

# Envirofresh

An enzymatic based digester of organic matter

## INTRODUCTION

Sewage and organic effluent streams contain a complex mixture of products which usually have to be degraded to simple compounds before they can safely be disposed of into the environment.

## MODE OF ACTION

The enzymes present in ENVIROFRESH will immediately start to break down organic matter. The reaction products together with nutrient salts in ENVIROFRESH create a perfect medium for the growth of the bacteria present. These organisms will secrete additional enzymes capable of attacking proteins, carbohydrates and fats. This hydrolysis and the continued application of ENVIROFRESH will maintain a liquefied waste and reduce offensive odors.

## PRODUCT TYPE/ACTIVITY

ENVIROFRESH is a standardized blend of enzymes, non-harmful bacteria and nutrient salts to the following specification:-

Form	:	Liquid
Primary enzymes	:	$\alpha$ -amylase
	:	$\beta$ -glutamate
	:	Proteinase
Enzyme derivative:		Bacillus subtilis organism:
Bacteria	:	$10^7$ organisms/g
Nutrient salts	:	Phosphates
	:	Sulphates

## SPECIAL SPECIFICATION

Heavy metals	:	Less than 50 ppm
Aflatoxins	:	Absent
Antibiotic activity	:	Absent
E. coli	:	Absent in 0.1 g

ENVIROFRESH is manufactured to the recommendations of the WHO Food Additives Series No. 2 1972.

## APPEARANCE ENVIROFRESH

Light brown liquid with a typical "bacterial" odor. Completely miscible in water.

## OPTIMUM pH/TEMPERATURE

pH optimum : 5.0 - 8.5  
Temperature tolerance : Up to 45°C  
Effluent pH outside this range is usually either very acidic or alkaline and in practice requires pre-treatment before disposal. The enzymes present in ENVIROFRESH will tolerate temperatures of up to 70°C. However, the micro-organisms will not withstand temperatures in excess of 49°C. Thus for synergistic performance and coexistence of the blend, the lower temperature should apply.

## INACTIVATION OF ENVIROFRESH

High concentrations of heavy metals will inhibit the activity of the system. The presence of chlorine, bleaches etc. can also have a detrimental effect and neutralization of these inhibitors is necessary before application of ENVIROFRESH.

## PACKAGING

ENVIROFRESH is available in liquid form and packed in 200Lt, 25Lt and 5Lt plastic containers.

## APPLICATION

Due to the similarity in composition of organic wastes and the universal action of ENVIROFRESH many different applications of the product are possible. I.e. ENVIROFRESH can be used for domestic, industrial or agricultural effluent problems.

The addition rate of ENVIROFRESH will vary depending on the severity of the problem and some flexibility in dose rate may be necessary due to local conditions. Various uses for the products are given in the table overleaf along with suggested dose rates.

## DOSE RATES

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

Area	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Buildings Floors	1 kg per 10 tones Animal weight.	Weekly for two weeks, then 500 gm per week	Spray over surfaces.
Effluent pits Ponds	1 kg/ 20 00 litres	½ kg/20 000 litres per week	Spray on surface.
Slurry tanks	1 kg/ 250 00 litres	Weekly	Spray over cone.

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

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

3. **ABBATOIRS** - for easier handling of high protein/fats in concentrated areas.

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

4. **WASTE - DOMESTIC & INDUSTRIAL** - reducing blockage of drains, pipes: treatment of effluent not on main drainage: reduction of odors.

Area	Initial Dose Rate	Regular Maintenance Rate	Method of Application
Effluent tanks	400mls per typical house	100mls per month	Through any convenient access point e.g. toilet
Cess pits	1000mls/1000ltrs	500mls/1000lts per week	
Septic tanks	100mls	100mls/week	Direct
Grease Traps	50mls	50mls per day	Direct
Drains	50mls	50mls per week	Direct
Portable toilets		50mls every emptying	

**CONCLUSION:** ENVIROFRESH 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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