grease Traps:

TRAP SIZE	DOSING
750 litres	300ml per day
2000 litres - 5500 litres	500 - 600ml per day
5500 litres or larger	900 - 1200ml per day

#### 2. Drain lines:

TRAP SIZE	FREQUENCY	NOTES	DOSING
Residential / Hotel slow running drains	3-day start-up	Run hot water before dosing product directly into drain. For best result dose at bed time or when drain will not be used for several hours.	60 - 120 ml/day
Residential / Hotel Slow Running Drains Maintenance	Ongoing	For best result dose at bed time or when drain will not be used for several hours.	60 - 120 ml/week
Commercial Slow Running Drains	7-day start-up	For best results dose at closing time or during quiet times.	180-240 ml/day
Commercial Maintenance	Ongoing	For best results dose at closing time or during quiet times.	120-240 ml/week
Floor Drains	Ongoing	Start-up - treat drains for 3 - 7 days to achieve better flow rates. Maintenance dose weekly. For best results dose at closing time or during quiet times.	Mix 120ml per litre to treat 6-8 drains

#### 3. Industrial Application:

ABATTOIRS		
3-Day Start up	For best results, dose as far away from disinfection run-off from cleaning operations.	Initial Dosage 0.1 % w/v of dam
Ongoing	For best results, dose as far away from disinfection run-off from cleaning operations.	Daily Dosage 0.03% w/v of influent volume

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Application for- Grey Water, Fats, oils and grease degradation

A unique solid format product, combining a high bacteria count with slow release technology for use in degrading organic waste in grease traps and grey water holding tanks.

SFD104 EXTREME GREASE TRAP BLOCK (EGTB) provides a way of dosing high numbers of active waste degrading bacteria into grease trap and grey water applications without the need to install a dosing pump or make electrical connections, as required for a liquid product. Performance is improved over manual product dosing as there are no missed doses, and the release of bacteria is continuous rather than a small number of times per day as with a manual dose.

SFD104 EXTREME GREASE TRAP BLOCK (EGTB) will continuously dose high levels of bacteria into a grease trap /grey water container over a 30 day period (depending on flow rate). The specifically selected, naturally occurring bacteria contained in the BLOCK will reduce grease, fats and oils build-up as well as reducing the amount of solids and sludge in the trap/container, which has a major effect on reduction of malodour from the trap/container.

### Technical features

- A highly effective product that is based on biological as opposed to chemical action.
- 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 enzymes to degrade food solids and sludge
  - Ability to survive in the low pH environment of an active grease trap or grey water container
  - Product contains multi Bacillus bacteria in 100% spore form for:
  - Extended product life
  - Product stability
  - Maintenance of original product specification
  - Unique slow release solid format
  - Facilitates continuous dosing over the life of the product
  - Simple format will not require additional dosing systems e.g. pumps and electrical installations
  - Continuous 24 hours a day release as opposed to discrete doses with other systems
  - Release of bacteria is flow related, in that dissolving rate increases with higher liquid flows.
- Blocks can be added to mesh bag to enable a wide range of effluent volumes to be treated.

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# SFD104

## Extreme Grease Trap Block (EGTB)



### Treatment options

A range of options are available to suit customer requirements:

- 6 x 100 gram single BLOCK will treat 25 - 100 litre grease trap for 30 days depending on the flow rate. Intermediate size or larger traps may be treated using multiple BLOCKS in series.

### Advantages of SFD104 EXTREME GREASE TRAP BLOCK (EGTB)

- Continuous operation 24 hours per day.
- Easy to install - no special equipment or labour required so highly cost effective.
- Performance benefits over manually dosed systems - no missed doses.
- **Effectively breaks down fats, oils and greases.**
- **Reduces sludge build up so eliminates malodour such as hydrogen sulphide at source.**
- **Overall, increases system efficiency.**

### Product Characteristics

- |                        |  |
|------------------------|--|
| • Bacteria Counts:     | Bacillus Subtilis Aerobic bacteria not less than $1 \times 10^8$ /g<br>Anaerobic bacteria not less than $1 \times 10^8$ /g |
| • Heavy metals:        | Less than 50ppm  |
| • Aflatoxins:          | Absent   |
| • Antibiotic Activity: | Absent   |
| • E. Coli:             | Absent in 0.1g   |
| • Form:                | Solid Bio Block/Disc   |
| • Appearance:          | Light brown with off-white granules  |
| • Packaging:           | 100 gram Block   |
| • Enzyme Mix:          | Subtilisin / Lipase<br>Protease enzyme protein   |

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### Dosage

The following dosages are merely a guideline.

