



better products
cleaner environment

KLEN 2301

Multi-purpose Organic Digester

KLEN 2301 is a microbial consortium that demonstrates superior enzyme performance for use in multiple applications. The Bio consortium exhibits a broad range of degradation capabilities needed for a multi-purpose product efficacious in maintenance of drain line and grease traps, improving septic and waste degradation and cleaning and odor 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 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.

KLEN 2301 produces key extracellular enzymes including amylase, cellulose, lipase and protease. Drain lines, grease traps, septic systems and surfaces are nutrient rich systems for bacteria. Although many bacteria can utilize these organics as food sources, it is the bacteria with the most rapid production of these key enzymes that provide the most dramatic effects.

KLEN 2301 formulation is the next generation technology in microbial blends with degradation capability superior in the present market. It is a fully formulated concentrate that can be diluted with water to create a finished ready-to-use product. Refer to the Dosage Recommendations section for additional information.

Benefits

KLEN 2301 is designed to provide exceptional performance for the following applications:

- **Drain lines and greases traps** –degrades and eliminates organics found in drain lines and grease traps. Regular addition of **KLEN 2301** maintains a cleaner and odor-free system.
- **Septic and waste treatment** –maintains effective activity in septic systems by eliminating the need for excessive pumping. Eliminates odors caused by incomplete digestion of malodorous volatile fatty acids.
- **Bathroom cleaner and odor controller** –penetrates into cracks, crevices and pores of surfaces where organics accumulates, actually removing the organics to leave a visually cleaner surface. Provides long-term odor control by removing the organics that cause odors and preventing the return of odor-causing compounds.

KLEN 2301

KLENCO (SINGAPORE) PTE LTD

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Company Registration No: 197100402R

KLENCO products are used in over 20 countries across Asia, the Middle East, Europe and Africa

Features

The **KLEN 2301** microbial blend offers:

- A stable consortium of safe *Bacillus* spores.
- Production of multiple enzymes provides 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, and protease enzymes
- Ability to work under aerobic and anaerobic conditions.

Cellulase: Cellulose is the most abundant biological compound on earth and is present in stains, grime, and organic deposits. The consortium produces cellulase enzymes that break down this large chain insoluble molecule into much smaller water soluble, biodegradable fragments.

Protease: Proteins are large, long chains of amino acids that are tightly coiled into a particular structure suitable for the function of specific proteins. Proteases are enzymes that hydrolyze peptide bonds in proteins to break down the large structure into smaller groups of amino acids. Due to the high degree of charged amino acids in proteins they are usually very sticky, and the proteases produced by the microbial blend help to reduce this stickiness by breaking down the protein into more readily biodegradable parts.

Lipase: Fats, oils and greases are primarily composed of triglycerides, and are major portions of soils and organic deposits. The consortium produces a lipase enzyme that breaks down this triglyceride molecule into its more basic biodegradable components.

Amylase: Starch is a sugar storage molecule composed of repeating units of glucose present in most food substances. Starch contributes to soiling by causing particles to stick more readily to surfaces. The amylase produced by the microbial blend breaks down the starch into a more readily biodegradable form, reducing the stickiness of particles and making them easier to remove.

Safety

KLEN 2301 contains a blend of safe *Bacillus* microorganisms. Toxicity studies done by an independent laboratory revealed that it 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 the consortium as non-irritating and does not elicit a skin sensitization reaction.

Product Characteristics

Bacteria Counts	54 × 10 ⁷ cfu/ml (2 trillion/gal)
Bacteria Type	Blend of <i>Bacillus</i> Spores
Salmonella	Not detected.
Appearance	Creamy white
Fragrance	Pleasantly perfumed.
Shelf-life	Two years; maximum loss of 1.0 log at Recommended storage conditions.

Performance Characteristics

Characterized Enzyme Production	Lipase, Protease, Amylase, Cellulase
Bacterial Pathways	Aerobic & Facultative Anaerobic
pH Range	5.0 – 9.8
Temperature Range	3°C - 63° C

Storage and Handling

Store in closed containers at 10°C - 40° C.

Wash hands thoroughly with warm, soapy water after contact. Avoid eye contact.

Dosage Recommendations

Use as is entire contents of container.

