



**BIO-TORQ Laundry Liquid:** Six enzyme liquid laundry detergent

**APPLICATIONS:**



**BIO-TORQ Laundry Liquid** is powered by combination of six liquid enzymes: Protease, Amylase, Cellulase, Lipase, Pectate Lyase, Disubstituted Alaninamide and Mannanase. These enzymes are an eco-friendly solution that has been combined to improve the cleaning efficiency of professional, industrial and domestic laundry. Today, only some of these enzymes are staple ingredients in powder and liquid detergents, stain removers, laundry pre-spotters, automatic dishwashing detergents and industrial/medical instrument cleaning products.

**Designed by nature to digest protein, carbohydrates, fats and cellulose, enzymes make cleaning easier without compromising the environment. Environmental regulations and consumer concerns are putting pressure on the entire detergent value chain to offer more environmentally friendly detergents to the market. The environmental impact of doing laundry in South Africa is primarily affected by the raw materials used to manufacture detergents and, more importantly, the temperature used in washing machines by comparison to available electrical supply and cost.**

The development of the enzyme solution allows us to reduce the environmental impact of our detergent by reducing traditional chemicals such as surfactants with a multi-enzyme solution. This can be done without compromising performance or cost, while at the same time allowing for good cleaning performance at low wash temperatures. Enzymes are natural substances that are efficient at low concentrations, readily degradable in the environment and most importantly, perform well at low wash temperatures. Thus, our laundry liquid detergent with six enzymes makes for a more sustainable and attractive product.

The cost-neutral replacement of surfactants with enzymes in a standard laundry detergent allows for a reduction of laundry wash temperatures and toxicity impact on water bodies without compromising the total wash performance. Life Cycle Analysis (LCA) of Enzyme use in detergents has been shown to reduce the environmental impact by reducing use of surfactants, phosphates and consumption of energy used to heat wash water.

## **PRODUCT CHARACTERISTICS**

**Bacteria Type:** Bacillus consortium producing the following enzymes:

- Protease – breaks down proteins (e.g. meat, excreted/secreted proteins) into amino acids.
- 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.
- Mannanase - breaks down mannans (food texturisers, thickeners).
- Pectinase – breaks down fruit and juice based stains.

**BIO-TORQ Laundry Liquid will:**

- Remove visible blood stains in one wash
- Efficiently remove protein stains
- Provide in-depth cleanness
- Efficiently remove dirt without redeposition
- Deliver extremely efficient and environment-friendly washing
- Use lower wash temperature
- Offer shorter wash cycles
- Be soft on your hands
- Remains environmentally friendly – no phosphates

**Temperature:**

Consumers want to wash at 40°C, and the trend is to reduce washing temperatures to as low as 30°C. BIO-TORQ Laundry Liquid formulation is robust enough to perform across a range of temperatures. With our formulation, it will not only out-compete other proteases at the normal wash temperature of 40 °C, but also delivers even more cleaning power at lower temperatures.

**Water hardness:**

With our formulation, it offers excellent performance across a wide range of water hardness levels. Other proteases performance will vary with water hardness, but in this formulation it offers the best possible performance, even at very high levels of water hardness.

**Advantages of liquid detergents:**

Liquid detergents are pre-dissolved, so if you have problems with getting your powdered detergent to dissolve, a liquid detergent can resolve the problem. Such problems can occur in locations with particularly hard water. Liquid detergent is also convenient for pre-treating stains if and when necessary: just dribble a little of the detergent on the stained area before placing the laundry in the washer.

**Directions for use:**

- Sort your washable clothing, separating dark colours from light colours and whites
- Wash heavily soiled items separately from lightly soiled items in order to avoid soil transfer
- Any large or dark stains should be pre-treated by pouring a small amount of BIO-TORQ Laundry Liquid directly onto the stain and rubbing the detergent in
- Rinse the pre-treatment out after a few minutes if you do not plan to launder the item immediately, so as to avoid damaging the fabric
- For stubborn stains, pre-soak the clothing in warm water with a small amount of detergent
- On your washing machine, select the appropriate colour and temperature settings
- In general, wash dark colours in cold or cool water, and wash light colours and whites in cool or warm water
- If in doubt, refer to garment care labels for specific instructions
- Heavily soiled clothing may require warm water for the best cleaning results
- Use cold water for the rinse cycle
- Use a measuring spoon suited for the dosages recommended
- Measure out an appropriate amount of detergent and add this amount to your washing machine:

Small load	25ml
Medium load	50ml
Regular (large) load	100ml
Extra-large load	150ml

**Top loader:**

- Start your washing machine and allow water to mix with the detergent
- Select appropriate temperature setting
- Add your soiled laundry to drum, taking care to distribute clothes evenly throughout the wash basin
- For most effective washing, do not to overload the washing machine
- Follow the washing machine manufacturer's guidelines

**Front loader:**

- Add the detergent to tray
- Load your soiled laundry, taking care to distribute clothes evenly throughout the wash drum
- For most effective washing, do not to overload the washing machine
- Follow the washing machine manufacturer's guidelines
- Start machine – ensure water is on set appropriate temperature setting

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