#### 1. Industrial & Commercial

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Septic Tanks (Pit Toilets/Grease traps)	100g per week	100g per month
Industrial effluent (e.g. abattoir)	1% for 3 days (w/w)	0,3% per day (w/w)
Agricultural waste	4% once off (w/w)	1% weekly (w/w)

#### 2. Sewage plant / Grey Water

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Trickling Filter	0,1% once off (w/w)	0,05% weekly (w/w)
Anaerobic Digester	1% for 3 days (w/w)	1% weekly (w/w)
Oxidation Pond	1% for 3 days (w/w)	1% weekly (w/w)
Grey Water Container 250 liter	2x 100g per week	2 x 100g per month

All dosages are guidelines - dosages to be amended to suite desired result.

**For more advanced and faster results, the procedure can to be complemented with SFD103 EXTREME GREASE TRAP LIQUID (EGTL) dispensed daily into the system at the point leading to the fat trap.**

### Storage and handling

- Avoid exposure to temperatures above 25°C.
- Store in a cool dry place.
- If contact with the skin and eyes occurs, wash with clean water.

SFD104 EXTREME GREASE TRAP BLOCK (EGTB) is designed as a bio-technical aid to treatment of organic waste material offering the following advantages: Liquefaction and reduction of solids, reduction of odour , and easier disposal of waste, aids general cleaning of soiled areas, safety in operation of effluent systems, offers available alternative to current processing techniques using a bio-technical approach.

Note: The information contained in this leaflet is to the best of our knowledge, true & accurate, but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control.



Application - Fats, oils and grease degrader.

Organic wastes and wastewater from meat producing operations are usually treated in a “pre-treatment” process before being discharged into the sewer. This is done to reduce sewer charges by lowering the Chemical Oxygen Demand (COD) and or Biological Oxygen Demand (BOD) of the wastewater (a measurement of the amount of inorganic and or organic material in the wastewater). Organic waste material from meat processing include; grease, fat, oils, wash water, cooking waste, dripping, and hair and feathers from slaughtering, butchering, cooking and packaging of fish, chicken, beef and all other meat products.

The pretreatment facility is usually quite simple in design. Its main purpose is to hold the wastewater for a sufficient period of time while the bacteria are allowed to degrade the waste. The bacteria digest suspended and dissolved solids, actually functioning like a simple miniature wastewater treatment plant. It can be in a holding tank or retention pond, or a series of tanks and/or ponds.

Unless the ponds or tanks are properly treated, they can give off foul odours, have severe accumulation of solids on the bottom, and fail to lower the COD and or BOD as much as desired. To allow this type of pre-treatment process operate properly, you require:

- The correct consortium and ratio of bacteria and bio-enzymes to be introduced into the system
- Agitation - to mix, break down any solids
- Aeration - to optimise bacteria activity

Meat processors wish to reduce the COD and BOD content of their wastewater as much as possible before it is discharged into the municipal sewer system. Commercial users are required to pay surcharges to the sewer system authority if their waste has high COD and or BOD. This is done because the high COD and or BOD waste puts an extra burden on the municipal treatment plant, making it work harder than normal. When you consider the many thousands of litres of water that a food processor can use every day, even a small “per litre” surcharge can add up to big bills. Proper pre-treatment of the waste - before discharge into the sewer system will reduce or eliminate costly surcharges.

Although the typical pre-treatment facility is very simple and unsophisticated in design - unlike most municipal sewer treatment plants - such a system can do its job very well. If the operator is able to pay a little bit of attention to his system, it will do a good job of reducing the COD and BOD of the wastewater. In most cases this treatment programme will be as simple as adding bacteria and enzyme product, such as SFD105 - (EGTP) HEAVY DUTY FAT, OIL & GREASE (PLANT/ANIMAL BASED) DIGESTER, at regular intervals and monitoring of the waste - adding pH adjusters as required/maintaining the pH in the proper range.