Standard Packaging

- 5 Litres Bottle
- 20 Litres Pail

Recommended Application Feed Rates

GREASE TRAPS	
TRAP SIZE	DOSING
200 gal trap (27 ft ³ or 0.8 m ³)	10 oz (300 ml) per day
500 – 1500 gal trap (67-200 ft ³ or 1.9 – 5.7 m ³)	18 – 20 oz (530 – 590 ml) per day
1500 gal or larger (>200 ft ³ or >5.7 m ³)	32 – 40 oz (950 – 1180 ml) per day

DRAINLINES			
SIZE	FREQUENCY	NOTES	DOSING
RESIDENTIAL and HOTEL Slow Running Drains	3-day start-up treatment	Run hot water for 30 seconds before dosing product directly into drain. For best results, dose at bedtime or when drain will not be used for several hours.	2 – 4 oz/day (60 – 120 mL/day) Use concentrated
RESIDENTIAL and HOTEL Maintenance	Ongoing	For best results, dose at bedtime or when drain will not be used for several hours.	2 – 4 oz/week (60 – 120 mL/week) Use concentrated
COMMERCIAL Slow Running Drains	7-day start-up treatment	For best results, dose at closing or during quiet hours.	6 – 8 oz/day (180 – 240 mL/day) Use concentrated
COMMERCIAL Maintenance	Ongoing	For best results, dose at closing or during quiet hours.	4 – 8 oz/week (120 – 240 mL/week) Use concentrated
FLOOR DRAINS	Ongoing	Start-up: Treat drains daily for 3-7 days to achieve better flow rates. Maintenance: dose weekly. For best results, dose at closing or during quiet hour	Mix 32 oz in 2 gallons water (125 mL/L) to treat 6 – 8 drains

SEPTIC TANKS		
APPLICATION	FREQUENCY	DOSING
RESIDENTIAL SEPTIC TANK	≤ 1000 gal tank	Liquid: 10 oz (300ml) per month
COMMERCIAL SEPTIC TANK	≥ 1000 gal tank	Liquid: 16oz (475ml) per week

ODOR CONTROL		
APPLICATION	FREQUENCY	DOSING
Bath tile, floors, diaper pails, garbage pails, animal areas	Use as needed: rinse as necessary	1 – 2 oz (30 – 60 ml) per gallon of water
Trash/garbage collection areas, dog pens, concrete, floor surfaces	Spray, let sit on tough areas, scrub as necessary, rinse as needed. Air dry.	3 – 5 oz (90 – 150 ml) per gallon of water
Subways, public restrooms, kennel runs, loading docks	Spray and wipe surfaces: rinse or hose down as necessary.	3 – 5 oz (90 – 150 ml) per gallon of water
Dumpsters, trash chutes, containment areas	Spray as necessary: allow to air dry.	Use full strength

* Dosing guidelines are recommendations only. Higher dosing rates may be required based on grease loading, types of food cooked and number of meals served.


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SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION				
Product Identifier: KLEN 2301		Supplier: Klenco (Singapore) Pte Ltd Address: 18 Gul Crescent, Singapore 629527 Department: Chemical Person in Charge: Chemist		
Other means of identification: Multi-Purpose Organic Digester		Phone: (65) 6862 3388		
Date of SDS: 01 January 2026		Fax: (65) 6861 7575		
Recommended use and restriction on use: KLEN 2301 produces key extra cellular enzymes include amylase, cellulose, lipase and protease. Drain lines, grease traps, septic systems and surfaces are nutrient rich systems for bacteria. Although many bacteria can utilize these organics as food sources, it is the bacteria with the most rapid production of these key enzymes that provide the most dramatic effects.		Email: info@klenco-asia.com Emergency contact: (65) 6862 3388 Ext 249		
SECTION 2 - HAZARDS IDENTIFICATION				
GHS classification: Acute toxicity: Oral: Category 4 Skin irritation: Category 2; Eye irritation: Category 2				
GHS label elements: Pictogram:		Signal word: Warning		
				
