



**GUS**  
DEVELOPING THE FUTURE  
EMPOWERING WOMEN



Technically the most advanced multi-enzyme, dishwashing detergent in Africa

Applications: Ideally suited for the degradation of the following organics:



**BIO-TORQ** Dishwashing Liquid is a fully formulated concentrate that is arguably the most technologically advanced in Africa, designed for both household and commercial/industrial use. Although automatic dishwashers are common in many homes today, manual dishwashing (MDW) is still quite prevalent. In fact, even in homes with a dishwasher, pots, pans and other kitchenware often still need scrubbing or soaking before becoming completely clean – and MDW detergents are commonly added to the soak; but most people perceive dishwashing and soaking processes as tedious and laborious.

Enzymes in MDW detergents can take significant scrubbing effort out of the manual dishwashing process and dramatically increase the effectiveness of soaking by more than 50%, while still respecting skin sensitivity. **BIO-TORQ** Dishwashing Liquid features revolutionary technology that penetrates the toughest greasy, burnt-on food soils on dishes, pots, and pans

The product is fully formulated with a proprietary enzyme stabiliser pack to ensure maximum stability in storage, anti-corrosion surfactants and an eco-friendly biocide.

**Directions:**

- Add the required amount of **BIO-TORQ** Dishwashing Liquid into the sink with warm water and let the powerful formula work for 5 - 10 minutes (up to 30 minutes for especially tough grease and burnt on soils).
- As rinsing, the grease or burnt-on food mess literally slides off, leaving you with like-new clean pots, pans, dishes and plates.
- The formulation is designed to allow for anti-deposition of any soils.

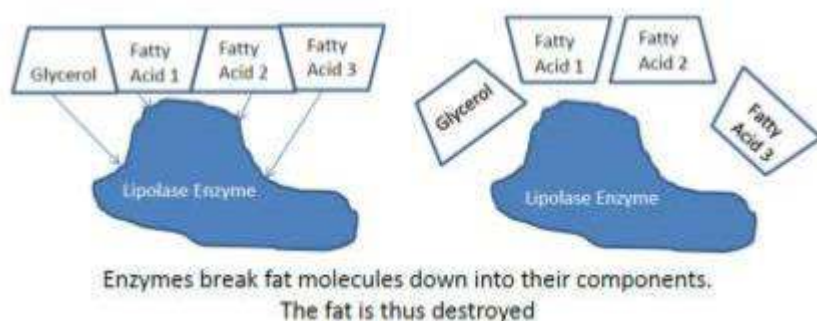
**BIO-TORQ** Dishwashing Liquid has the power you need to fight tough grease and get the squeaky-clean dishes you're looking for.

**Ingredients:**

**BIO-TORQ** Dishwashing Liquid contains no phosphates and less surfactants. It does contain enzymes that fulfil a very important cleaning function in dishwashing, while preventing fats, oils and grease (FOG) build-up in the drain.

How do enzymes in **BIO-TORQ** Dishwashing Liquid actually work and benefit your wash? The formulation includes a powerful liquid Amylase enzyme that improves the removal of starch containing soils such as rice, potatoes, wheat, and corn, as well as cocoa stains and processed food stains containing starch such as thickeners. The old and outdated way of removing starch stains, through long washes and soaking in hot water for ages, is now a thing of the past. By adding the Amylase enzyme, starch can be removed at lower temperatures and at short soak cycles, reducing energy consumption and wastewater emission, saving you money. Starch functions as glue on which any particulate soil in the dirty wash water will stick. By removing starch from the dishes, the Amylase enzyme reduces the re-deposition of soil onto the dishes during the wash, improving overall cleanness of the dishes.

The second enzyme in the formulation is the highly efficient Lipase enzyme, which was developed for use in detergent formulations to facilitate removal of soils containing vegetable or animal fats and oils, such as frying fat, salad oil, butter, gravy and cosmetics. Such stains can be difficult to remove at low washing temperature and modest detergent alkalinity, especially when some of the fat components are high melting.



The third enzyme in the formulation is a liquid Protease, like no other on the market. Your detergent needs a superior protease that is even more powerful than the ones used in other detergents. This Protease works magic on all types of common household protein stains, including hard to remove egg-yolk stains.

Consumers have long searched for a dishwashing detergent that is effective in removing stubborn protein stains. Now, **BIO-TORQ** Dishwashing Liquid will meet your needs. **BIO-TORQ** Dishwashing Liquid delivers an exceptionally high level of cleaning on all types of dishes, pots and pans, all ingredients are rated biodegradable, free rinsing and leaves dishes and eating utensils sparkling and "squeaky clean".

## DATA SHEET

### Benefits

- Highly active - only small amounts dishwashing liquid required
- Free rinsing - dishes can be left to air dry without streaking
- All ingredients are rated Biodegradable
- Very economical
- Contains a pleasant, fresh fragrance
- Will not dry out your hands and skin
- Less electricity required as it is effective in warm water
- Less energy is required to clean dishes
- Contains no caustic
- Anti-rust compound prevents rusting/pitting on metals
- Bio-friendly (bio-cide) preservative system

### Directions for use:

Domestic use: simply add 2.5 ml **BIO-TORQ** Dishwashing Liquid to the sink prior to filling with water

Commercial applications: add 2.5 ml **BIO-TORQ** Dishwashing Liquid per 5 litres of water

### PRODUCT CHARACTERISTICS

#### • Bacteria Type:

- 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 & 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.

• **Appearance:** Green liquid

• **Fragrance:** Citrus freshness

• **Packaging:** 5 and 25l containers

• **Shelf Life:** 12 months from date of manufacture

### Choose your product based on performance:

Keep track of how much is actually required to get the dishes clean. Some formulas will break down much more quickly requiring you to change the water more frequently. **BIO-TORQ** Dishwashing Liquid is formulated to give maximum stability for both the enzymes and surfactants, while remaining biodegradable and environmentally friendly.

### Environmental aspect:

There may be some reasonably environmentally friendly dishwashing liquids on the market for those who are environmentally conscious. Find a brand that uses natural ingredients such as bio-enzymes and/or uses recycled materials or packaging material suitable for recycling, which is readily biodegradable and does not contain phosphates.

### Gentleness on hands:

Many people may be sensitive to detergents. Find a dish washing liquid that is gentle on your hands, or use rubber gloves, disposable gloves, or latex free gloves when washing the dishes.

## Effects of repeated short-term skin contact with proteolytic enzymes:

**Abstract** The objective was to investigate effects on the hand of protease used in dishwashing liquids (DWL). A group of 30 Koreans (normal skin) and 24 Japanese (12 atopic and 12 normal) were employed for two different studies, respectively. The 30 Koreans were divided into three groups. Each group immersed their hands for 15 min a day for 9 days into DWL (dish washing liquid) containing protease, or non-enzyme DWL. The 24 Japanese immersed their hands for 15 min a day for 4 days into protease-containing or a non-enzyme DWL. The hand skin was evaluated by measuring overall and dry skin grades, estimated before and after exposures to the test products.

The Korean study shows that protease-containing DWL are less irritating to the skin than non-enzyme control, as measured by better overall skin grades and less dry skin. The Japanese study shows that protease-containing DWL are less irritating to the skin than non-enzyme control in both atopic and normal subjects. The protease use did not cause any adverse dermatological effects to atopic subjects compared with non-enzyme control. Both studies indicate that protease resulted in better skin mildness profile, without causing adverse dermatological complications to the subjects.

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