The key to proper operation of this type of pre-treatment is time. The special consortium of bacteria and enzymes in SFD105 - (EGTP) HEAVY DUTY FAT, OIL & GREASE (PLANT/ANIMAL BASED) DIGESTER work much faster and more efficiently than ordinary bacteria, but they still require time to digest the waste. The longer the retention time, the more organic matter will be digested, and the lower the COD and BOD of the effluent water. Thus, retention time is the most critical factor in determining how much of the products must be used in a regular treatment programme.



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### Product Characteristics

- Bacteria Counts: Bacillus Subtilis Aerobic bacteria not less than  $8 \times 10^8/g$   
Anaerobic bacteria not less than  $7, 8 \times 10^8/g$
- Heavy metals: Less than 50ppm
- Aflatoxins: Absent
- Antiniotic Activity: Absent
- E. Coli: Absent in 0.1g
- Form: Free flowing granular powder
- Appearance: Light brown with off-white granules
- Packaging: 25kg polypro packets for industrial/commercial use
- Specific Gravity: 0.5 to 0.7
- Enzyme Mix: Subtilisin / Lipase  
Protease enzyme protein

### Dosage

The following dosages are merely a guideline.

#### 1. Industrial & Commercial

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Grease traps	100g per week	100g per month
Industrial effluent (e.g. abattoir)	1% for 3 days (w/w)	0,3% per day (w/w)
Agricultural waste	4% once off (w/w)	1% weekly (w/w)

#### 2. Sewage plant

AREA	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE
Trickling Filter	0,1% once off (w/w)	0,05% weekly (w/w)
Anaerobic Digester	1% for 3 days (w/w)	1% weekly (w/w)
Oxidation Pond	1% for 3 days (w/w)	1% weekly (w/w)

**For more reliable and faster results, the procedure needs to be complemented with SFD103 (EGTL) dispensed into the system at the point leading to the fat trap daily.**

Note: The information contained in this leaflet is to the best of our knowledge, true & accurate, but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control.

# SFD105

## Extreme Grease Trap Powder (EGTP)

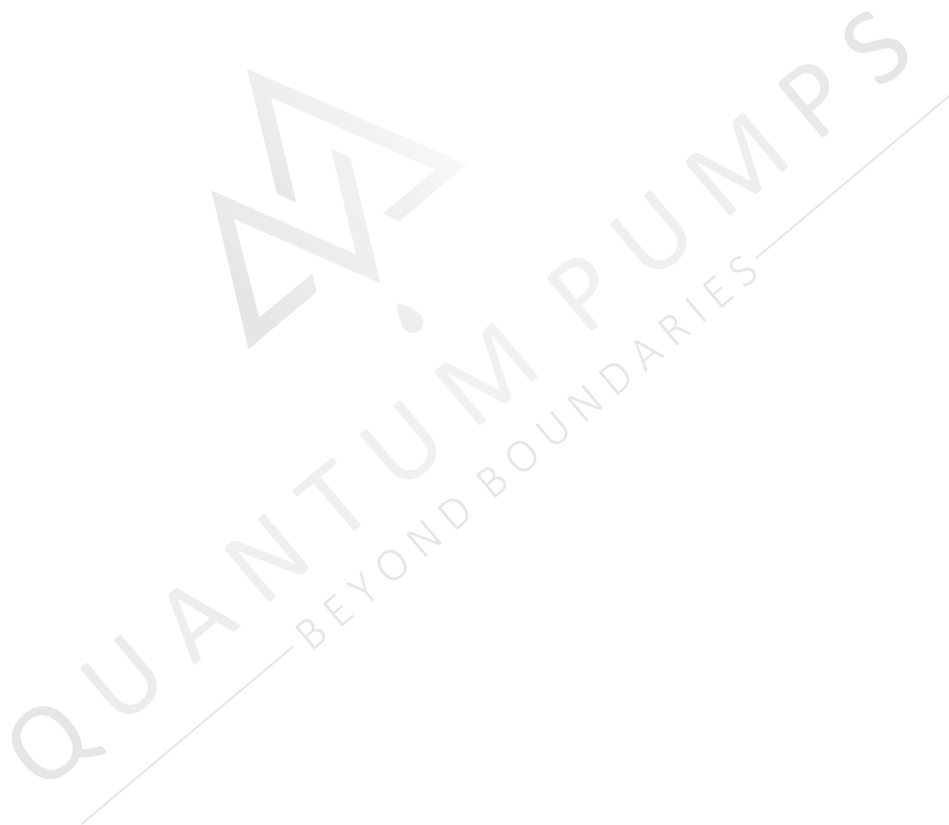
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### Storage and handling