Hazard statements:		H302: Harmful if swallowed. H315: Causes skin irritation. H320: Causes eye irritation.		
Precaution statements:		P102: Keep out of reach of children. P262: Do not get in eyes, on skin, or on clothing.		
SECTION 3 - COMPOSITION/ INFORMATION ON INGREDIENTS				
Chemical Identification	Component & Composition	Chemical Formula	CAS NO.	EC NO.
Viable Bacteria Cultures	< 30.0 %			
Non-Hazardous Ingredients	>70.0 %			
SECTION 4 – FIRST AID MEASURES				
Inhalation: Move to area of fresh air. If breathing has stopped, artificial respiration should be started. Oxygen may be administered if available. Call a physician. Never give anything by mouth to an unconscious person.				
Skin contact: Wash with large amounts of soap and water. If irritation persists, consult a physician.				
Eye contact: Flush with cool water for at least 15 minutes. Then consult a physician immediately.				
Ingestion: Do not induce vomiting. Dilute by drinking water. Call a physician immediately.				
Notes to Physicians: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.				
SECTION 5 – FIRE-FIGHTING MEASURES				
Suitable fire-extinguishing media: Water, dry chemical, carbon dioxide and foam.				
Specific hazards arising from the chemical: Burning can produce carbon dioxide and/or carbon monoxide.				
Special protective actions for fire fighters: Fire fighters may be exposed to the products of combustion should wear a self-contained breathing apparatus with full protective equipment.				
SECTION 6 - ACCIDENTIAL RELEASE MEASURE				
Personal precautions, protective equipment, and emergency measures: Use proper protective equipment (chemical protection suit, gloves, goggles, mask, etc).				
Environmental precautions: Chemical substances should not be released into the environment (water, soil).				
Methods and materials for containment and cleaning up: Safely stop discharge. Contain material, as necessary, with dike or barrier. Mop, shovel or absorb with inert material and place in sound containers. Rinse remaining residue with excess water. Cover spills with absorbent clay, sawdust or inert material and placed in closed chemical waste containers. Dispose of according to applicable local, state and federal regulations.				
SECTION 7 - HANDLING AND STORAGE				
Precaution for safe handling: Wash thoroughly after handling, especially before eating and drinking, Wash contaminated goggles, face-shield, and gloves. Launder contaminated clothing before re-using.				
Conditions for safe storage, including any incompatibilities: Store in cool, dry, well-ventilated area at room temperature. Store away from any oxidizing materials. Do not re-use empty containers for food, clothing or products for human or animal consumption or where skin contact can occur.				

SECTION 8 - EXPOSURE CONTROLS/ PERSONAL PROTECTION	
Control parameters/ Occupational exposure limits:	ACGIH - TLV: None assigned to this mixture.
Appropriate engineering control measures:	Normally ventilation is not required.
Personal Protection:	Use normal work clothing covering arms and legs if splashing anticipated.
SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES	
Appearance & Odour:	Cloudy Amber Liquid with pleasant Odour.
Solubility in water:	Complete.
Boiling Point:	100 °C
Specific Gravity:	1.000 +/- 0.01 g/cm ³
PH:	8.5 +/- 1.0
Flash Point (T.C.C.):	None to boiling Flammable Limits - Upper: Not applicable Lower: Not applicable
Vapour Pressure:	Not determined
Vapour Density:	Not determined
SECTION 10 - STABILITY AND REACTIVITY	
Reactivity/ In compatible materials:	Strong Acids or Alkali may inactivate biological cultures.
Chemical stability:	Stable under normal temperature and pressure.
Possibility of hazardous reaction:	Will not occur.
Condition to avoid:	Not applicable
SECTION 11 – TOXICOLOGICAL INFORMATION	
Acute toxicity:	This product contains a viable bacteria culture that is classified as a non-pathogenic. This product has low levels of toxicity.
SECTION 12 – ECOLOGICAL INFORMATION	
Persistence and degradability:	Product degrades readily by action of microorganism.
Bioaccumulative potential:	It is soluble in water and does not bio-accumulate.
SECTION 13 – DISPOSAL CONSIDERATIONS	
Disposal method:	Dispose of in an approved waste facility according to local regulations. It is recommended that an alternative be selected according to the following order of preference, based upon environmental acceptability: (1) Re-cycle or rework if feasible (2) Incinerate at an authorized facility (3) Treat at an acceptable waste treatment facility.
SECTION 14 – TRANSPORT INFORMATION	
This material is non-regulated and no special requirement is necessary. HS Code: 34024290	
SECTION 15 – REGULATORY INFORMATION	
International regulation:	
Classification:	This product has not been allocated any classification.
Risk phrases:	R22 Harmful if swallowed. R36/38 Irritating to eyes and skin.
Safety phrases:	S02 Keep out of reach of children. S25 Avoid contact with eyes.
SECTION 16 – OTHER INFORMATION	
Hazard Rating: HMIS (Hazardous Materials Information System)	
HEALTH:	0
FLAMMABILITY:	0
REACTIVITY:	0
0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Extreme	

NOTICE: SDS is correct at date of publication. It is not necessarily fully adequate for every circumstance, nor to be confused with or followed in violation of applicable laws or insurance requirements. Health hazards and effects of over-exposure apply only to negligent handling or misuse of product in its concentrated form (as supplied); and not routine exposure to diluted product under normal use. No warranty, express or implied, of merchantability, fitness or accuracy of data is made; as such the vendor assumes no responsibility for injury or damages resulting from use of this product.