



# Increase yields and save costs with enzymatic degumming

Enzymatic degumming is a physical refining process that uses a phospholipase enzyme to convert nonhydratable phosphatides into fully hydratable lysolecithin, which facilitates gum removal. With Novozymes' Lecitase<sup>®</sup> Ultra, you can obtain higher oil yields and significantly reduce your costs.

## Enzymatic degumming compared to neutralization

Compared to neutralization, which uses large amounts of caustic soda (NaOH), enzymatic degumming offers many benefits:

### Higher yields

- Gums are almost oil free
- Gum viscosity is reduced, facilitating handling and drying
- Soapstock production is eliminated

### Significant cost savings due to higher oil recovery

- Low water consumption (saves 130+ liters per ton of oil refined)
- Lower cost for gum drying
- No wastewater or effluent treatment costs
- Increased effectiveness and lower consumption of bleaching earth

### Simple procedure and environment-friendly handling

- Works with crude oil as well as water-degummed oil
- Robust and stable process
- No health hazards
- Reduced use of hazardous chemicals
- Biodegradable enzyme

## Enzymatic degumming compared to acid degumming

Enzymatic degumming works with crude oil as well as water-degummed oil. The most significant benefits are:

### Higher yields

- Gums are almost oil free
- Gum viscosity is reduced, facilitating handling and drying
- Minimal oil loss because less bleaching earth is used

### Significant cost savings due to higher oil recovery

- Low water consumption (saves 20 liters per ton of oil refined)
- Lower cost for gum drying
- No wastewater or effluent treatment costs

### Simple procedure and environment-friendly handling

- Works with crude oil as well as water-degummed oil
- Robust and stable process
- No health hazards
- Reduced use of hazardous chemicals
- Biodegradable enzyme

Novozymes is the world leader in bioinnovation. Together with customers across a broad array of industries, we create tomorrow's industrial biosolutions, improving our customers' business and the use of our planet's resources.

## Cost-benefits

### Value of extra oil/1,000 tons processed

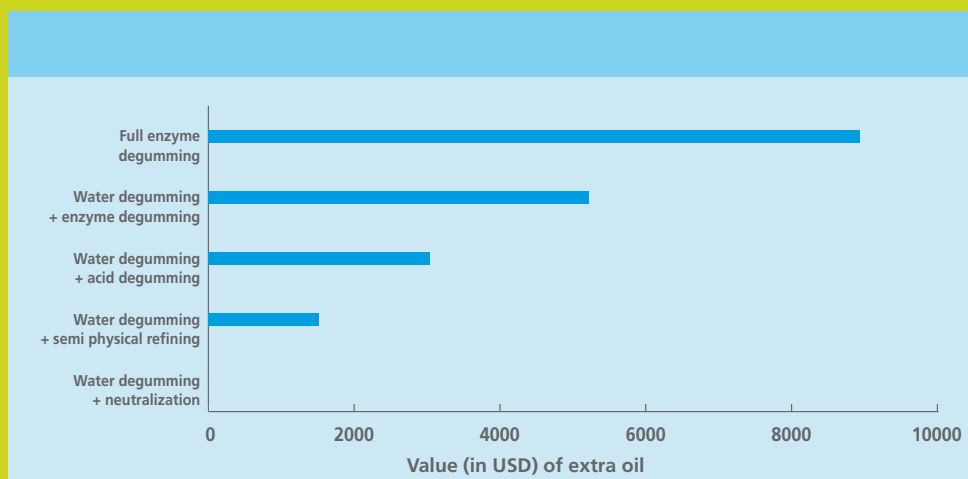


Fig. 1. The value of the extra oil yield during degumming by different methods compared to neutralization. Calculated on the basis of a value for refined oil of 950 USD/ton

## Degumming with Lecitase<sup>®</sup> Ultra

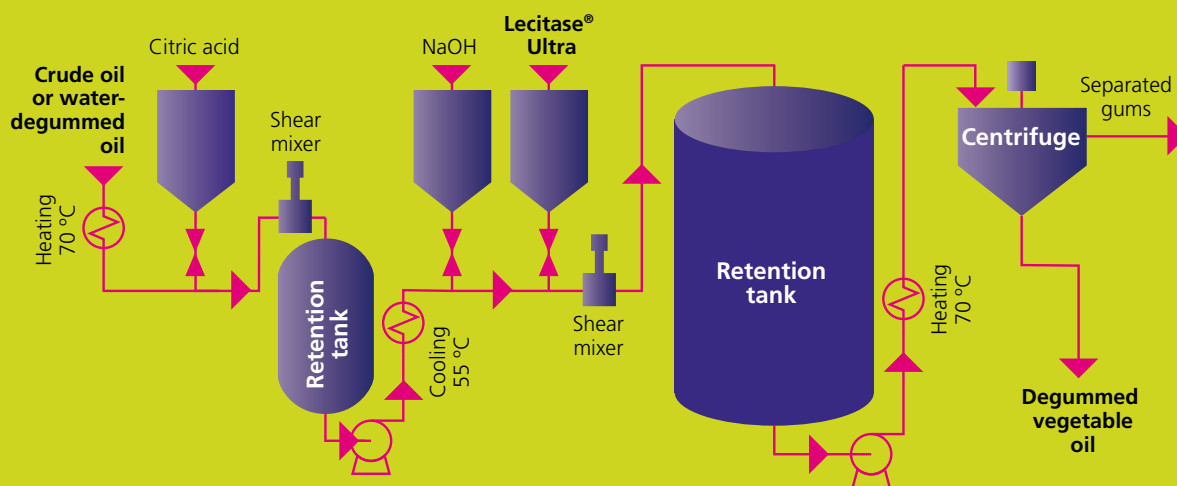


Fig. 2. The degumming process using Lecitase<sup>®</sup> Ultra.

For more information, or for more office addresses, visit [www.novozymes.com](http://www.novozymes.com)

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