- Avoid exposure to temperatures above 25°C.
- Store in a cool dry place.
- If contact with the skin and eyes occurs, wash with clean water.

SFD105 - (EGTP) HEAVY DUTY FAT, OIL & GREASE (PLANT/ANIMAL BASED) DIGESTER is designed as a bio-technical aid to treatment of organic waste material offering the following advantages: 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 biotechnical approach.



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# SFD110

## Sewage & Fat Destroyer Liquid

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A consortium of high probiotic bacterial specification, multi-strain, spore based concentrate formula. Advanced biological liquid formulation.

SFD110 LIQUID concentrate is a liquid probiotic / bacterial concentrate that can be used 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 formula product specifically for grease traps and drain maintenance. Blockages caused by the build-up of grease and/or sewage 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.

SFD110 Liquid is a convenient solution for dosing of domestic or industrial waste water systems with the use of a dosing pump which negates the need for human intervention. Correct dosing volume & scheduling enhances the efficiency of the product & ensures continuous effecting & controlled results.

QUANTUM PUMPS  
BEYOND BOUNDARIES

# SFD110

## Sewage & Fat Destroyer Liquid



### Benefits

- 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 specifically targeted product for:
  - Grease traps
  - Heavy duty drain line maintenance
  - Waste water - fats, oils and greases
  - Cleaning and odour control

### Features

- The most common 'bio' products in the industrial, institutional and consumer market are liquids - SFD 110 LIQUID 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.

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# SFD110

## Sewage & Fat Destroyer Liquid



### Product Characteristics

- Bacteria Counts: 2 X 10<sup>9</sup> /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 - 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.*

- Afflatoxins: 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°C
- Packaging: 25 litre containers

Dilution Rates and potential application (Follow dilution rate)

**SFD110 LIQUID is diluted 1:19 to produce a ready to use product.**

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# SFD110

## Sewage & Fat Destroyer Liquid



### Dosage

The following dosages are merely a guideline.

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	400ml per typical house	100ml per month	Through any convenient access point e.g. toilet
Urinals	As is		Spray twice daily	As per cleaning method
Bathrooms	1:19		Daily cleaning	As per cleaning method
Drains	As is diluted 1:19	15ml	15ml/month	Direct

2. Agricultural 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	1L per 10 tons Animal weight	Weekly for two weeks, then 500ml per week	Spray over surfaces
Floors	1:19	1L / 10 000L	½L / 10 000L per week	Spray over surfaces
Effluent pits Ponds & Slurry Tanks	1:19	1L / 250 000L	Weekly	Spray over cone

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# SFD110

## Sewage & Fat Destroyer Liquid



### 3. Sewage plants

AREA	DILUTION	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE	METHOD OF APPLICATION
Trickling Filters	1:19	1L / 4.5 million litres	0.5L / 4.5 million litre per week	Add to primary settling tank
Anaerobic digesters Retention ponds Activated sludge	1:19	0.5L / 45 000 litres	Repeat for 3 days then per week	Add to inflow pipe

### 4. Abattoirs

AREA	DILUTION	INITIAL DOSE RATE	REGULAR MAINTENANCE RATE	METHOD OF APPLICATION
Total effluent	1:19	4L / 450 000 litre per day	Repeat for 3 days then ½L / 450 000 litre	Add manually
Grease traps	1:19	100ml / 500 litre capacity	50ml / 500 litre per week	Pour through drain

### Safety of SFD 110 LIQUID Concentrate

*SFD110 LIQUID 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: SFD 110 LIQUID Concentrate

SFD 110 LIQUID 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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