



# custom enzymes

## **CUSTOM E - LIP**

**Multiple enzyme components to produce Biodiesel**

### **Enzymes blend for Esterification of Edible and Non – Edible Oils**

CUSTOM E - LIP is a blend of selected enzymes for esterification of edible and non – edible oils to produce biodiesel in presence of a suitable solvent system from various feedstocks. These enzymes are specific in activity to work upon wide range of fatty acids derived from various oil sources. CUSTOM E - LIP uses a wide range of temperatures and pH to suit various solvent systems at ambient pressure without the requirement of any extreme conditions of temperature and pressure.

Depending on the system, the enzymes can be separated from the Liquid phase and recycled back into the reaction system.

#### **Advantages:**

- Enzymes are specific to catalyse esterification in low Water systems and in anhydrous organic solvent systems
- The formulation of Lipases can perform with high specificity and regioselectivity thus they are appropriate catalyst for Biodiesel synthesis
- Unlike the chemical processes, the enzyme application does not require removal of inorganic salts from the downstream processes
- Systems are more efficient and specific in conversion of free fatty acids (FFA) content in the starting material to highly pure product
- No soap or caustic formation

#### **Method of application:**

- CUSTOM E – LIP is in liquid form. It should be weighed as per dosage required and added in the Reaction tank in the Fed – Batch system

#### **Dosage:**

- 0.5% – 1.5% of the Total Oil Volume
- The final dosage must be optimised as per the actual process parameters and conditions

#### **Process Parameters:**

- Temperature range: Ambient to 80 Degree Centigrade
- Optimum Temperature: 65 Degree Centigrade
- pH range: 6 to 10
- Optimum pH: 7.5

**Packaging:**

CUSTOM E - LIP is available in 25 Kg and 50 Kg HDPE Drums. The packing can also be customized as per the requirements.

**Storage:**

CUSTOM E - LIP should be stored in a cool, dry place. Storage in unopened containers away from direct sunlight in shaded region helps to maintain maximum activity if stored over long periods. Under these conditions, activity loss after one year should not be more than 5 – 10%. Extended storage under adverse conditions, including high temperature may require the use of higher than recommended dosages.

**Handling:**

Liquid Enzyme preparations are dust free. However, inappropriate handling may cause the formation of aerosols or dust. Avoid formation of aerosols and dust from dried out or spilled enzyme.

Avoid splashing and high-pressure washing. Aerosols and dust may cause irritation when inhaled. Unnecessary contact with the product and inhalation of dust should be avoided. In case of spillage or contact with the skin or eyes, rinse affected area promptly with plenty of water.